

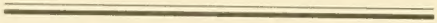
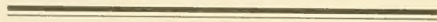
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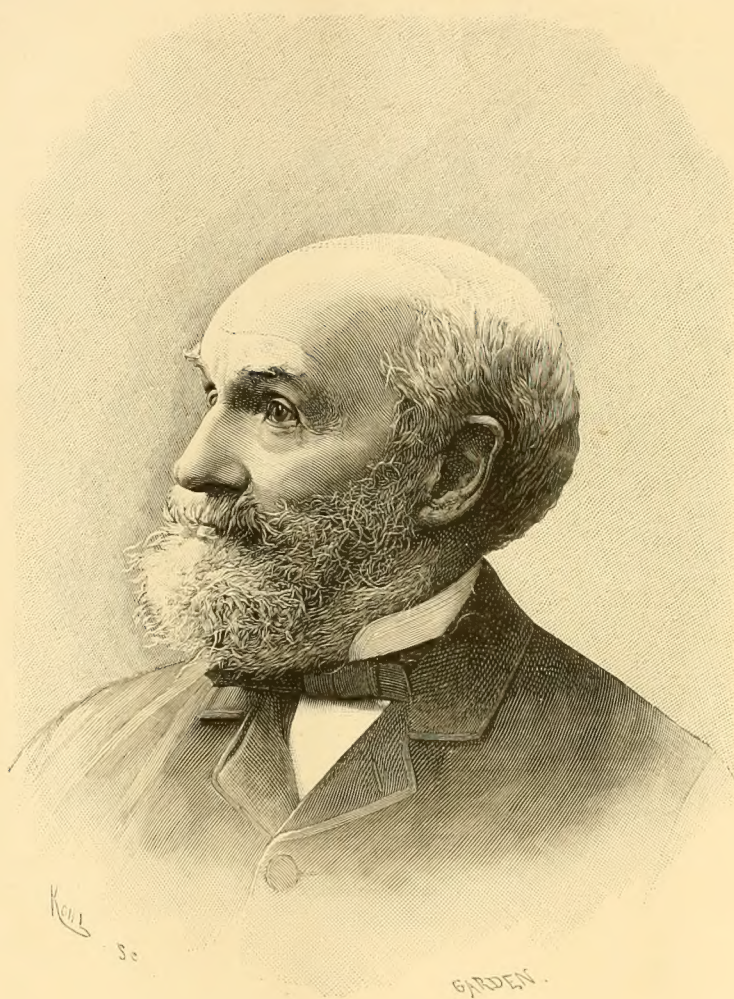
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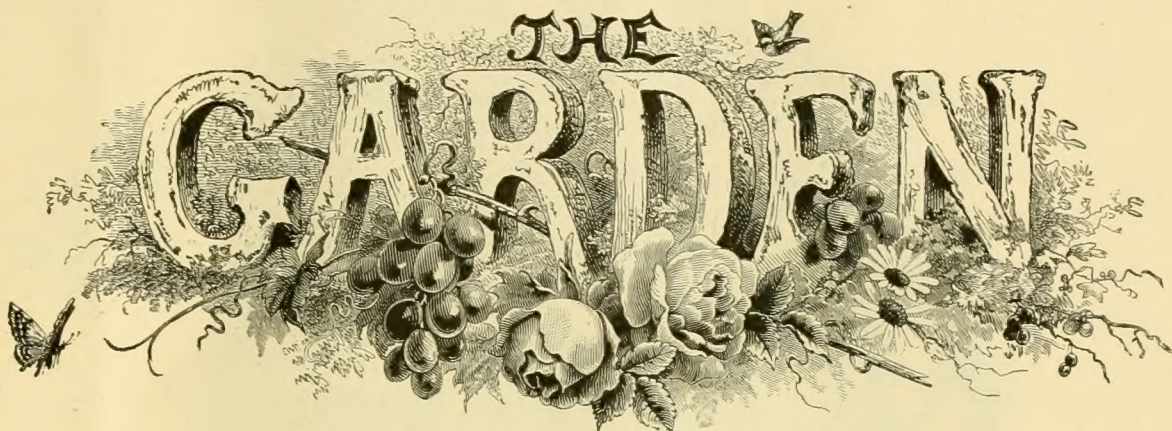
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[THE GARDEN.



JOHN BAIN.



AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

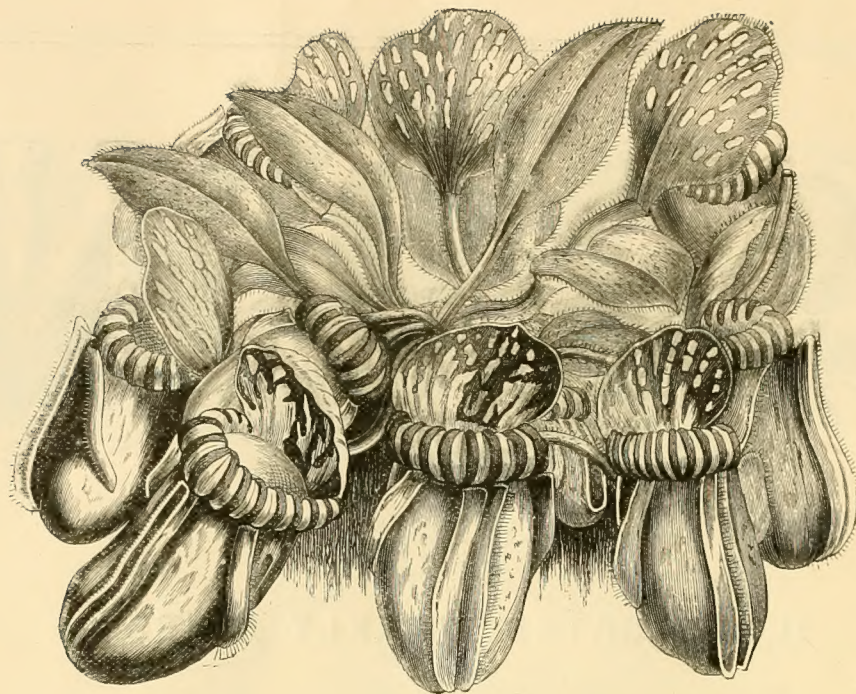
"You see, sweet maid, we marry
A gentler scion to the wildest stock;
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature,—change it rather: but
The art itself is nature."

Shakespeare.

VOL. XXXV.—MIDSUMMER, 1889.

LONDON:

OFFICE: 37, SOUTHAMPTON STREET, COVENT GARDEN, W.C.



TO

JOHN BAIN,

FOR OVER FIFTY YEARS OF THE COLLEGE BOTANIC GARDENS, DUBLIN,

THE THIRTY-FIFTH VOLUME OF "THE GARDEN"

Is dedicated.

C
Per
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W. R., June 26, 1889.

v. 35



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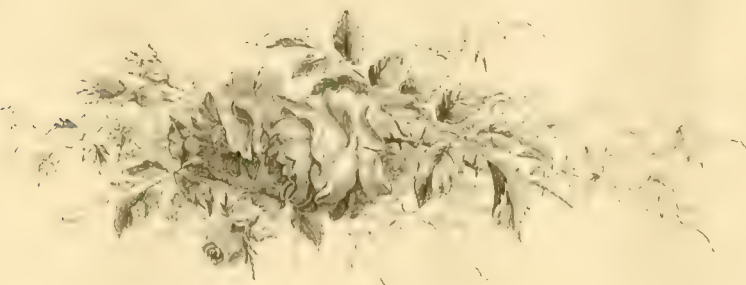
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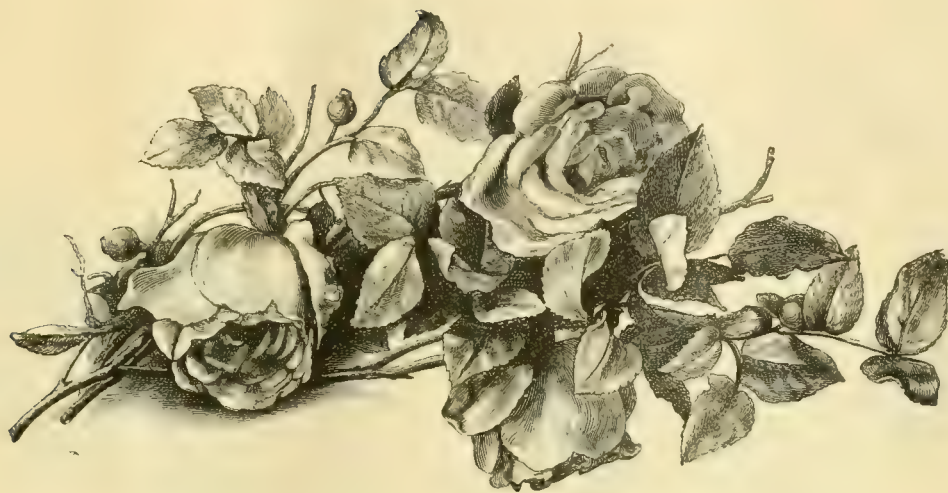
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THE GARDEN.

VOL. XXXV.

THE HORTICULTURAL SOCIETY.

As an old F.R.H.S. I was much pleased with your leader of the 15th ult. on the Royal Horticultural Society and Kew. It carries conviction to the minds of most people, and should also to those most commented on, viz., the Kew and trade members of the Royal Horticultural Society's council. There is little doubt that these two elements should be eliminated from the management, as although both Kew and traders are useful as occasional exhibitors of their specialties, yet the advantages gained by the Royal Horticultural Society are more than counterbalanced by the official, although possibly scientific, methods of the Kew element on the council on one hand, and on the other by the jealousy created in the horticultural trade world by the belief, doubtless exaggerated, that undue influence is used and advantage gained by nurserymen being members of council.

There is no doubt that the seats on the council should be occupied by men of social position, horticultural knowledge, business habits and liberal ideas. There are some members of the council who possess these advantages and attributes, but new blood is required in order to strengthen its *personnel*. Whilst on this topic, I may refer to a recent attack made on the society's President, and I have little doubt that the Fellows will appreciate at its true value such undeserved condemnation of one who has proved by his generosity and the time he has given to the society's affairs how deep an interest he takes in its welfare.

The society is now being mainly managed on economical principles, and nearly all questions are in consequence subordinated to that of expense. This can hardly be called a broad or business-like way to manage an important society, as without enterprise no society nor business ever did or can flourish.

One reason for the necessity of economy is

the want of Fellows, and the council or their committees are partly to blame for this want. No encouragement is given to amateurs to exhibit. Their fruit and flowers, unless shown on a large scale, as those of nurserymen, are hardly noticed, unless specially sent for certification, and usually a worthless "vote of thanks," conveying no honour, is conferred on what may be an exhibit of great merit, although shown on a small scale.

The council should change this system, cordially invite amateurs, small as well as large, to co-operate; infuse a spirit of generous rivalry amongst the countless lovers and growers of fruit and flowers living within a radius of London easy of approach, and thereby make hundreds take an interest in the success of the Royal Horticultural Society and its meetings. Without this interest being encouraged, and a steady accession of Fellows thereby gained from the metropolitan district, the Royal Horticultural Society, I fear, must gradually decay, and the present system of management will alone be responsible for its decadence and ultimate, even if gradual, extinction.

F. R. H. S.

THE SCIENTIFIC COMMITTEE OF THE ROYAL HORTICULTURAL SOCIETY.

In reply to "The Sawmill Man," I would observe that he, as well as a previous writer in *THE GARDEN*, appears to misconceive both the functions of the scientific committee and the objects of science. The practical man has often an opportunity of discovering many facts which the scientific man cannot, and which he would be glad to know. On the other hand, there are many scientific facts which would be invaluable to the practical man if he only knew them. Indeed, again and again has the latter taken advantage of scientific discoveries when they could be turned to account and were found to have a monetary value. It is a mistake to assume a spirit of antagonism (which, I may add, is all on one side). What we ask for is co-operation. Scientific experts on the committee are willing to give their time and trouble gratuitously to solve any difficulty that may arise in the operations of the practical man. They are not florists, agri-

culturists, nor saw-millers, nor engaged in any other practical work, and they do not profess to be familiar with such. Their sole wish is to aid the horticulturist to the best of their power. Take the case in point. A carriage manufacturer finds the wood supplied him for wheel-spokes useless. He cannot—not being a saw-miller—discover anything visibly wrong with the wood. He trusted to the timber merchant or saw-miller, or whoever the party may be who undertook to supply him with the genuine article. To discover whether the breakage may not have been due to fungi or decay from some other cause, it was referred to Professor Marshall Ward, who is an expert in vegetable anatomy, but not in saw-milling or carriage-building. The Professor willingly and gratuitously gave a scientific description of the anatomical structure of the wood and discovered no fungi. It was not in his power to tell the age of the piece of wood sent to him. But it is just that which the saw-miller says he can do, and apparently he alone—not even the carriage-builder—could solve the difficulty. Why, then, did he not at once give his valuable information as freely and courteously as Professor Ward? There is nothing "sad" about the fact that the Professor—not being a saw-miller—could not discover the importance of the age of the wood for wheel-spokes. Surely it is sadder to hear that, although certain persons do know the difference between sound wood and wood practically useless for wheel-spokes, they should have provided a carriage manufacturer with a large stock of worthless material for that purpose! The scientific committee may be regarded as a consulting body. We invite not only horticulturists, but anyone to communicate with us who has met with a difficulty, or other unusual fact connected with plant life. Many such have no practical outcome at all, but they may be very instructive from a scientific point of view. Whatever matter may be sent, it shall be carefully investigated by an expert, who will give the best opinion that can be had. It is then for the practical man to experimentise and utilise as far as he can the scientific knowledge furnished by the committee. Let practical men think what science has done for them in the past. It was entirely due to the scientific discovery of the sexes of plants that horticulturists are now enabled to improve their flowers and vegetables. It was the scientific investigation into the laws of growth and the constituents of plant structure that suggested the use of mineral manures, and enabled the farmer to abolish fallowing and substituted the rotation of crops. In scores of ways has the practical man profited by the slow and arduous toil of the scientist; and, I repeat, the sole object

of the committee is to help still further anyone who will communicate with it, and to solve any difficulty if it be possible to do so.—GEORGE HENSLOW, *Hon. Sec. Scientific Committee.*

“We dissent from the above view in some respects. Great harm has been done by the misuse of the terms “scientific” and “practical.” In philosophical writings it is laid down that there is no real distinction between “science” and “practice.” There is no difference in kind in human knowledge, though there is infinite difference in degree. The mistake made by Mr. Henslow is the use of the terms “science” and “practice” as if they were opposite terms. “Let,” he says, “practical men think what science has done for them in the past.” Let, we say, the self-styled scientific men of the present day think what cultivators have done for human knowledge in the past! It is quite a modern habit this of any body of men laying claim to the ownership of “science” (=knowledge). The idea that we owe our practice of rotation of crops to this school is too absurd! In the Naples museum the spades and other garden implements in use by the Roman cultivators about 2000 years ago may be seen, the decayed wooden handles in them saved so long by the dried volcanic mud that covered Pompeii. The same kind of implements are in use in Italy now. This is proof, if proof were wanted, of the vast age of man’s knowledge of agriculture. Look at the many races of animals developed in our own and other countries; the precious fruits of which we do not know the origin, so far back in past ages were they originated; see the Vine pictured in stone in the Assyrian room in the British Museum—look, in short, at the plain facts of agriculture and gardening in old countries, and then we see the value of the claims that we owe our practice of rotation “to scientific investigation into the laws of growth”! It should not be necessary to say here that *these laws are not known yet*, and that of such an apparently simple thing as the flow of the sap there is no clear and accepted explanation! The things laid down in Lindley and other text-books, in our own day even, are now declared to be wrong. The functions of the largest organ in the human body are not known, though men have been dissecting and observing that body for thousands of years. This case is worth noting, because man in studying himself has advantages he cannot have in any other case, as he can ask himself and his fellows questions. In the face of such facts how can anyone say that we owe the principles of our cultivation to any but the true source—the observation of the workers themselves? If we should ever know all about the life of plants or animals, it would, no doubt, be an immense gain to the culture of plants and the nutrition of animals. All who work to that end should have our thanks and encouragement.

Mr. Huxley explains the word “science” as “organised common sense.” Neither he nor any thinking man would exclude from that the vast (and to human kind precious) knowledge of the fields and gardens of the world gathered by many generations of men of all ranks, to which, indeed, we owe our prosperity and very existence. We repeat, that the application of the term “scientific” to a body of men, apart from those who pursue horticulture for pleasure or profit, is wrong and illogical. It is not courteous to the country gentlemen, the clergy, and professional men, many of whom are excellent gardeners and keen observers; to the intelligent class of gardeners, florists, and cultivators. If it were made clear to all these and to everyone that science is not the possession of any one class, but that the simplest worker might add to its stores, certainly greater progress would be made. But this is almost hopeless now, owing to the confusion caused by so-called scientific men misusing the terms “theory and practice,” “science and practice,” and so on; and the secretary of a scientific committee speaks as if the practical man and the scientific were necessarily distinct!

This new practice of ensilage is very instructive in this way. From our own trials in the simplest way, without mechanism of any kind, during the past wet summer, and from much other evidence

we think this is the greatest improvement effected in farming within the memory of man. When this method was introduced it was condemned by the two leading scientific agriculturists in England, Professor Voelcker and Sir J. B. Lawes. This invaluable practice, which for ever saves the harvest of the meadows from the dunghill in wet weather, was originated among farmers. As a matter of fact, almost all the useful knowledge we have has come to us through workers themselves.—W. R.

FRUIT GARDEN.

W. COLEMAN.

FRUIT IN 1888.

EXPRESS speed to the vigorous, active mind, no doubt, is delightful travelling, and, notwithstanding the fact that horticulturists have had a most tantalising and depressing season to contend with, there is no question that the pomological coach during the past year has made considerable progress. This, no doubt, is patent to all readers of the gardening papers, which have chronicled every stage and will continue the good work so long as gardeners stand manfully to their posts in the dual battle with the elements and foreign competitors. As growers of hothouse fruits, including Strawberries, in March, Peaches in May, and Grapes all the year round, although Pluvius threatens a deluge and Sol deserts them for weeks together, they can defy the world, a fair proof that they are made of the right sort of stuff for doing battle with short-sighted railway companies and avaricious salesmen, and will eventually succeed in producing hardy fruits in every respect equal to those imported in such enormous quantities from abroad. Contributors to the pages of THE GARDEN for some years past have contended that our soil and climate, treacherous as the latter is, are capable of producing Apples equal in appearance and superior in quality to the dry, chippy samples brought from the colonies, where too much heat and drought exhaust their fresh juiciness so acceptable in our own well-grown Blenheims and Cox’s Orange Pippins. In quantity, as a matter of course, the colonists beat us, but those who can find time to look back only one short year will bear us out in the assertion that we are making considerable progress, for have we not learned that the demand exists, and buyers are ready to take any quantity of good fruit at paying prices. So loud indeed has been the cry, that producers at the Crystal Palace, dear old Chiswick, and a hundred places of minor note have shown that they can rise to the occasion in a sunless summer, whilst nurserymen have proved that the millions of trees they have on hand, worked on Doucin and other stocks, when planted on good ground are bound to give satisfaction. Fruit growers’ associations are springing up in various parts of the country, landlords at last are becoming mindful of their own interests, and last, but not least, the Royal Horticultural Society has shown its anxiety to pin its reputation on hardy fruits as well as Orchids.

This society, once so powerful and useful, after wasting much precious time and money in catering for the infantile population of the neighbourhood, within the past year has left South Kensington and taken refuge in a depressing drill-shed at Westminster. There, almost deserted by Pomona and Flora, by all, indeed, save a few advertising members of the trade, the non-horticultural members of the council have made two very important discoveries. They have discovered that fashion will not follow them; and further, that the country, horticultural to the backbone, is ready to sub-

scribe thousands of guineas and half-guineas annually, provided they seek rest for the soles of their feet on that remaining strip of ground at Chiswick. A great number of gentlemen and ladies, and not a few gardeners, have recently become subscribers, and more are waiting to follow suit, so soon as a respectable room is secured for the weekly West-end meetings, and the restoration of Chiswick for the larger shows, horticultural trials, and training is decided upon. Here we have signs of an awakening; let us hope, then, that the society, like fruit growers for the million, will prove equal to the great work expected from it, and that a brighter era for each will start from the year we have just left behind us.

Yet one more look into the past. What are private individuals doing for the horticultural world? Well, some are teaching us to annihilate canker in fruit trees, by giving them proper food in proper quantities, by draining, and by keeping their roots warm and healthy. Entomologists are making the masses acquainted with the ways and doings of insects which prey upon our plants and fruits; and actually, in the year of grace 1888, we heard of farmers applying ligatures of brown paper, smeared with grease and tar, to the stems of their Apple trees to prevent the ascent of the wingless female moths, whose brood so recently literally stripped half the orchards throughout the kingdom.

Hybridists have added nothing striking to our hothouse or hardy fruits, and this perhaps is well, for until they can give us something better than the varieties we already have, they may be better employed in assisting us in the reduction of fat lists which bewilder the private grower and do more harm than good to the trade. A sign of the work commenced by THE GARDEN was plainly visible at Chiswick in October when choice selections of Apples and Pears took the place of collections and the nomenclature had greatly improved. This weeding out must be closely followed up, as there exists not a shadow of doubt that we might add greatly to our wealth, credit, and enjoyment by discarding the inferior and increasing the superior varieties of every species of fruit grown in our gardens and hothouses. Last, but not least, the good housewife will mark the past as a red-letter year by the introduction to all country towns of bottled fruits, if not entirely innocent of foreign saccharine matter, certainly sufficiently free to enable their being taken in tarts and puddings without fear of acidity or indigestion. Common fruits, including Gooseberries, Currants, Raspberries, Plums, and Cherries, can now be preserved with about one-sixth of their weight of sugar; consequently, whilst relieving growers of gluts, enterprising men are now giving the most humble housekeeper the materials for making cheap wholesome dishes, reminding one of freshly gathered fruit throughout the winter. Visitors to the early international exhibitions made note of the tempting bottled fruits from America and the Continent, but until within the past year these articles of home growth have not appeared in small country shop windows. We might go on to still greater length, but surely these notes will brighten our hopes as we turn round to face the future, and although all may not be gold that glitters, we may reasonably trust that we are now entering upon a still brighter and more prosperous year.

Duchesse d’Angouleme Pear.—Mr. Bunyard and Mr. Wildsmith both speak of this Pear as “gritty,” but include it in their selections! This shows the erroneous way in which lists of Pears are made up for England. In Western France it is the best of autumn Pears, but it should not be included

among English Pears at all. This muddling up of Pears that are A1 in warmer countries and no good in England is one of the causes of our empty fruit rooms. Can anyone say where the Duchesse attains its fine delicate quality in England? If not, why retain it?—R.

APPLE GROWING AT POWDERHAM.

IN the kitchen gardens at Powderham Castle, near Exeter, there is to be seen a remarkably well grown lot of pyramid Apple trees. Out of the 300 trees grown, not more than six are imperfect specimens, and with very few exceptions all have attained a profitable size. Each tree has been allowed plenty of space, and crowding of the branches is also carefully avoided. Altogether there is a collection of 100 varieties, and as these are all distributed alongside the principal walks, a much better opportunity is afforded for making a limited selection than any number of fruit shows could possibly present. Mr. D. C. Powell, the gardener at this place, is an enthusiast in Apple culture, and is so thoroughly conversant with all the good and bad qualities of Apples and various other hardy fruits, that his experience is worth recording. Were he to plant a similar number of trees with the aim of growing principally for sale, fewer varieties would be selected, but he is by no means in favour of going to the other extreme and making a too limited selection. Nor does he believe in growing Apples on the dwarfing or Paradise stock, but prefers to plant fewer trees, the majority of which are on the more vigorous Crab stock. These certainly, in some instances, need to be root-pruned now and again in order to induce fruitfulness, but those on the dwarfing stock require the most labour expended on them in the long run, and do not produce more than a tenth part of the weight of fruit obtained from finer, healthier trees. I was much struck with the quality of the crops at Powderham, as well as the fine foliage and general fruitful character of the trees, and this satisfactory state of affairs was said to be largely due to the free use of decaying vegetable matter by way of top-dressings. Every autumn and winter a very large heap of leaves, sweepings, road trimmings, and any rubbish that will decay quickly is formed, and this being well mixed and built up squarely and evenly is first utilised for growing a quantity of Vegetable Marrows. During the following winter the whole of this heap is applied as a top-dressing to the fruit trees, and probably nothing better could be used. A mulching of such material appears to keep the roots near the surface where they form abundance of fibre, and when trees are in this condition below ground they invariably form sturdy, fruitful top-growth. Such mulchings have been found more beneficial to Vine and Peach borders both under glass and in the open, nothing more quickly attracting the roots to the surface. It should be added that the soil at Powderham is a red gravelly loam and well drained.

The favourite and most profitable dessert Apples are Mr. Gladstone, this being rather small, showy, and early; Irish Peach, which forms a handsome, fruitful pyramid, early, and good in quality; Red Astrachan, early and richly coloured; Worcester Pearmain, one of the most showy Apples in cultivation, and of fairly good quality in October, does well on the Crab, but colours better on the Paradise stock; King of the Pippins, tree handsome and very prolific, quality of fruit good during October and November; Margil, good bearer, keeps well, and is of good quality; Fearn's Pippin, very handsome fruit of medium size, and keeps good till February; Gravenstein forms a beautiful tree, a good bearer, the fruit being very pretty, and keeping good from October till the end of November; Cox's Orange Pippin, a general favourite, probably the most popular variety in cultivation; Adams' Pearmain, a sure bearer, fruit large, handsome, and good from November to the end of January; Claygate Pearmain, moderately vigorous and a sure bearer, fruit of medium size, and of excellent quality during November, keeping well; Ribston Pippin, an old favourite, does not canker at Powderham, this also

being attributed to the mulchings given; Court Pendu Plat, of stiff growth, not very prolific, but handsome and good, keeping from December to April; Cornish Aromatic, one of the best varieties during October and to the end of the year; Baumann's Red Reinette, heavy cropper, very handsome and good, in season from November to the spring; Ross Nonpareil, good in every respect, ripe during November, and keeps well; Braddick's Nonpareil, rather slender growth, sure bearer, fruit medium size, and of excellent quality from November to April; Cockle Pippin, one of the best late varieties, in season from January to April inclusive; Rosemary Russet, not often met with, but considered by Mr. Powell to be one of the best dessert Apples grown, quality very good, the season extending from November to February; Lord Burghley, also exceptionally good and deserving of more general culture, a heavy cropper, of attractive appearance, quality first-class, and is available from December to the end of April; and Sturmer Pippin, a good bearer, and of fairly good quality as late as June.

The foregoing are essentially dessert Apples, but there are a considerable number cultivated at Powderham that are available for either dessert or cooking. The best of these are Duchess of Oldenburg, a sure bearer, very handsome, but somewhat acid, ripe in August and September; Golden Ducat, of stiff growth and very fruitful, in season during November and the early part of December; Emperor Alexander, a good cropper, fruit handsome and fairly good in quality, ripe in October and keeps to December; Blenheim Pippin, stiff growth, young trees shy bearing, fruit large, handsome, and of first-class quality, ripe in November and keeps to the end of January; Peasgood's Nonpareil forms a good pyramid, very prolific, fruit frequently extra large, handsome and good in quality, ripe in November or earlier, and keeps till late in the year; London Pippin, a good cropper, fruit of good quality and in season from November to April; Annie Elizabeth, a sure bearer, and of fairly good quality till late in the spring; Lemon Pippin, a good cropper, and in season from November to March; Lady Henniker does not form a good tree, but crops well, and is fit for use during November and keeps to February; and Dredge's Fame, a heavy cropper and of good quality from November to April.

Among cooking varieties the most generally reliable are Keswick Codlin, a well-known early and most profitable Apple; Lord Suffield, a sure bearer and may be described as an extra fine form of the preceding; Stirling Castle, a good early variety; Jolly Beggar, very heavy cropper and fairly good in quality during September and October; Golden Noble, a handsome and good Apple, in season from October to December; Waltham Abbey Seedling, very prolific and keeps good to December; Lord Grosvenor rarely fails, fruit large, and keeps to November; Cellini—this fails completely on the Paradise stock, but on the Crab is fairly robust, is a sure bearer, fruit handsome and in season during October; Hawthornden, very fruitful, no canker apparent, in season during October and to the end of November, or it can be used much earlier; Ecklinville, of free growth, very productive, and in season from October to January; Beauty of Kent, growth vigorous and fruitful, fruit large, handsome, and good from October to the end of January, an exceptionally good variety; Cox's Pomona, habit good, productive, fruit handsome, and available during October and the early part of November; Kentish Pippin, a free bearer, and in season from October to January; Loddington, an exceptionally free-bearing variety, and of slow growth in consequence, fruit of good size, and fit for use from October to January; Mère de Ménage, in season at the same time as the last named, highly coloured and serviceable; Tom Putt, an old favourite, very prolific, of most attractive appearance, and should be largely grown for the markets, in season from October to the end of December; Lane's Prince Albert, of moderate growth, extra free-bearing, and may be used from October to February, strongly recommended for orchard as

well as garden culture; Small's Admirable, a sure bearer, fruit of large size, and good in November, keeping to January; Warner's King forms a handsome tree, a good cropper, fruit large and well formed, and good till mid-winter, one of the best; Wadhurst Pippin, large and handsome, in season from October to February; Galloway Pippin, a very profitable Apple, keeps well; Frogmore Prolific, very fruitful, and is available from October to the end of December; Tower of Glamis, growth sturdy, good cropper, fruit good from November to February; Bedfordshire Foundling, a good late variety, in season from November to March; Brabant Bellefleur, very free-bearing, and much esteemed for late use, keeps good to April; Winter Majetin, excellent for the latest supplies, as it keeps to May; Dumelow's Seedling or Wellington, a great favourite, and one of the most profitable varieties in cultivation, keeps to April; and Norfolk Beaufin, the best for the very latest use, being available to June.

W. I.

TRAINING THE FIG.

THE Fig is peculiar in its mode of fruiting and exceedingly prolific when the right treatment is bestowed upon it. Of the various details attending its culture in this country, training in its several phases constitutes one of the foremost points. No difficulty is experienced in getting it to grow, as in this respect it is free beyond measure and very accommodating as to position. This is not, however, all that is desired, and if luscious fruit cannot be had yearly, a broad expanse of handsome foliage will not avail much. Many people, who profess to have a great aversion to green Figs, have exclaimed upon tasting a fruit properly developed and quite ripe, how delicious! from which I have been led to the conclusion that the examples they had previously eaten lacked many of the essentials of a good Fig. This may be accounted for in several ways. It is well known to be a fruit very difficult of transit—none more so, and for this reason it must be picked in an under-ripe condition, thus losing materially in flavour compared with fruit allowed to ripen upon the tree and eaten soon after being gathered. Being a native of sunny climes, the Fig enjoys a good amount of heat, and yet the fruits are better when not exposed to the direct rays of the sun. Its ample leafage provides this shade naturally; therefore this point should not be lost sight of during its cultivation. Some fruits, the Peach and Nectarine, for instance, are much improved by exposure, good cultivators considering it time well spent in bringing every fruit fully into the light. Not so, however, the Fig, the finest fruits of which are to be found where they receive the rays of the sun in a subdued degree. The main point, then, to be studied in the operations of training should be to regulate the branches and shoots in such a manner that, while receiving sufficient light to produce short-jointed, well-ripened growth, the fruit is not unduly exposed, nor, on the other hand, enveloped in too dense a shade. The latter, from the luxuriant habit of the plant, is the most likely to take place under restriction. I do not say it can be avoided by the operations of training alone; the roots, in conjunction, must be looked after, but as I am now only concerned with the training, I will confine my remarks to the branches.

Several forms of structures are adapted to the cultivation of the Fig, of which I will first notice the span-roofed house, with a pathway in the centre. The kind of tree I should recommend for this house is that grown in the bush form, as it is adapted for trees growing in pots or planted out in narrow confined borders. Plants for training in this shape should be on clean single stems of a foot or 18 inches in

height, all the incipient buds having been previously removed from the base as a preventive against suckering. Having secured from four to six shoots at the above height, train them outwards equi-distant in a slightly oblique direction. When about a foot in length remove the points of each shoot, which will cause them to branch out, then select two of the strongest breaks from each shoot, removing the others, and train them so as to form the foundation of a round-headed bush. The size to which the plant will attain during the first year depends upon the amount of heat applied. If started at the beginning of the year, and given a stove temperature after having burst into leaf, bushes from 3 feet to 4 feet through can be produced by the month of August, when more air and less moisture must be given to promote ripening of the growth. In the following year a moderate crop of fruit may safely be taken from the trees, forcing to any extent, however, being better deferred until another season. The beginning of February is a very good time for making a start, the house having previously been cleaned, the trees washed with warm soap and water and tied; this operation now consisting of tying out the branches evenly to stakes. Those made of iron about the thickness of one's finger, and having three prongs at the base for driving into the ground are the best, as they will last for many years, whilst those of wood have to be renewed every season.

On the first signs of activity the embryo fruits will be observed swelling towards the end of last year's shoots, and these will constitute the crop of fruit for this season. Shoots, which may be allowed to grow until four or five leaves are formed, when the point of each shoot should be pinched, causing it to branch out again, will also start at the same time. Select two or three of the strongest shoots and train them in the same manner as before, removing the weak and superfluous ones. At this stage the fruits must be thinned to two upon each shoot. Other fruits will form and commence swelling upon the current season's growth, but these are better removed, thereby contributing towards maturing the growth early and also strengthening the young trees, which by the end of the season will have grown to a good size, capable of perfecting two crops of fruit the following year. Training must still follow upon the same lines as before until the allotted space is filled, when some of the strongest shoots and those which are becoming long and bare must be shortened back each year. By so doing incipient buds will break, and maintain the requisite amount of bearing wood without greatly increasing the size of the trees. My reason for advocating this form and system of training is because a more equal distribution of light and air is obtained both for foliage and fruit, and which has the effect of greatly improving the quality of the latter. The trees, too, are more easily managed in respect to keeping them well furnished with bearing wood throughout.

The position I would assign to the trees in a lean-to house would be the back wall, which should be utilised to its full extent, occupying the front of the house with bush trees, where space permitted, without shading those at the back. The form of tree known as fan-shaped is perhaps most suited for walls. In starting with young trees on clean stems, train the shoots 1 foot apart, surplus breaks not required for this purpose being cut back to short spurs—not for the purpose of fruiting, as the Fig cannot be very successfully fruited upon spurs. These spurs, however, will produce a succession of shoots for keeping the body of the tree supplied with fruiting wood.

Weakly spray should at no time be allowed to accumulate. Sufficient stout breaks having been selected, the remainder should be rubbed out so that the energies of the trees may not be wasted upon useless growth. When trained to a trellis under the roof of the house, the fruit, being pendent, does not often obtain enough light to bring out its full flavour. Notwithstanding, fine Figs can be grown in this way if the shoots are trained a good distance apart. At Eastnor, Mr. Coleman, instead of planting the trees at the front of the house, as is usually done, plants at the back, and the trees, having reached the top of the wall, are brought over the pathway and downwards towards the front. The growth produced by training them in this position is particularly short-jointed and the fruits very short-necked, a sure indication of good quality. The back wall, of course, is rendered unproductive when the roof is covered, but instead is occupied with roots, which are encouraged to form by packing sods of turf amongst the branches. This mode of training is carried out in low houses with rather flat roofs, for which it is admirably suited. The principal item of training for trees upon the open walls is keeping the shoots sufficiently thin, as if this is not well attended to it is impossible for the wood to ripen, failing which condition the trees cannot be expected to pass through the winter in security, and in that case no fruit will be forthcoming the following year.

A. BARKER.

STANDARD APPLES FOR BRITAIN.

1. ALFRISTON.
2. BESS POOL (NEW).
3. BLENHEIM ORANGE.
4. BRAMLEY'S.
5. CLAYGATE PEARMAN.
6. COX'S ORANGE PIPPIN.
7. DUTCH MIGNONNE.
8. FLANDERS PIPPIN.
9. LANE'S PRINCE ALBERT.
10. MERE DE MENAGE.
11. NORTHERN GREENING.
12. REINETTE GRISE.
13. RIBSTON PIPPIN.
14. STONE'S.
15. STURMER PIPPIN.
16. WELLINGTON.
17. WINTER QUEENING.

Early Apples.—Carrle Codlin, Keswick Codlin, Lord Suffield, Duchess of Oldenburg, Devonshire Quarrenden, Irish Peach, Oslin, Early Margaret.

Fine-flowered Apples.—Emperor Alexander, Hawthornden, Lord Suffield, Hambledon Deux Ans, Blenheim Orange, Court Pendu Plat, Orange Goff, Kirke's Incomparable, Sharp's.

Cider Apples.—Fox-whelp, Garter Apple, Woodcock, Redstreak, Underleaf, Cowarne Red, Best Bache, Skyrme's Kernel, Forest Styre, Dymock Red, Joby Crab, Styre Wilding, Eggleston Styre, Royal Wilding, Black Wilding, Pym Square, Mumm's Red, Bran Rose, Red Styre, Tremlett's Bitter, Ellis's Bitter, Slack-mygirdle, Pound Apple or Sweet Buckland, Red Cluster, Sweet Albert, Holmcoats Sweet, Cat's-head, Sweet Portugal, Red Bosberry, White Bosberry, Tom Putt, Kingston Black, Greasy.

Little Apples.—Golden Harvey, Pearson's Plate, Beachamwell, Keddleston Pippin, Ashmead's Kernel, Pine Golden Pippin, Pitmaston Pine apple, Lucombe's Pine-apple, Sam Young, Lodgemore Nonpareil.

Brightly-coloured Apples.—Incomparable, Hanwell Soaring, Cox's Pomona, Brabant Bellefleur, Bauman's Red Reinette, Rymer, Red Hollandbury Alexander, Hoary Morning, Tom Putt, Tyler's Kernel, Striped Beaufin, Fourn's Pippin, Cumberland Fillbasket, Duchess of Gloucester, Worcester Pearmain, Cellini, Adams' Pearmain, Scarlet Nonpareil, Red Astrachan, Norfolk Beaufin.

Frontignan Grape.—The Grape I grow under this name is, I feel sure, the true Frontignan, as it is identical both in flower and appearance with the kind

commonly grown in French gardens under that name. As Mr. Sheppard is aware, the Frontignan is a French Grape raised many years ago, and it is as much grown in the north of France, on open walls, as the Sweetwater is, or was, in this country; whereas Josling's St. Albans, so far as I am aware, is not cultivated there. I have been in many gardens in Normandy where the Frontignan was grown on open walls, and rarely saw it free from cracking.—J. C. B.

WORK IN THE HARDY FRUIT GARDEN.

THE last quarter of the past year having been unusually mild and wet, open-air operations upon our heavy soil have been carried on under great difficulties. Indeed, so detrimental to the future working of the fruit tree borders is incessant tramping, that we have allowed bush-pruning to fall into arrears and have kept all hands employed against the walls. Delays which upset the usual routine, no doubt, are tantalising, but still, mindful of the serious effect of the drought of 1887, we can but look upon the steady downpour which is closing the month as a godsend, for which by-and-by we may feel truly thankful. Fortunately, in gardens, large or small, employment for industrious hands can always be found, for when it is too wet for nailing or tying, shreds can be cut, sticks and stakes trimmed and pointed, hook-pegs for the flower garden and Strawberry layering can be formed out of Birch, and new brooms prepared for summer use. Days, again, having been so dangerously mild, we could send men to the north Morello and Plum walls without the slightest compunction, and there the training is pretty well finished, but our home-made soapsuds, with which we wash out old nail-holes and faulty joints, is kept in reserve for application when dry weather favours the drying of the glutinous alkalies upon the branches. Rain in due time, of course, washes the trees and walls, but not until this excellent manurial insecticide has done its work, as we find that trees which at one time produced an annual crop of black fly, and walls verdant with Lichen and Moss are not only free from these parasites, but the first shoots escape the damaging attacks which so often bring the trees to grief. Another important advantage derived from the annual use of soapsuds, especially amongst bush fruits and Apples, is immunity from caterpillar and grub, and, thanks to the soda, complete freedom from canker. Our soil being calcareous and freely dressed with charred refuse early in the spring, the most tender sorts make bright downy shoots well furnished with dark green leaves, while kindred varieties in poor Grass orchards are eaten up with canker and produce, comparatively speaking, third-rate fruit. Taking the calendar, if a running commentary can be called a calendar, alphabetically, the first tree which claims our attention is the precocious

APRICOT,

which upon south walls is swelling its flower-buds alarmingly fast. The rainfall, it is true, has put matters right below the surface of the soil, and there is no longer any fear of dropping from drought, but severe frost, unless it comes quickly, may produce a check which will maim many branches, if it does not cause the most prominent buds to fall. For this there is no help, as premature protection is worse than useless, especially if the weather continues moist and mild. If the trees have not been pruned and nailed in, the borders should be well covered with long litter to prevent treading them into a pasty mass and the work should be proceeded with, but few, I imagine, who take their trees methodically will now be in arrears, especially where the old spurs require thinning. When these operations are brought to a close, the next question will be the mode of protecting the flowers when they begin to expand. A few fortunate individuals can dispense with covering altogether, and others have their curtains working upon iron rods attached to the glass coping, but the masses are obliged to depend upon rough-and-ready materials, including the broad coping board, secured to straight larch poles let into the border a yard from the foot of the wall, with two or three folds of fishing net in front for

catching atmospheric moisture before it reaches the blossoms. The careful gardener, who makes these materials last for a great number of years, will soon be fixing his poles some 6 feet apart, but he will defer putting up his boards and nets until the flowers are ready to open, possibly this year in February. I do not like a February blossom, as the finest flowers generally get some hard hits, whilst those which are later and smaller, although they may set, never give such large, handsome fruit.

APPLES.

The pruning of these we invariably leave till all other fruit trees are finished, a rule by no means imperative, as Apples, like Pears and Plums, may be pruned immediately after the leaves fall. Indeed where American blight or bug is prevalent, I question if early winter is not the best time, as the composing emulsion of soft soap and paraffin or the strong solution of Gishurst can be repeated occasionally through the dead months when strong insecticides are comparatively harmless to the trees and the insects are least active. The bush and pyramidal forms are the best for gardens, and the Doucin stock, neither so strong as the Crab nor so weak as the Paradise, is to be preferred, that is for forming good sized trees which will remain fertile for generations. The English Paradise is now to the front for cordons and smaller trees, which commence bearing the second year after planting, and may be planted quite as closely as Gooseberries and Currants. The proper season for planting having passed by, nothing here can be said upon this head, but mulching, training, and pruning may be carried out whenever the weather is favourable. A florid writer has divided mulches into two parts, the passive and the active. The first is applicable to newly-planted trees, whose roots require protection from the elements, especially during the prevalence of severe frost. The second comes in most useful when the trees are in active growth, swelling up crops of fruit, and the roots persist in forcing their way downward into the cool moist subsoil. The passive mulch may consist of any light substance that will preserve moisture and keep out frost, but the active should be feeding if not stimulating, and heavy enough to stand a good long spell of summer drought. A dozen materials might be named, but for general purposes there is nothing to beat ordinary hotbed or old Mushroom manure. When this is exhausted, and watering is contemplated, stimulants in the form of bone-dust, fish manure, guano, wood ashes, pigeon or fowl's manure, lime and common soda may be sprinkled over the surface and well washed in.

When we come to the training of Apples, it may be well to warn the inexperienced, and the experienced for that matter, against the absurd attempt to twist and contort their trees into fantastic shapes. Nature in our every-day walks gives us most perfect examples of training, and, provided the shoots are judiciously thinned and allowed to extend, they soon become complete cordons of healthy spur-wood. The shoots of upright growers, it is true, may be drawn down to give them a horizontal set, and some may require separating to prevent crowding in one part and a paucity in another, but beyond these attempts at training Nature may safely be left to form most perfect living pictures.

Pruning, again, has been sadly abused in the past, not that anyone, including the high-and-dry extensionist, can dispense with the knife altogether; but, beyond thinning out and shortening over-luxuriant shoots to preserve the balance, the less trees on dwarfing stocks are pruned the better. "But how," the sceptical believer in steel may say, "am I to prevent my trees from becoming confused masses of shoots and foliage?" Well, the answer to this question lies in a nutshell. Pinch in June, July, and August all side shoots, but so long as the balance is maintained allow the terminal shoots to go; suppress every shoot that is running away with the sap, and revert to the knife if this mode of manipulation does not result in the formation of a profusion of fruit spurs by the end of the year.

PEACHES

having been left to take care of themselves since

they were root-pruned in October, must now be taken in hand without delay. Like the Apricot, they are getting somewhat forward, but, being so thoroughly moist at the root, bud-dropping from fairly ripened shoots need not be anticipated. As wall Peaches do remarkably well here in a low damp situation and never miss giving full crops of fruit, I will give in a few words my management from the first week in January to the opening of the first flower. Men, by the time these remarks appear in print, will have completed the detachment of every tree, great and small. All old shreds and nails (I always nail) will have been roasted or scalded, and the paths will be thickly covered with long stable litter to give a clean, comfortable foothold. Pruning, so far as practicable, having been performed immediately after the fruit was gathered, knife work will consist simply of making rough cuts smooth, and the careful washing of every branch and twig with soapy water will follow. When dry, the trees will be tied in very small sections to light rods, placed in the border 9 inches from the face of the wall. The latter will then receive the annual coat of old red brick wash, composed of quicklime, sulphur, soot, and venetian red, mixed with soap-suds, and winter work will be finished.

Those who anticipate having Peaches ripe in May will now be getting well over the most trying, if not the most difficult, part of their work—gentle excitement into flower without having to reproach themselves with the loss of a large percentage of the buds. A temperature ranging from 40° on cold nights to 50° when mild is quite high enough for the oldest stagers, which will commence swelling their buds about the same time every year, and these buds, I feel constrained to say, should always be found accompanied by a free circulation of fresh air. It is most difficult to get young men to give their attention to a regular system of night ventilation, and yet at this particular period, when some thousands of houses remain open, waiting, as it were, for the order to close, I must say much annoyance might be prevented by giving the trees a fresh cool atmosphere through the night and forcing them forward by day. A moderate rise of 10° to 12° by day of course is imperative, especially when the trees are coming into flower, and a little more, always with air, will do no harm when the sun is shining and the fruit is setting, for after all, fire as we will, rest as we will, ventilate as we will, we cannot get good crops of Peaches without the aid of a flood of light. If anyone doubts this, let him go back one year to the time when the trees in hundreds of succession Peach houses opened and shed their flowers under a leaden sky; let them make inquiry about London, where the houses are enveloped in black fog for days together, and they will endorse my assertion that fresh air and bright sunlight are of the highest importance; whilst close, although by no means high, temperatures are positively injurious in the successful forcing of Peaches. The time, of course, comes when a week or two lost can be redeemed; but here, again, there is a way out of the difficulty, or rather a way of avoiding it. Why not start extra early, allowing a fortnight or so for dealing with contingencies? If the time is not wanted so much the better, as it is always easy, if not decidedly advantageous, to proceed with caution; in other words, to dawdle when the fruit is stoning.

Setting Peaches.—Growers who have succeeded in forcing their trees into a sheet of flower by the first or second week in January do not look to the calendar for instructions as to setting the fruit, but those who have travelled with us from the outset may be glad to receive a few hints upon this important matter. Assuming, then, that bright frosty weather—by no means the worst for forcing—prevails, let 45° form the minimum, 50° the mean night temperature, run up 10° with fire and 15° with sun heat; give the trees a constant circulation of fresh air, carefully avoiding draughts, and discontinue direct syringing. Compensate for the withholding of water from the branches by moistening the stems, walls, and floors two or three times in the course of fine days, and maintain a steady circulation in the hot-water pipes certainly from

dawn till night sets in. Under this treatment all the flowers will open with bold, perfect organs capable of performing their office, most likely without artificial aid, 'but knowing the value of foreign pollen, I would strongly urge the use of the camel's-hair brush or rabbit's tail from day to day until a good set is secured. The middle of the day when the temperature has reached the maximum is the most favourable time, as the pollen then flies off in fine golden showers, and the sap being stimulated by the heat, the application of a single grain to the stigma produces the desired effect. Where Royal George Peach and Elruge Nectarine, two of the best pollen parents, are grown, they should be passed over first, and when the brush is well charged, all shy or delicate varieties like Noblesse should be carefully, but most delicately impregnated, returning from time to time to the male or pollen-producers as the stock becomes exhausted. When the pollen stage has reached its height, a sharp rap on the main branches or springing the wires is a step in the right direction upon which not a few Peach growers depend, whilst others trust to a light dash of spray from the syringe; but considering the uncertainty of our January weather, I question if dry fertilisation until the latest trees begin to drop their petals is not the best and safest method of setting the fruit in early houses. When this stage is reached, syringing, of course, must be resumed, moderately at first, and gradually increased as days become longer and brighter; but at no time, even in summer, should the trees be left dripping with moisture at night-fall. Watering, too, upon the same principle is imperative, for much as the Peach revels in a uniformly moist border, a heavy soaking immediately after the fruit is set is hardly advisable.

W. C.

FLOWER GARDEN.

THE HOLLYHOCK.

THE propagation of the Hollyhock by means of grafting was a method much followed by the Scotch florists some years ago, and they held that it was the most expeditious method of getting up a stock of plants. It was generally performed in the month of March, and the plan adopted was to employ seedlings for the purpose, taking them when the plants were about the thickness of a pencil or stouter, and they were cut down a little below the surface of the pot, taking out some of the soil at the same time. The grafts of any particular variety to be increased were worked upon these seedling stocks, filling up with mould so as to prevent the air getting to the part where the graft was put on. Side grafting was the one adopted, and when these preliminaries were performed the plants were plunged in a gentle bottom-heat, and in two or three weeks they were ready for their first shift. I remember one amateur cultivator stating that he grafted 175 plants in February, and lost but one of them. Thirty-five years ago we used to propagate by grafting at the Royal Nursery, Slough, but only sparingly so. The chief methods of propagation were by means of eyes put in in summer, and cuttings made from the young growths round the base of the old stem obtained in the autumn and spring. It is obvious that if it is desired to increase any particular varieties of Hollyhock, it must be by one of these means.

Eyes were made from the lateral shoots thrown out from the main stem of the plants. They were allowed to remain until they were getting ripe or hardening somewhat, and this was made manifest by their turning a light brown colour. A cut was made just below the leaf axil and the knife passed through about 3 inches above, leaving on about 3 inches of the stalk. A cold frame was made ready for the eyes, a light sandy

compost being mixed for the purpose, and the eyes were pressed firmly into the soil at the depth of $1\frac{1}{2}$ inches or so. The soil was used fairly moist, the frame shut down close, and shaded for a few days when necessary. The eyes that took root sent up a few leaves, and they were then potted off, placed in a cold frame, watered through a fine rose, and kept close for a short time.

I well remember when the disease first put in appearance at Slough. It manifested itself first in a batch of seedlings that would have flowered at the end of the summer, and it appeared as if a firebrand had been thrown among them during the night, burning the leaves and destroying them; then it appeared among the named varieties and spread rapidly, and in order to save the stock all the eyes possible were made, but hundreds of them died by the disease, and then it became almost impossible to grow Hollyhocks in that famous florist's flower nursery. It is a singular circumstance, but a kind of disease affected the Pansy about the same time, and hundreds of plants died, and eventually the cultivation of the named varieties of show Pansies had to be abandoned also.

The Hollyhock should have a fairly stiff clayey loam; if it is very stiff and cold, some fine ballast and chopped-up turf or ashes from a refuse heap will be useful to keep it open. But deep trenching is absolutely necessary previous to planting, and the soil should be moved to the depth of 2 feet, adding a quantity of well decomposed manure. This should be done some time before planting, giving it a fork over previous to planting. But it should be done when the weather is drying. In order to give the plants a chance of doing well, the rows should be 4 feet apart, and the plants at least a yard apart in the lines. It is a good plan, and helpful to the young plants, to place some fine soil from the potting bench about the roots so as to give them a start. In dry localities it is a good plan to plant in trenches, so that drought shall effect them as little as possible. Some persons appear to think that the disease affects the plants more during a hot dry summer than during a wet one; but I have noticed the disease to be more destructive during a moist season than one of an opposite character. Each plant should be carefully staked and protected from being blown about by the wind.

Time was when spikes of Hollyhock made a great feature at flower shows. In the days when Chater, Turner, Paul, Bragg, and others were the leading exhibitors of Hollyhocks, spikes 3 feet and more in length and grandly bloomed were shown in competition. Special coverings were made to protect the spikes from becoming disfigured by bad weather, and the task of conveying them to a place of exhibition was a considerable one. The thinning out of the flowers had to be attended to, and those remaining were so disposed as to have the spike of bloom as symmetrical as possible.

It is not necessary to refer to the value of the Hollyhock for the purposes of garden decoration. When the strain is of good quality and the plants well grown they are objects of stately beauty of no common order. The Hollyhock appears to be rising in the popular estimation. It is also being improved, for which there is urgent necessity, so many of the fine varieties of twenty years ago having become lost.

R. D.

'Carna'ion Surls' Queen.—In answer to "R. V.," page 606 (last volume), there is no error, as the medal is in the highest state of preservation. What makes it most valuable as a work of art

is the remarkably fine engraving taken from a painting of King George II. It is solid silver and weighs over 3 ozs. As regards the age a Carnation will be preserved to cultivation, it would very much depend upon its habit and constitution. Some varieties can be propagated by hundreds, notably one raised here some years since named *Orangeman*; indeed, as I mentioned recently in *THE GARDEN*, I think the variety now known as *Paul Engleheart* has been in many old places throughout Munster for thirty years. I know two ladies who have had it for at least twenty years. One actually paid 2s. 6d. for a plant, I think, last year, to find she had been getting but an old lamp for a new.—W. B. H., *Cork*.

DOUBLE DAISIES.

IN what are ordinarily hot, dry districts, where during the summer Daisies suffer considerably from the heat, these favourite hardy flowers did last season remarkably well, so that plants are beautiful this winter. Double Daisies should make a pleasing show next spring, because the plants are strong and healthy. They were fitted for dividing and replanting early in the autumn, so that now the roots are exceptionally strong, even producing some precocious flowers. We miss the once popular variegated kinds, ordinarily known as *aucubæfolia*, both red and white flowered; not that either were very highly valued for the flowers, but the foliage was pretty and effective during the winter months. These, once so common, have now in many districts become rare, but green plants are always breaking into variegation. The greater the colour in the foliage the less robust the plant. There is little to choose in habit in the Daisy; all kinds are dwarf and compact in growth, and if green-leaved, all are fairly strong growers. We may produce stocks from seed, but it is doubtful whether anything is gained. Now and then a variety of slight diversity is obtained, but rare indeed is it that anything better than any of our old sorts is produced. We have had in ordinary cultivation from a dozen to twenty good double-flowered kinds, but some once plentiful seem to have become scarce or to have died out.

The giant red and white varieties still remain the most in request, the former being quilled and the latter flat-petalled. The quilled section also gives a very deep hue variety, which has smaller flowers, almost crimson in colour, and very striking in a mass. Still, the larger-flowered form seems to be the most in request, for even in double Daisies there is a certain passion for size of flower. All the crown-flowered kinds, if they flowered more freely and earlier, would be more grown, as the blooms are so large. As it is, they do not meet with much favour. The prettiest intermediate forms are those which are pink, or are red and white mottled, giving a pinkish hue. The prettiest pink colour is found in the flat-petalled varieties, whilst the mottled hues occur chiefly in the quilled flowers. Some of the smaller flowered white varieties are wonderfully free, but the flowers are apt to become tinged with pink as they decay, thus detracting from their value in massing. Very few hardy plants make better carpets for bulbs, especially Tulips, Hyacinths, and Narcissi, than do the white and red giant Daisies, as their hues may be easily matched by the flowers of the bulbs. A cool border is an essential nursery for the Daisies in hot weather, but those are, as a rule, best off who, having ample stock, have plenty of young plants dibbled out to stand the summer and become fully established by the spring, so that the old plants which have to be transplanted from the beds may not of necessity be retained. Division may in good cool soil take place in August and again early in November, the double transplanting enabling stock to be rapidly increased. A. D.

Carnations dying.—I enclose a specimen of a Carnation infested with maggots and shall be glad if you can inform me as to the cause of or whether there is any remedy for it.—E. B. L.

* * The plants have been seriously injured by the attack of a maggot allied to that which is destructive

to Celery. Dusting the leaves with soot might have the effect of preventing the moth from depositing its eggs in the leaves. When the small maggots emerge from the eggs and begin their work of destruction, they are effectually protected by the outer covering of the leaves, so that no composition of a destructive character could reach them. It is easy to see where the pests are at work, and they may be crushed by pressure with the fingers. I have grown hundreds of Carnations annually, and do not remember seeing it before, nor is it mentioned by any writers on the Carnation and Picotee.—J. D.

Lilium giganteum seed.—An experiment here with the seed of *Lilium giganteum* seems worthy of publication. In July a Lily blooming in a bed at Wisley had much richer coloured flowers than I had ever before seen, so I cut the stem and took it up to the Royal Horticultural Society's meeting on the 24th of that month. Some good authorities there were as much struck with the colour as I had been, so I regretted that all the flowers had been cut and chance of seed lost. I brought the stem home, and, as a forlorn hope, set it in a bottle full of water. The seed-pods formed and swelled, and though not as large as usual, some of them were plump. When cold weather came and the pods seemed damping they were cut off, and the ripening process continued. On the 24th of last month I had the pleasure of sowing a fair lot of what appeared to be good seed.—GEORGE F. WILSON.

Iris lævigata.—The greatest enemy that I have to contend with in the culture of this Japanese Iris is thrips, which greatly disfigure the leaves, and cause many of them to shrivel up and die. The situation in which I grow the plants is hot and dry, yet I used to succeed perfectly with the grand varieties of this Iris, which were grown in a sunken bed, and deluged with water during the summer. Three seasons ago, however, a few of the leaves died off prematurely, and an examination thereof revealed the presence of a great number of thrips, which the next season were more numerous, and last summer, despite the wet weather we experienced for so long, had increased to such an extent, that the majority of the plants were affected more or less by them. It seems impossible to eradicate them, as the mischief is done before the leaves expand, the young tender foliage then adpressed together forming a secure retreat for the thrips. Their position is, indeed, so secure, that neither tobacco water nor any other insecticide has any effect upon them, as it is impossible to touch them with it without tearing the plant to pieces. Now they seem to have disappeared, but with the return of summer it is more than probable that they will resume their destructive work. The thrips that play this havoc are the large black ones, and they seem most voracious.—H. P.

Diseased Christmas Roses.—Of late there has been some discussion about diseased Hellebores, and some suggestions were offered as to dealing with this plague. I would, however, rather adhere to the proverb "prevention is better than cure." In their wild haunts Hellebores grow in raw loamy soil among bushes or in shady nooks, and when they occur in sunny places, they are close to a few big stones which protect the fleshy roots and stools from an excess of cold and warmth. The plants do not get any particular nourishment, except a few decaying leaves from the bushes, and are never manured in any way. These plants are collected by reckless dealers, divided, if possible, put up in heaps exposed to air and drying winds, and sent away to the nursery. The nurseryman wishes to keep these Hellebores, and having no loamy soil, puts them in sand, and because the sand is poor he has a cartload of manure added; in fact, everything possible is done to ruin the plants, to make them liable to disease. The plants are received by the amateur, who in his turn thinks to benefit them by planting them in rich manured soil. Perhaps he has no shady corner, and so the Hellebores are put in a sunny quarter. Is it a wonder, then, that such poor plants become weakened and diseased? There are certainly also many thousands of plants raised from seed, but to get

them to form strong plants they are raised in manured soil, their constitution altered, and when they come under less favourable conditions they are quite as open to fungoid attacks as the collected plants. Let anyone whose plants are attacked take them up at the proper time, have the roots cleansed and washed, and replanted in a border which has at least some shade during midday. Let the border be dug out a foot or so, fresh loam put in, and after the plants are in give a good mulching of some half decayed leaves, and afterwards let well alone. In nine cases out of ten the plants will soon recover and the fungus disappear. —MAX LEICHTLIN, *Baden-Baden*.

FLOWER GARDEN NOTES.

THE PAST SEASON.—The unusual weather conditions should be remembered and noted that, if needs be, the notes may be available for future service. In respect of the well-doing of certain plants under adverse weather conditions, I consider that personally I have already profited by having determined that such plants shall be used more largely in preference to others that proved unsatisfactory. I refer more particularly to summer-bedding plants. Hardy flowers, for the most part, were more beautiful, and certainly much longer lasting by reason of the colder weather. It may be remarked by some that we may not have a repetition of last summer's weather; hence it is not desirable to exclude certain tender kinds of plants from next season's arrangements; to which I reply that, glad as I would be to have a real summer, the failure of certain plants last summer was so vexatious, that the risk of failure in the same direction must at any cost be avoided. I note first those plants that proved the least satisfactory, but I would not like it to be understood that I propose their entire exclusion, but only the reduction of them within such limits, that in case the summer does again prove sunless their failure should not be so observable because of their limited numbers. Alternantheras of all kinds proved nearly a total failure. The plants began to look a little respectable about the middle of September. Coleuses were as great a failure as Alternantheras. Iresines did well for the season, but succumbed to the first frost. Heliotropes grew well, but did not flower, and were cut down by the first frost on October 2. Pelargoniums made nothing but leaves, and if any flowers did open the first rain destroyed them, and being so green and full of sap, they were all but killed by the first frost, so that my estimate of bedding Pelargoniums is a very low one. Cactus Dahlias grew away splendidly and flowered moderately well, but want of sun and damp caused the flowers to rot before they were fully expanded, so we must reduce their numbers and grow more single kinds, which were more free-blooming than ever. The only large-growing sub-tropicals—seedling plants—that failed were Wigandias and Solanums. The growth of Abutilons, Castor-oils, Hemp, Tobaccos, Maize, and Cannas was equal to that of former years. Bedding plants that, despite bad weather, did well the season through consisted of all the varieties of tufted Pansies or Violas, Calceolarias aurea floribunda and amplexicaulis. Fuchsias were magnificent; Marguerites and tuberous Begonias the same. Ageratums, Lantanas, and Verbenas were moderately good—I might say very good for the season. The most telling foliage plants were Mesembryanthemum cordifolium variegatum, Gnaphalium lanatum, Leucophyton Brownii, variegated Geranium Lady Plymouth, Kleinia repens, Gold Feather Pyrethrum, and Antennaria tomentosa. Amongst annual flowers, nothing could exceed the continuous flowering of Sweet Peas, Zinnias, Stocks, and Asters, but the wet caused the latter to rot prematurely. From the foregoing faithful record of the behaviour of the various plants in a season so cold and sunless, it is just possible that others besides the writer may gain some slight knowledge likely to be of service in the event of a recurrence of so abnormal a summer.

PRUNING SHRUBS.—From years of practice I have come to regard this work as of the same importance as the pruning of a Vine, not that I mean to say that it is just as necessary as pruning

a Vine, but rather that the results of pruning are, in some degree, as beneficial. The trees on which we have operated for years are a contrast with others not pruned. I instance the Hollies. Those in the pleasure grounds and in the park have been regularly trimmed, either sheared or knifed into form, and are, consequently, thick bushy trees, whilst the unpruned trees of the same age in the adjacent woods are long, bare, straggling specimens, fit for nothing except for use as Christmas decorations. It is the same as regards coniferous trees, particularly those of a straggling habit of growth, such as Pinus excelsa and P. insignis. By shortening back any branches that cause the trees to look lop-sided, a dense even habit of growth is ensured, and, as a matter of course, handsome trees are the result. All our ornamental trees are afforded this attention every year, and we are just now in the midst of the work. To write of pruning Rhododendrons may to some sound very odd, yet it is necessary, if the plants are to be kept in bushy form, that straggling growths should be cut back. That some few flowers may be sacrificed by the operation is a small matter compared to the improved appearance of the plants. Portugal and common Laurels will bear any amount of cutting or clipping. If they do not get it annually they soon get naked at bottom, and consequently unsightly and useless either as ornamental shrubs or as hedges. Upright growing Evergreens, such as Irish Yews, Irish Junipers, and Cypressess of all kinds, require no other cutting than the removal of a strong shoot that sometimes make its appearance; but though not requiring pruning, they need attention in another direction, namely, that of tying in the branches with tar-cord to keep the plants in symmetrical form. Evergreen and, in fact, all descriptions of hedges ought to be clipped hard back annually, and the present is a good time to do the work.

BULBS AND TUBERS.—Tuberous Begonias that were lifted at the end of October, and after having been allowed to get partially dried, were placed closely together in shallow boxes of moderately dry Cocoa fibre, now require to be overhauled for the purpose of removing any that may be decayed, and giving the sound tubers a fresh supply of damp fibre to keep them plump till it is time to start them into growth in frames. Gladiolus roots cannot well be kept too dry, but the place where they are stored should be cool, to prevent them starting into premature growth. Our roots are laid thinly on the shelves of a dry fruit room, together with a quantity of Liliums that are closely packed in slightly moist soil. Anemones and Ranunculuses have wintered well on the same shelves, and these have now been put ready for planting as soon as the ground is sufficiently dry to ensure the work being done well. A quantity of newly imported bulbs of Lilium auratum that are required for late summer and autumn flowering, which it is therefore desirable to keep dormant for the longest possible time, have been laid closely together in shallow boxes with a little Cocoa fibre over them to prevent the bulbs shrivelling, and placed on the floor of a dry cellar. A few bulbs have already been potted, and others will shortly be done, and thus we shall secure a constant succession of flowers.

GENERAL WORK.—Making new and re-gravelling old walks, repairing Box edgings, lightly forking over shrubbery clumps, and giving fresh soil and manure to such plants as require it. Overhauling bedding plants and making note of such as are required in quantity, that propagation may begin at once. To sow Sweet Peas in pots, and which are intended to be planted out soon as the seedlings are 3 inches or 4 inches high. To continue the planting of shrubs whenever mild open weather favours the work. W. WILDSMITH.

Landscape gardening.—The source of the superiority of good landscape gardening lies in the artist's removing from the scene of his operations whatever is hostile to its effect or unsuited to its character; and, by adding only such circumstances as accord with the general expression of the scene,

awakening emotions more full, more simple, and more harmonious.—UVEDALE PRICE, 1796.

—To range the shrubs and small trees so that they may mutually set off the beauties and conceal the blemishes of each other; to aim at no effects which depend on nicety for their effects, and which the soil, the exposure, or the season of the day may destroy; to attend more to the groups than to the individuals; and to consider the whole as a plantation, not as a collection of plants, are the best general rules which can be given concerning them.—THOMAS WHATELY, 1770.

—It cannot be too strongly insisted upon that Nature is to be followed, not spoiled at the expense of labour and ill-employed wealth, not strangely and violently disfigured in the effort to embellish. All gardens cannot be planned after some one pleasing model. The special character of the ground must be regarded. By attending to this we shall be more faithful to Nature, and a greater number of gardens will be beautiful without being servile copies.—W. S. GILPIN, 1832.

FERNS.

JAPANESE TREE FERNS.

I NOTICE a query in THE GARDEN of 13th October (p. 344) regarding the existence of Tree Ferns in Japan. In case none of your readers have already answered the question, it may be interesting to learn that the desire for a species of Tree Fern from Japan that will be hardy in England is not likely to be gratified.

The pieces of Tree Fern stems referred to by him certainly are natives of this country. It must, however, be borne in mind that the islands of Japan embrace many degrees of latitude. Not only that, but owing to their peculiar geographical position the great variation of climate is still further accentuated by their being placed between two extreme and contending climatic influences. The southern shores are bathed by the celebrated Black Stream (Kuro Siwo), a warm current of water affecting the climate in a similar manner to the Gulf Stream on the shores of Great Britain. From the north, again, there are the cold north-westerly winds that come from the frozen Yellow Sea and Behring's Straits, further intensified by the snow-covered mountains of Central Japan itself. The climatic changes are thus very great for even short distances running from the extreme north of Japan to the southernmost part, and having a corresponding effect upon the flora of the country. This fact must be fully borne in mind when treating of plants from Japan. In my own garden, which is about centrally situated between the two extremes mentioned, I even find plants will not flourish with me that grow in mountainous places not 80 miles north. This reminds me that another influence I have omitted to mention is the mountainous character of the country. Some of the ranges are very high, and even in the same latitude many plants that thrive in a wild state in the mountains will fail in the plains.

Referring now more particularly to the Tree Ferns in question, the one your querist inquires after is the Cyathea spinulosa. It is very abundant in the moist ravines of the Rikiu Islands, the most southerly possession of Japan; in fact, halfway between here and the island of Formosa. The climate there is quite tropical; the slightest frost is not known, and the sweltering heat and tropical moisture are not to be equalled in any part of the world. In my garden here these Tree Ferns have to be kept in stoves, the same as you would have to do in England, the climate of this portion of Japan being very similar to that of the southern portion of Great Britain, except that the sun is very much more powerful, the summer prolonged, and the heat and moisture very much greater.

The Acerides japonicum mentioned does not, however, come from so far south as the Ferns, but is found principally on the volcanic islands immediately off the coast of this part of Japan, and in

the centre of the aforesaid warm ocean stream. The pieces of Tree Ferns to which the *Aerides* are attached are imported here by the Japanese nurserymen to establish these Orchids on previous to being sold to the foreigners who export the same. The *Aerides japonicum*, therefore, requires much cooler treatment, and a good rest in a greenhouse during winter will suit it well. Besides Tree Ferns, the Liukiu Islands support a most luxuriant vegetation. The so-called Sago Palm (*Cycas revoluta*) is largely exported from there to Europe, and may be obtained at very moderate prices, and considerable profit, I believe, has accrued on the shipments made by Yokohama plant exporters.

I am sorry to have to dispel the illusions of those looking out for a hardy Tree Fern, but they certainly will not find it coming from Japan. The hardiest Tree Ferns in my experience are undoubtedly *Dicksonia antarctica*, *D. fibrosa*, *Cyathea medullaris*. I have these growing most luxuriantly in my garden all the year round, and they stand all the frost and snow of winter unharmed, and without protection of any kind. The first-named I obtained from the cool parts of Victoria, Australia, and the others from New Zealand. Besides these I have also growing in the open *Cyathea dealbata*, and several others from Australia, Tasmania, and New Zealand, and underneath them all *Todea superba* luxuriates. The lesson to be learnt from this is, that it is not altogether a question of the degree of cold that affects the hardness of a plant in any particular climate. It is more, I think, the amount of sun-heat that can be obtained in the summer to thoroughly ripen the growth that ensures the so-called hardness of many plants. As I have said, we have here winters quite as cold as in most parts of England, but tropical summers 96° and even 100° in the shade, and for prolonged periods; it is this that makes the difference.

Again, on the contrary, a great many of my horticultural difficulties arise from this very fact of having such hot summers. The *Lapageria*, for instance, so far is a failure with me in the open. It stands all the frosts and cold of winter well, but when the heat of summer comes then the growth is checked, and it has the utmost difficulty to survive the ordeal, although placed in a cool and very shady spot. Similar remarks apply to many ordinary English florists' flowers, such as *Fuchsias*, *Geraniums*, *Carnations*, &c. If any of your readers are interested in the flora of Japan, I shall be glad at any time to give what information lies in my power. S. COCKING.

Yokohama.

* * Many thanks. We shall always be glad to publish any notes you may be able to send us.—ED.

ORCHIDS.

W. H. GOWER.

NOTES ON ORCHIDS.

I HAVE received a very handsome box of Orchids without any letter of reference or name.

Vanda Sanderiana (No. 1).—Now I do not for a moment believe this was sent for a name; the plant is too rare to have crept into any collection promiscuously, and therefore the flowers must have been sent for an opinion. Well, this flower is about the best form of this grand plant I have ever seen. There is only one drawback to this species: it appears to require more heat than any other *Vanda* with which I am acquainted.

Cymbidium affine (No. 2 of the same lot) is a grand spike, uniting with the pure white of *Mastersi* a lip heavily blotched with rich magenta. It is a valuable winter flowering Orchid. On the spike before me there are twelve flowers, and I would strongly recommend it as a winter bloomer to anyone having an ordinary stove. The flowers are just of that size which renders them suitable for button-holes, &c. *Cymbidiums* require to be potted as ordinary terrestrial plants, and the soil should consist of loam, peat, leaf-mould, and sand in about equal parts. When growing vigorously I

have observed they enjoy an occasional application of liquid manure. This I have seen practised with advantage in the finest collection of these plants in the country.

Cattleya labiata vera is No. 3 in the collection, and this flower confirms my statement made a few weeks ago, that the plants I have frequently seen lately in collections are either not true or they are inferior varieties. This fine species of Lindley's, upon which the genus was founded, was introduced seventy years ago, and it is said that no traveller has ever been fortunate enough to find it since, and although we have now quantities of very richly coloured *Cattleyas*, there are none which flower at this particular season to approach it. The flower before me measures 6 inches across, the petals very much broader than the sepals, and all of a delicate soft rose colour; lip very large, the whole front portion being of a beautiful shining magenta-purple colour, which is continued in a broad central line to the base; the basal part of the lip on each side of the dark line is pale lemon colour, whilst the outer edge is margined with a frilled border of soft rose. I am glad again to make acquaintance with this marvellously grand plant.

Warszewiczella Wendlandi discolor (No. 4).—It is a plant of rare occurrence in cultivation, and if blue is the supreme colour, this plant is fast approaching perfection. The flowers, measuring fully 4 inches across, are pale green tinged with yellow, the lip being broad and rich violet-blue, with a narrow undulated border of white. In addition the flowers are also deliciously fragrant. I do not understand why the plant should be called two-coloured when there are three distinct shades in the flower, but such is the name by which it is known. It is one of the plants one too seldom finds in collections of orchidaceous plants, because it does not grow big enough to fill a house. The plant does not form pseudo-bulbs, and therefore if it is required to keep its leaves through the winter months it must be kept moist and rather cooler than *Cattleyas*.

Angræcum sesquipedale.—This species, which perhaps bears the largest flower of any known Orchid, is now blooming in Mr. Jacob's garden at Cheam Park, its large ivory-white, long-tailed flowers being very conspicuous in contrast to the blue-green of the leaves. Mr. May, the gardener, says he has a variety which blooms in the spring and which has a large beard at the base of the lip. I have never noticed such a peculiarity in the blooms of the spring-flowering plants, and shall wait anxiously to see if it is an unrecognised species. This plant does not require the immense heat which it is usually supposed to need, and I should be glad to see it more extensively grown.—W. H. G.

Catasetum longifolium.—I recently observed this pretty old Orchid flowering in the Burford Lodge collection, where it obtains the name of the Monkey's Ear. Of this section Sir Trevor Lawrence will soon have a large collection, and although they have been set on one side for some years, they are singularly beautiful plants. The spike in the present species is pendent, bearing nine flowers, each flower being formed like a little pouch, rich brown on the outside, deep orange within. I have some recollection of a plant under this name in Mr. W. W. Saunders' collection at Reigate, in which the pouch was flaked with creamy-white, but I cannot find my notes on this variety just now.—W. H. G.

Odontoglossum madreense.—I have recently noted this species flowering in several collections, and I have often wondered how it is one so seldom sees this plant. I have come to the conclusion that it is usually kept too cool, as the plant is a native of Mexico and not Columbia. This plant would appear to have been named *O. maxillare* by Lindley over forty years ago, from a plant which flowered with Mr. C. Warner at Hoddesdon, this gentleman at that time possessing an extensive collection. The native country of the plant at that time was unknown, and it was not until twenty-five years afterwards, when the veteran collector Roezl, on his last journey through Mexico,

found the present plant, which Reichenbach did not consider accorded with the Lindleyan plant, and thus made the present species. Whether there be one or two species, however, is not of much importance to the amateur grower, and the present form of the plant is all that is known at this time. It is a beautiful plant, with narrow oblong bulbs bearing a pair of somewhat broad pale green leaves; spike erect, and bearing from three to nine flowers, each of which is between 2 inches and 3 inches across and very fragrant. The sepals and petals are spreading, nearly equal, pure white, each being blotched at the base with purplish brown, which in some varieties is deep purple, the greater portion of the lip being orange-yellow, the front portion white. Its name is derived from the Sierra Madre, in Mexico, its native habitat.—W. H. G.

Saccolabium Harrisonianum.—This is a white flowered form of *S. violaceum*, introduced upwards of twenty years ago by the Messrs. Low, of Clapton, from the island of Pulo Copang. It was thought to be distinct enough by the late Sir William Hooker to have a specific name, but there can be little doubt of its being very closely allied to *S. violaceum*. It is a robust growing plant. The racemes are dense, and many flowered, from 1 foot to 2 feet in length whilst the blooms are delicately perfumed. It is now in great beauty with Mr. Tautz at Shepherd's Bush, and is valuable as a winter bloomer.

Cypripedium Buchananianum.—This is a beautiful new hybrid, obtained between *C. Spicerianum* and *C. Druryi*. The leaves are very similar to those of the first-named parent, while the flower is larger than that of *Spicerianum*, the dorsal sepal being only slightly recurved at the edges and pure snowy white, with a broad central streak of crimson, slightly tinged with emerald green at the base. The petals are equally divided by a broad stripe of brownish crimson, the upper half being of a bronzy hue, the lower half yellowish green, slightly dotted with brown, pouch-like lip, large for the flower, with a wide opening, yellowish green, bronzy in the upper part, the whole having a polished appearance. The interior of the flower is thickly studded with crimson dots and flushed with rosy-pink. This very interesting hybrid has been raised by Mr. Osborne, gardener to Mr. Buchan, Wilton House, Southampton.

Lælia furfuracea.—This species, introduced many years ago to our gardens, used to be rare. For some years past I have noted that a pale form of *L. autumnalis* has done duty for it in several collections. The true plant, however, is now flowering in Mr. Horsman's collection at Colchester. It is a charming thing, and especially as a Christmas flower; the sepals and petals are of a clear, bright rose colour. The petals slightly recurved at the tips, where there is a central streak of deep rose, which loses itself about half way down. The side lobes of the lip are almost white, the centre lobe bright rose, recurved at the tip and bearing a couple of raised lemon yellow ridges, which extend from the disc to the base. It well deserves attention from all growers of these Mexican *Lælias* as it is so very distinct and pleasing.—W. H. G.

SHORT NOTES.—ORCHIDS.

Cypripedium villosum and **C. Boxalli**.—These two *Burnside* plants are now flowering superbly in Mr. Williams' nursery at Holloway. Independent of their large showy flowers, they appear to withstand the baneful influences of the fogs, which are so destructive to Orchid flowers in the London district during the winter months.

Lælia alba sulphurea.—This is a pretty and distinct variety, and it is specially noticeable when seen with the typical plant. The flowers are large, the sepals and petals being deep sulphur-yellow, and the lip mauve. An excellent form of this variety is now flowering in the Studley House collection at Shepherd's Bush, where numerous forms of this species appear to be perfectly happy.

Promenæa Rollissontii.—This is a beautiful small-growing plant which one does not often find now-a-days, but which I was fortunate to find in bloom recently in Sir Trevor Lawrence's garden; the sepals and petals are pale yellow, lip white, with a few crimson dots. It was named to commemorate one of the earliest firms of nurserymen to prosecute the importation of orchidaceous plants, and was figured in the *Botanical Register* fifty years ago.—W. H. G.

A GARDEN AT CANNES.

THE VILLA VALETTA.

A NOBLE conservatory scattered over a rolling lawn! That is the quickest and best "impression" we can give of one of the noblest gardens of sub-tropical plants we have ever seen. The interest of this garden for English readers is not so great as if we could grow the same plants in the open air in our own country; but to the general plant amateur, the Palms, succulent, and sub-tropical plants generally are most interesting, nobly grown, and in not a few cases remarkable for their rarity or the

out, that anyone walking through them would imagine they were more than double that area. We extract the following particulars from a recent notice in the *Revue Horticole*:—

In the course of a ramble through the grounds one is struck with the constant recurrence of exquisite effects from the groupings of fine-foliaged exotics, the pleasing arrangement of the glades, the selection of the trees and shrubs, and the beauty and rareness of the specimens. All this is enhanced by the cleverly designed vistas leading to interesting points of view in the far distance; on the west and south towards the Estérel, the town of Cannes, La Croisette, and the island of Sainte-Marguerite;

Mediterranean coast. Turning sharply, a totally new scene presents itself, as the walk passes through a portion of the grounds planted on each side with specimens of the strange-looking, yet ornamental Cactus family. These are succeeded by a great variety of Palm trees, amongst which are some enormous specimens of *Phoenix canariensis*.

Near the dwelling-house a very striking scene is presented by a great variety of large Cocoa Palms from South Brazil, which are grouped on a sward running down to the piece of ornamental water, the margins of which are fringed with rockwork appropriately embellished with plants. The brook which feeds the piece of water runs amongst tall Chinese and Japanese Bamboos, Azaleas, Camellias, and a variety of Heaths, and the visitor, following its course, arrives at a point where groups of Conifers, Palm trees, and especially huge Agaves, come into view. When we add that the turf of the lawns is verdant and close, the plants in the most healthy condition, and that the production of rare flowers or fruits is continuous throughout the year, some idea may be conveyed of the attractions of this charming place for a lover of gardens.

The illusion as regards the dimensions of the grounds is in great part due to the winding arrangement of the walks, added to the very variable level of the surface at different points.

The Villa Valetta and its exquisite surroundings will soon be offered for sale, and it is to be hoped that the property will fall into the hands of someone who will be able to appreciate, preserve, and add to the number of the beautiful plants which adorn it, and who will also be as liberal as the late owner, the deceased M. Dognin, was in permitting visitors to enjoy the rare scenery of this delightful retreat.

CHRYSANTHEMUMS.

E. MOLYNEUX.

PRINCESS OF WALES FAMILY.

WITH the addition of two new varieties this season and a promise of another for the next, this family promises to become very important, as it embraces varieties now which are admittedly second to none in the natural formation of their flowers. The Princess of Wales family is altogether an exhibitor's family. The type has long been regarded as the perfection of an incurved bloom where the form of flower is considered to be the leading feature. There is no variety which will produce blooms of the same high quality without any aid from the dresser as will the Princess of Wales, provided, of course, that the plants receive the necessary treatment during their growth, and I know of no variety which will resent careless attention more than this. If I were asked to name one variety in the incurved section of Chrysanthemums which produces the smallest number of high-class blooms in proportion to the number of plants grown, I should have no hesitation in naming the Princess. This, in some measure, accounts for the low position occupied by this variety in the selected list of incurved sorts in the National Society's catalogue, for out of thirty-six varieties that are placed in eight lots, owing to so many of them receiving the same number of votes, we find the Princess in the sixth batch, and only two from the bottom of the list—even behind such varieties as White Venus and Prince of Wales. I think that the position it occupies in the list is mainly owing to the fact that it is not generally well cultivated, and it must be grown well if its true characters of form and colour are re-



A garden in the south of France: The Villa Valetta, Cannes.

size of the specimens. A friend who knows the garden well writes to us:—

This magnificent place is to be sold by auction within a few days. If one of your great amateurs would buy it and keep the present gardener, he would have the most beautiful and best kept garden on the whole Riviera!

Visitors to Cannes have an opportunity of seeing one of the most admirable specimens of landscape gardening in the beautiful pleasure grounds of the Villa Valetta, which is situated on the Chemin de la Californie. The grounds here, although not quite 5 acres in extent, have been so skilfully laid

on the south-east towards Cape Antibes, and far away in the north-east the snowy summits of the Alps. After passing the entrance gate, the road leads towards the dwelling house between groups of *Chamærops excelsa* fringed with Laurels; then turning to the right one strikes into a charming walk around a lawn on which are seen some large specimens of *Araucaria excelsa* and groups of *Washingtonia filifera*. Arriving at a part which is shaded by large trees of *Magnolia grandiflora*, a collection of tall Tree Ferns, *Kentias* in shelter, Cycads, Bromeliaceous and various other plants is seen which shows what judicious management can effect in the case of plants which are seldom seen thriving in the open air on this part of the

quired. When in good condition it is invaluable to the exhibitor. To have it in the best condition it requires a long season of growth. This is at times difficult to obtain, for the reason that cuttings are produced so sparingly from the base of the old stools that valuable time is lost in waiting for them. If means are taken to procure a sufficient stock of strong cuttings in December, a much better chance exists for the production of the finest blooms. If the cuttings are late they often get neglected, and such weakly ones often show a strong persistency to form flower-buds instead of growth shoots. This is a serious drawback, and must be overcome by careful attention. It is often caused by the cuttings being taken from the stem of the last season's growth and not at some distance from the base of the old stool, as they should be if obtainable.

When a good start has been obtained with the young plants they should be kept growing freely, the same treatment required by the general collection sufficing for this family. Pots 9 inches in diameter are large enough for the final shift. The best blooms are produced upon plants that are grown with one stem from the cutting until they naturally break into additional shoots during May, when three of the strongest shoots are selected. Upon the appearance of the first buds upon the selected shoots, which form from about the 15th of August to the 25th of the same month, flowers developed from these buds are almost certain to produce blooms of high quality, all other things considered. While the flower-buds are swelling the peduncle for a part of the time remains thin and weak, and it should be protected by means of a small stake. When the buds attain their full size, and just before the petals commence to unfold, the peduncles gain strength, some of them so much so that support is not required, but those with weak peduncles should be supported for fear of accident. For ordinary decoration grown in bush form the Princess family is not a desirable type to cultivate on a large scale. The blooms under this method of culture are thin, and have a decided tendency to produce an "eye" which detracts greatly from the beauty of all incurved varieties. Under good treatment the varieties of the Princess family are good growers, carrying a lot of foliage which assumes faint autumnal tints.

PRINCESS OF WALES is the original variety, having been introduced during the year 1864. Its colour is bluish, tinted with rose, and when the bloom is in good condition the tint is very pronounced, making the flower very attractive; the petals are pointed and thoroughly incurved. Sometimes pale-coloured flowers are to be had upon plants which also produce properly coloured blooms. This is caused mainly through the too early bud selection. So pale in colour are some of the blooms produced that it is possible to cut from the one plant flowers which will pass for both the natural kind and Mrs. Heale also. When such blooms as those last named are staged as Princess of Wales and adjudicated upon by competent judges, they lose weight owing to their want of colour; therefore, little is gained by this manner of staging the variety out of character.

MRS. HEALE is a sport from the original variety, and exactly resembles its prototype in the formation of the flower and shape of the petals. It must also be classed as of tall growth. The colour is a creamy white, and it is a variety much sought after by exhibitors.

VIOLET TOMLIN and MISS M. A. HAGGAS are two valuable additions that have been made to this family during the present season. The former is a violet-coloured sport from Princess of Wales, which it resembles in all particulars, excepting colour. Possibly this variety will fill a gap when Refulgence is not available. It promises to be larger even than its parent. Miss M. A. Haggas is a sport from Mrs.

Heale, and although it originated two years ago, it has been seen in better condition during the past season. The colour is golden yellow, and it will take the place of Jardin des Plantes as a yellow variety when that kind is not available. But Miss M. A. Haggas will at all times render good service in the middle row of a stand of twenty-four flowers.

During the latter part of the present season I saw blooms of another sport from the Princess of Wales, which is of a colour between its parent and Violet Tomlin. Should the fixing of this variety be accomplished successfully, another desirable gain will be the result, as we cannot well have too many varieties from such a good stock as the Princess of Wales, especially when the progeny is characterised by thorough distinctness in colour.

Chrysanthemums, new varieties.—As showing how few good varieties are produced annually from the large number which are sent out every year, I purpose to take into consideration the set of fifteen varieties sent out by Mr. Cannell in the spring of the present year as being something new in their respective sections and forms. All, of course, are described as being thoroughly distinct, and many of them superior to any sorts hitherto announced, that one was led to expect a decided improvement, but I fear many disappointments have been found. It is a pity descriptions of new kinds are not curtailed somewhat. I, for one, fail to see the necessity of describing them in such an elaborate manner, when a more simple style would suffice and be less misleading. Having had opportunities of seeing most of the sorts which I will name, I am able to speak with authority. *Sunflower* has been named in THE GARDEN as being one of the best yellow varieties in cultivation, and so it is when grown as Mr. Beckett grows it. The blooms staged by him at Sheffield showed the quality of this variety to perfection. *Swanley White* is a capital variety, being large and full, and well worthy of extended cultivation. *Mrs. Douglas*, as grown here, is identical with *Swanley White*. *Good Tidings* and *Eclipse* are both mixtures of yellow and red and of moderate quality. *Yokohama Beauty*.—A mixture of bronze and yellow, the florets deeply serrated, but much too short to make an effective flower. *Favourite*.—A flat bloom with broad reflexed florets, the colour silvery bluish, habit of growth dwarf and sturdy. *Onward* and *Sunlight*.—The former white, faintly tinted rose; the latter creamy white, tinted lilac. *The Intended* is, as regards shape, similar to *Balmoreau*, but of a brighter colour. *Albert Victor*.—A pretty combination of colours, white, shaded rosy mauve, the florets narrow and reflexed; much too small for exhibition use. *Mrs. Goldring*.—A combination of orange-yellow and red. *Mary*.—Exquisitely formed flowers, the points recurving gracefully; the colour creamy white, outer petals pink, deepening to rose at the points. It will be seen from the descriptions given of the blooms as grown, that there are only two kinds which come up to exhibition standard at present, although another season's growth might develop some of them more fully.—S.

SHORT NOTES.—CHRYSANTHEMUMS.

Chrysanthemum Miss Annie Lowe is a welcome addition to the Anemone class, as it provides a colour not hitherto obtained in that section. It is a sport from *Lady Margaret*, which is well known for its good form, having a full centred disc, which cannot be said of all other varieties. This quality is the leading point to be aimed at in obtaining new varieties.—E. M.

Chrysanthemum Moonlight.—Has any reader of THE GARDEN found a difficulty in successfully flowering this variety? With me it grows well and produces one or two good flowers, but the majority of the buds are either abortive or deformed. It is not the result of the past season, as it has been the case for several years in succession.—H. SANDWICH.

Pompon Chrysanthemum Snowdrop.—This pure white variety, as its name implies, is now very useful where white flowers are in request for button-hole bouquets, sprays, or any other kind of deco-

orative work. Cut in long sprays, with foliage attached, there is nothing better for specimen vases. A minimum of trouble only is required to produce blooms of this variety, as it grows freely in small pots.

Chrysanthemum Buttercup (syn., *Alice Bird*) is one of the prettiest varieties of *Chrysanthemum* we have in the way of colour, which is an intensely bright buttercup-yellow. It belongs to the Japanese reflexed section, but being small, I fear it will not find favour with growers for exhibition. As a decorative variety where colour of this description is needed it has no equal. Its habit of growth is also all that can be desired, being dwarf and of a robust character.—M.

Chrysanthemum Pelican.—This variety is again this season asserting its right to be classed as one of the best of the Japanese section for the production of late blooms where late *Chrysanthemums* are desirable. A good batch of this sort should receive attention during the summer months, by pinching the points out of the shoots two or three times, commencing when the plants are but 6 inches high. Plants are thus obtained which carry several branches, from which all side growths should be removed as the leaders progress. What is known as the crown bud should be selected for the flowers. In this way good blooms may be had which show this variety in its true form—incurved florets, pure white, with a faint tinge of pink around the base as the blooms fade. This variety has deep green foliage, which is well retained late in the season.—E. M.

GARDEN FLORA.

PLATE 682.

ALPINE WINDFLOWERS.

(WITH A COLOURED PLATE OF A. SULPHEURA.*)

THE enthusiasm displayed by visitors to the Riviera at the grand blaze of brilliantly coloured Windflowers that star the ground in early spring is very natural, and he must be strangely biassed who cannot enjoy the quiet beauty of the alpine section of this charming class of plants. Some indeed of the earliest of our spring flowers are to be found amongst these alpine Anemones, and when robust and doing well they form some of the loveliest pictures we have ever seen, more especially when the surroundings harmonise with their dwarf sturdy habit. With only a few exceptions, they may be successfully cultivated by anyone having a little knowledge of the requirements of alpinists generally, and it must always be borne in mind that the choice of position is half the battle. How many of our choicer alpinists are lost or disfigured by the careless habit of planting them anywhere without any thought as to the habit of the plants in their near vicinity. With the majority of the alpine Windflowers their wants as far as soil is concerned are simple. Peat or leaf-soil, loam, and lime refuse with plenty of grit form the chief ingredients, and these in proportion or separately, as experience and the nature of the subsoil will soon show, enable the lover of these choice alpinists to obtain good results. The next question of importance is that of obtaining specimens of the different species. These are often imported and sold direct to the grower from their native habitats, and have large, thick tap roots attached to them. On account of these tap roots it is quite impossible to lift the plants without irreparable damage, and, of course, the chances of their being successfully established, especially in autumn or late spring, are very few indeed. This difficulty led us to try the raising of our alpinists in general, and Anemones in particular, from seed, either of our own saving or imported, and the success we have obtained enables us without hesitation to recommend it to others in a similar position. The rarest and

* Drawn for THE GARDEN in Messrs Paul's nursery at Broxbourne, May 15, 1888, by H. G. Moon. Lithographed and printed by Guillaume Severeys.

most difficult of the kinds to grow have been thoroughly established in this way, and all of them are now quite at home. This question of seed *versus* plants need not, of course, be confined to *Anémones*, as most plants of similar habit are usually unsatisfactory when the plants are old and the habitats rocky, and even if they live it takes them a long time to entirely recover, but from seed a young stock could be raised which would also be far more interesting and cause less anxiety. Small collected specimens of such species as *A. vernalis*, *pratensis*, *Halleri*, &c., take some years to attain a moderate size, so slow are they of increase, but when raised from seed and the young plants kept in the cold pit for a year or two, then planted out say a dozen together, they soon form an attractive patch, and apparently flower with greater vigour. In good seasons, if artificial fertilisation be attended to, seeds of most of them may be obtained, and these simply sown round the plants and covered with ordinary garden soil, gave in our case a very good result, some specimens flowering the second, others the third year. The *Edelweiss* is a case in point. Tons of this plant in bulk at least are sent home annually by tourists with imperfect or no roots at all. The death of such specimens is a foregone conclusion; whereas if a pinch of seed had been collected, sent home in a letter with instructions to sow at once, a great amount of disappointment would have been saved.

A. VERNALIS, like the *Soldanellas* in our gardens, requires special care when producing its annual growth, and we have found that a daily bath of rain water has a desirable effect, and the flowers, though few, are very large and richly coloured.

A. HALLERI, however, is, to our mind, the most beautiful, and perhaps the largest of this group; the huge cup-shaped flowers are deep lilac, the base filled with a large bunch of handsome golden yellow anthers, which contrast well with the other parts. It begins to flower towards the latter end of March and beginning of April, and, unlike the *Riviera* kinds, is impervious to our cold spring weather.

A. PRATENSIS and *A. montana* are very similar to each other, although kept distinct in all Continental floras. *A. montana* has the larger flowers of the two, drooping, and of a fine deep violet or wine purple colour. The meadow Pasque Flower (*A. pratensis*) affects dry meadows, and should be grown on exposed positions. The flowers in some of the forms are very deep purple, approaching to almost black.

THE PASQUE FLOWER (*A. Pulsatilla*) is a native plant, and a charming subject for spring beds, &c. It requires chalky soil on rather dry positions.

A. PATENS and the variety *Nuttalliana*, figured in the *Botanical Magazine* as *ochroleuca*, are both charming plants for the rockery, producing large, dull blue or purple flowers, which may be seen in the bud state all through the early spring. The type varies to a whitish yellow colour.

A. HACKELI, though considered a form of *A. Halleri*, seems sufficiently distinct to want a name, the flower divisions being broader and larger, the stems more woolly, and the leaves not so finely cut. A very useful plant for bleak exposed positions.

The subject of our coloured plate, though rather taller than any of the above-mentioned species, will, together with *A. alpina*, be found very useful for low beds or borders near the rockery, the handsome foliage and the unusually large and beautiful silky heads being objects of admiration all through the summer and autumn months. They both seem variable, and these slight variations have been taken into account, and named by De Candolle in his "*Vegetabilis Systema*," and also in the "*Prodromus*." We have never seen them named in cultivation in this country; and indeed the differences are

really so slight, that they are not worth it, being chiefly based on the size of the flowers. The varietal names given are major, *millefoliata*, *micrantha*, *flavescens*, *nivalis*, *intermedia*, and *sulphurea*. We cannot help thinking that the subject of our plate is entitled to a specific place, and refuse, at present at least, to believe that it is the white form, possessing a yellow tint through growing on granitic soils. The white *A. alpina* is a fine, robust plant, and with us produces an abundance of flowers. We grow it in a deep, rich leafy soil, with a liberal mixture of lime rubbish. *A. sulphurea* we grow in exactly the same position and soil; its robust health speaks for itself, and we find both easily raised from seed if sown as soon as harvested. At the present time, however, when almost everything in the alpine way is resting, the Winter Windflower (*A. blanda*) gave us a pleasant surprise the other day. It is beginning to open its charming flowers, and if the weather continues open we expect a fine show about the new year. It is a near ally of *A. apennina*, with larger and deeper-tinged flowers and narrower rays. It is as hardy as any plant in cultivation, and continues in flower from now until late spring, when *A. apennina* opens. Others worth noting are *A. baldensis*, *ranunculoides*, *palmata* (yellow and white), *trifolia*, &c. D. K.

PROPAGATING.

CONIFERS FROM SEED.—In raising the different hardy Conifers from seed, the treatment given them will depend to a great extent upon the quantity of seed it is intended to sow, for where large quantities of plants are raised, the seed of many kinds is sown in the open ground, and generally a sheltered border is chosen for the purpose. But with small quantities of seeds, or in the case of choice or delicate kinds, by far the better way, and that usually followed, is to sow them in pans or boxes, which are protected by a frame during the earlier stages of the young plants. In the case of seeds that are to be sown in the open border, the general way is to prepare the soil for their reception by raking it to a fine and even surface. On this the seed is sown, gently patted down with the back of the spade, and then covered with some finely-sifted soil. The depth at which the seeds are covered will depend upon their size. For the smallest a quarter of an inch will be sufficient; while in the case of the large kinds an inch is not too much. The soil prepared for covering the seeds should be of an open, sandy nature, and it is an advantage if some charcoal dust is mixed with it, as this tends to prevent the young seedlings damping off. If there is none at hand, wood ashes are a good substitute. The best time to sow seeds in the open ground is about April, as the soil will then have been nicely pulverised by the winter's frost and just in condition for seed sowing. Besides this, there is all the growing season before the young plants, which pass through their most critical stage before the winter. When the seed is sown, a few Spruce branches laid over the bed will be of service to prevent too rapid an evaporation, and thereby assist the germination of the seeds. By some, the seeds are sown in drills, but the better way is to sow them in beds, taking care, however, not to make them too wide. A very convenient width is about 4 feet, as from either side it is easy to reach half way across. The spring following the sowing, or at most the next year, the young plants must be bedded out in rows, and afterwards transplanted as they require it. Great care must be taken where Spruce branches are employed not to leave them on too long, as the seedlings must, as soon as large enough to handle, be at once removed, and if possible a dull, damp day should be chosen for the purpose. A sharp look-out must be kept for mice, which will often do considerable damage, not only by eating many seeds, but by turning up a great many more than they devour, and if not

quickly covered the (perhaps germinating) seed soon perishes. Where it is intended to sow the seed under glass it does not much matter at what time of the year the operation is carried out, though the spring is the best, but still the principal thing to consider in this respect is not to keep the seed out of the ground any longer than is absolutely necessary. Whether pots, pans, or boxes are used for sowing the seed matters little, but they should be quite clean and supplied with ample drainage in the bottom. Over this may be placed a little rough soil, and the pot, pan, or box should then be filled to about an inch of the top with a compost consisting principally of good open loam, with an admixture of sand and leaf mould. When this soil is prepared, that which is intended for covering should be passed through a sieve with a quarter of an inch mesh, when the rough portions of the compost will be available for placing immediately over the drainage material. As in the case of seed sown in the open ground, a little powdered charcoal or wood ashes mixed with the soil is of service. When preparing the soil for the reception of the seed it should be pressed down moderately firm and made quite level on the surface. Then, in sowing the seed, overcrowding must be guarded against, and the soil having been lightly sprinkled on and watered through a fine rose, the pans, or whatever is used, are then ready to be removed to a frame. This should have a good bed of coal ashes in the bottom, as by this means thorough drainage is ensured, and the worms are also kept out. This last is a very important consideration, and if coal ashes are not used, some other means must be resorted to in order to prevent the ingress of worms. After sowing, all the attention necessary is to keep the soil in an equal state of moisture, and to open the lights of the frame a little way in order to allow of a free circulation of air, and directly the young plants make their appearance the lights must be kept off entirely, or, at all events, put on only in the event of very heavy rains. This last is especially necessary in the case of some kinds which are rather apt to damp off during their earlier stages, and this is, of course, often brought on by an unusually heavy watering. A sharp look-out must be kept for the first signs of decay, which are readily noticed, as the young plants thus affected fall over, for the seat of the mischief is almost invariably just above the soil, at what is usually termed the collar of the plant. Where large quantities of one kind exist, a good deal may be done to arrest the disease by keeping the soil rather drier and still continuing to expose the plants to as much air as possible, but where the aim is to raise every available plant, the better way, on the first appearance of decay among the seedlings, is to prick them off into other soil. For this the boxes or pans should be prepared in the same way as for sowing, except that the soil is only just below the rim, and the young plants must then be carefully dibbled in at such a depth that the seed leaves are just clear of the soil. In pricking off the utmost care must be taken of the young and fragile roots, and for this purpose the piece of wood employed as a dibble must not be too sharply pointed, otherwise the roots are all pressed together, while they are better if somewhat spread out. Care should also be taken that the soil is made firm around the roots, as a common error is, in the first place, to make the hole prepared for the young plant deeper than necessary, and while towards the surface the soil is pressed tightly together, a cavity is left at the bottom, which is very likely to cause the death of the young plant. From the boxes or pans the next shift should be into sheltered beds in the open ground, and in every case pot culture should after this be avoided, as the roots of most Conifers are very difficult to disentangle when once they have been grown in a pot, for they do not ramify to the extent that those do which have not been curtailed in this manner, and, consequently, even when they attain the dimensions of good-sized specimens these pot-grown trees are very liable to be blown over by the wind. Should it, however, be desired to plant out a Conifer that has been grown in a pot, the roots must be carefully disentangled.

HARDY SHRUBS.—Where transplanting opera-

tions are going on it is often possible to carry out a very simple style of propagation, viz., by division, after the manner of many herbaceous subjects. Of course this is not available where great numbers are required, and in the case of many shrubs it is impossible to increase them at all in this way, but such things as *Deutzias*, *Philadelphus*, *Lilacs*, many *Barberries*, *Spiræas*, and many others—in-
 indeed, all that push up a great number of stems from one common centre—can, if the shoots originate below the surface, be so increased. In many cases it is possible without disturbing the specimen to detach a few rooted suckers, which, if planted at once under favourable conditions, will form good plants in much less time than if cuttings only were taken. Of course such suckers as these must not be planted out at once and expected to compete with established plants, but treated rather as rooted layers that are all the better for a season or two in the nursery before being permanently planted. Many of the low-growing hardy *Heaths* may be divided up in this manner, but in their case any that are insufficiently rooted will be all the better for a little protection till they become established, otherwise the drying winds of March will often work havoc amongst them. Besides this means of increasing *Heaths* where they are desired in quantity, the partially ripened shoots will strike if dibbled into pots of sandy peat and kept close till rooted.

T.

TREES AND SHRUBS.

THE BRACTED SILVER FIR.

(*PICEA BRACTEATA*.)

MESSRS. VEITCH, in their excellent manual of the *Coniferæ*, say the Silver Firs are cultivated in Britain almost entirely for ornamental purposes, for which few trees even amongst the *Coniferæ* are more suitable or more admired. This opening sentence has been echoed over and over again by all planters, but when they continue their remarks by saying they are less hardy in constitution than the *Spruces*, which they outnumber, as introducers of many of the best, I think they do themselves an injustice. This at least is my opinion, based upon practical experience at Eastnor, where all the leading varieties have been planted at various altitudes and facing all aspects. *Picea cephalonica* sometimes gets cut by spring frosts, and so do *P. Pindrow* and *P. Webbiana*; but then the latter are natives of the Himalayas, handsome enough to justify a trial in an elevated, but sheltered part of the pinetum, where, if they fail, a score of others, about which there can be no mistake, are ready to take their places. No one, I suppose, would think his collection complete without *P. amabilis*, or something palmed upon him under that name; the glaucous *P. nobilis* glistening like frosted silver in the morning sun; the soft, graceful *Vancouver P. grandis*; the full, flowing *P. Nordmanniana*; the self-coloured *P. concolor*, better known as *P. lasiocarpa*; the turgid *P. Pinsapo*, or its softer sister *P. cephalonica*. Neither would they object to any number of duplicates on hill-sides or in deep alluvial valleys, but not on the highest ridges where these trees get thin and do not look well against the sky line. These and a few others of less note formed the planter's stock nearly, if not quite, down to the memorable and fatal year 1860, about which time the first, if not the only, batch of seedlings of *Picea bracteata*, the subject of this notice, was distributed from the Royal Exotic Nursery. *Wellingtonia gigantea*, coming from the same collector, Mr. William Lobb, and, as a matter of course, the same firm, about the same time, this queen of the Silver Firs fell into the background and the big, if not the over-rated tree kept the lead for a great number of years. Amongst the accom-

plished planters who appreciated and secured some of these seedlings I may mention the late Earl Somers, Earl Ducie, and the late Mr. Gambier Parry, whose collections are now well known all over the country. I had the pleasure of seeing the *Tortworth* trees once annually for some years and always thought the best somewhat taller, but more slender than our own. What progress they have since made I am unable to say, but, judging from the plate in the "Manual," p. 91, I venture to think the warm sandstone suits them quite as well as our heavier and colder calcareous loam.

The tree from which I have this day sent you a pair of beautifully bracted cones, the first it has borne, was planted on a slope facing east, but sheltered from the early morning sun by a grove of Oaks, some twenty-four years ago. It

tree on the contrary keeps pushing steadily upwards and outwards, gaining in strength and healthy vigour as it goes, and now makes about 1½ feet of growth each year.

If this by no means overdrawn description of *Picea bracteata* is not enough to induce planters to add this beautiful and perfectly hardy tree to their collections, with Messrs. Veitch's permission I will quote from their book Mr. Lobb's words, written in the Californian forests. He says,

This beautiful tree forms here the most conspicuous ornament of the arborescent vegetation. On the western slopes, facing the sea, it occupies deep ravines, and attains the height of 120 feet to 150 feet and from 1 foot to 2 feet in diameter; the trunk is as straight as an arrow, the lower branches decumbent; the branches above are numerous, short, and thickly set, forming a long tapering pyramid or spire, which gives to the tree that peculiar appearance which is not seen in any other kinds of the Pine tribe. When seen at a distance it looks more like a handsomely grown Cedar than a Pine. No doubt it is one of the hardest trees of the Californian vegetation, and is equally well adapted for clothing the mountain top as the sheltered valley. The cones, too, are quite as remarkable as the tree is beautiful. When fully developed, the scales, as well as the long leaf-like bracts, are covered with globules of thin transparent resin.

Amongst species of still more recent introduction by the late Mr. J. G. Veitch from Japan must be mentioned the true *Picea Veitchi*, a tall-growing, slender, handsome tree, which has proved perfectly hardy near London, and, judging from the thorough adaptability of all Japanese trees and shrubs to our climate, there is no doubt that it will succeed in all parts of Britain. *Picea Mariesi*, a robust spreading tree, also is quite hardy, and will occupy a very prominent position as a lawn or pinetum tree. *Picea firma* must not be overlooked, as it is perfectly hardy when fairly established, whilst the rich colour of its foliage gives it a value which artistic planters fully appreciate.

The timber of the *Piceas*, as all acquainted with that of the common *P. pectinata* can testify, is less valuable than that yielded by the *Spruces*. But this fact should not deter anyone from planting these



Cone of *Picea bracteata*. Engraved for THE GARDEN from branch sent from Eastnor Castle.

is now 40 feet in height, and the dense branches which sweep the turf and completely hide the stem measure 24 feet from tip to tip 3 feet from the ground. Coming from the Andes of Santa Lucia, a mountainous range running parallel with the coast in South California, where Douglas discovered it at an elevation of 6000 feet, and Lobb, the successful introducer, found it at 3000 feet, where it meets *Taxodium sempervirens*, the late Mr. James Veitch, always ready to give a useful hint, advised me to select a site where the young growth, which he premised would be very early, would be sheltered from the morning sun. Upon this advice I acted, but the tree here is not particularly early, and although the upper part now catches the first rays as the sun rises above the Malvern Hills, not a single tip has been injured. The

front-row trees extend extensively, especially upon deep free soils capable of holding plenty of moisture and keeping them well supplied with food during their season of growth. On deep cool soils in valleys or on brashy limestone, where the roots can get down away from the influence of great heat and drought, all the *Piceas* and *Abies* do best and make fine specimens densely clothed with the richest foliage; whilst on dry, hungry soils, which their numerous spongioles speedily exhaust, they become thin, poor, and commence coning at a very early age, a sure sign that something is not well with them. The best growth in Britain is made in moist localities where the rainfall is heaviest, or, lacking this, where the roots can go down to an immense depth, where the annual growth varies very

little in wet or dry seasons. Some of our finest trees of *P. Webbiana*, of which I have sent a cone, of *P. cephalonica*, of *P. Pin-sapo*, of *P. Nordmanniana*, and the tall, graceful *Abies Albertiana* are growing in a thin soil resting upon a fractured bed of limestone. The roots of these trees, deeply seated in the numerous joints and fissures, always find an abundance of food and moisture, the remarkably hot, dry season of 1887 not excepted.

W. COLEMAN.

THE HOLLY.

THE late Mr. A. Downing once wrote: "The European Holly is certainly one of the evergreen glories of the English gardens. There its deep green, glossy foliage and, bright coral berries, which hang on for a long time, are seen enlivening the pleasure grounds and shrubberies throughout the whole of that leafless and inactive period in vegetation—winter." This statement does justice to an old favourite. Though considered to be merely a shrub, yet when left to its natural growth it will attain to a considerable height. It is not unusual to see it over 30 feet in height, but some specimens have been known to reach to 50 feet and 60 feet. The greatest collection of natural grown Hollies is said to have been in the Fir forest of Black Hall, on the river Dee, about twenty miles above Aberdeen. Many of them were very large. The majority of these specimens were cut down, and the wood fetched a good price in the London markets.

For hedgerows no other plant is scarcely so well adapted. It forms in course of time a fence as tall, as wide, and as dense as can well be wished for by the most exacting. But it is of slow growth in a young state; when it has been planted three or four years, if the requisite attention be given to it, the advance is more rapid. There are several instances of enormous Holly hedges about the country. That planted by Evelyn at Say's Court, prompted thereto, it is said, by the Czar Peter when learning shipbuilding at Deptford dockyard, although he is credited by some with having destroyed it, has an historical reputation. Scotland is famous for its Holly hedges. There is one at Tynninghame, the Earl of Haddington's seat in Scotland, which is said to be one hundred and fifty years old, and which is both broad and tall. There is a very large and broad hedge at Keele Hall, Staffordshire, and it affords a roosting-place in winter for hundreds of birds.

The Holly is a native of the woods and forests of Britain. There are now a large number of varieties. The late Mr. A. Mongredien placed the green-leaved varieties—those exhibiting modifications in the shape of the leaves—under three primal headings: *I. Aquifolium recurvum*, having the leaves curled back; *I. Aquifolium crassifolium*, having the leaves very thick; and *I. Aquifolium ferox*, having the surface of the leaves spiny as well as the margins, and commonly called the Hedgehog variety or type. Then the varieties arising out of the colour of the leaves are very numerous. Some have yellow and some have white blotches in a great diversity of proportions, but nearly all of them highly ornamental. To both these groups additions are being made by means of seminal varieties. R. D.

SHORT NOTES.—TREES AND SHRUBS.

Atraphaxis spinosa.—This very distinct shrub was quite happy in the Botanic Gardens at Dublin for many years, but disappeared before Mr. Burbridge's time. Can any one tell us if it is now in cultivation?

Are Skimmias dioecious?—Would you inform me through your paper whether *Skimmias* are dioecious? I have several varieties, and am anxious that they should berry well.—A. C.

Aralia Sieboldi in Rothesay.—Referring to the note in THE GARDEN, Dec. 15 (p. 565), by "R. D." regarding this, I have pleasure in sending you a specimen of the inflorescence and also a fine leaf taken from a plant to-day (Dec. 20), growing in the open air in the gardens of Sheriff Orr, Tigheamara, Rothesay, N.B. I observed it when calling on the Sheriff's gardener, Mr. Dilly, and, remembering the note in THE

GARDEN, asked him for a panicle, which I have now much pleasure in sending to you.—THOS. ROBERTSON, Rothesay.

* * The leaves and panicle sent show that *Aralia Sieboldi* has a good home in Rothesay. Great use can be made of this *Aralia* in flower garden arrangements, where it does well.—ED.

Golden Irish Yew.—There are two or three variegated forms of the Irish Yew, but one which I recently noted under the name of *fastigiata aurea* is certainly the best that I have seen. In this the variegation is not limited to a few shoots, as is the case with some kinds. It certainly forms a very bright and effective specimen, and is worthy of association with the golden forms of the common Yew. Another very distinct golden Yew is that known as *horizontalis elegantissima*, a very free-growing variety of the common Yew, and which forms a strong leading shoot, and pushes out the stout side branches in an almost horizontal manner.—T.

Daphne laureola purpurea.—This variety of the Spurge Laurel forms a pretty and distinct shrub, for the foliage, instead of being deep glossy green, as in the type, is of a purple hue. It is rather an uncommon shrub, and is far less vigorous than the Spurge Laurel, for which in most gardens a place could be found. Apart from its handsome foliage, it will flourish under the shade and drip of trees, and as a flowering shrub must not be passed over. The blossoms, borne in clusters on the ends of the branches, are of a yellowish green colour, and commence to expand early in the season. A cool place in the American garden is a very suitable spot for the purple-leaved form, but in any case it must not be planted in a dry, sandy soil, as, like all the *Daphnes*, a cool, moist spot is more in accord with its requirements.—H. P.

Pinus Pallasiana.—This is usually regarded as a form of the Corsican Pine (*Pinus Laricio*), but, as stated by Messrs. Veitch in their "Manual of Conifere," "it is, in a horticultural sense, quite distinct, and, as an ornamental tree for the park or landscape, it should be preferred to *P. Laricio*, but never substituted for it if planted for the sake of timber." It forms a moderately quick-growing, much-branched tree, with a rather bluntly, pyramidal-shaped head, all the branches taking a somewhat upward direction, but more particularly those on the upper part of the tree, as in the lower ones this ascending habit is principally confined to the tips of the branches. A prominent feature of this Pine is the dense blackish mass presented by a good thriving specimen, as the foliage is of a very deep green, and this character is, of course, greatly intensified by the much-branched habit of this Fir. It is a native of the Crimea, so that, like all of its class, it is perfectly hardy.—T.

Scarlet-fruited Ivy.—This Ivy, alluded to on p. 536 (last volume), has now been before the public some time, yet, as far as I am aware, it has not fruited in this country. The first time that I saw attention directed to this variety was by means of a coloured plate in the *Revue Horticole* in the early part of 1884. The coloured figure showed an Ivy whose berries were much the colour of those of the Mountain Ash, the leaves also being rather distinct by reason of the whitish tinge which followed the course of the principal veins. The foliage characteristics of the plants in my possession are just as represented, but the fruit I have not yet seen. The origin and history of this Ivy appears to be very uncertain; all that is definitely known concerning it is, that it was first found in a garden at Cannes, but from whence it came no one knows. It was, I believe, put into commerce either in the autumn of 1881 or in the spring of 1885.—H. P.

Abies Engelmanni glauca.—This is one of the most beautiful of all the Spruce Firs, and at the same time one of the most distinct, its greatest feature being the silvery glaucousness of the foliage, in which respect it is surpassed by no other Conifer. Though said in its native country to attain a height of 80 feet to 100 feet, this Spruce is by no means a rapid grower during its earlier stages, when it forms a stiff horizontal branched specimen very plentifully furnished with sharp-pointed

leaves, which in some specimens are almost of a silvery whiteness. When raised from seed there is of course a considerable amount of variation to be found amongst the plants, for where a large number is grown, even if the seed be saved from the glaucous form, it is possible to trace a gradual change from the finest variety to the deep green of the normal type. This is a Conifer that should certainly be made a note of by intending planters, as, apart from its beauty, it is thoroughly hardy, for the young growth does not make its appearance early enough in the spring to be injured by late frosts.—H. P.

THE PERILS OF THE WINTER.

THAT severe frosty weather is not far distant there can be no doubt, and we may look for it before long. Those of us who endeavour to preserve through the winter some plants in an unheated greenhouse always find how difficult it is to do so, especially during a period of severe weather. I often hear it said by occupiers of villa residences that have a small unheated greenhouse attached to them how difficult it is to exclude frost. What with frost and damp, the cultivator has two powerful opposing forces to fight against, and their advances can be met and the dangers from them be mitigated by the employment of all the resources at command. Much depends upon the situation and aspect of the house. If it is in a sheltered position on the south and sunny side of a dwelling, plants can be preserved through the winter with a better chance of success than in the case of a house occupying an unsheltered position on a north aspect and open to all the wintry influences, besides being destitute of any assistance in the way of sunshine. It is customary with builders to put up something in the way of a greenhouse when they build a villa residence, but I often think when I see these houses that they are intended to serve any purpose but that of growing plants. Everything is sacrificed to ornamentation, and utility appears to be the last consideration. These houses are very frequently unheated, and so those who during winter try to maintain a few plants in them must either dispense with artificial heat or employ one of the many forms of paraffin lamps or stoves so plentiful at the present time. I have, on the south side of my dwelling, a house of considerable size which is unheated. It is raised some 5 feet above the ground level, but open underneath, and, therefore, subject to frosty influences at the sides, in front, above, and below. As the frost attacks on every hand, it is very difficult indeed to keep it out. I have tried various kinds of stoves in which oil is burned, but they all failed in some particular; they soon get out of order; they cause a great deal of trouble, and they all emit a disagreeable smell, though it is said of most of them they will not do so; therefore, I have given up stoves as a means of keeping out frost, because at best the heat they gave out was too much localised, and I set to work in times of frost to mitigate its effects as much as possible.

As a means to this end I put all the tenderest plants on the back shelf of the house against the wall where it adjoins the dwelling, because it is the warmest one. Then as Christmas, or rather the middle of December, approaches and frost may be expected, I allow the soil in the pots to become fairly dry, not dry enough to cause the plants to flag, but only sufficiently moist to prevent it. The effects of frost upon the roots is thus reduced to a minimum. Then all the plants which cannot be placed on shelves, but find a place upon the floor of the house, are raised upon temporary stages or inverted flower-pots, so that the pots do not come into contact with the floor and become frozen to it. I also make use of old newspapers as a covering to the plants, placing them between the plants and the glass and allowing them to cover the tops, and these prove an excellent protection, much better than is generally expected. In this way I can keep *Fuchsias*, *Begonias*, and other plants of a similar character with comparative safety through the winter. Some losses are certain to occur when a sustained severe frost lasts through several days, but the number of tender things that can be

brought safely through the winter with these simple precautions is something astonishing. One great thing is to keep the plants, the shelves, and the house as dry as possible while frost is about.

Those who have a greenhouse warmed by means of an old-fashioned flue or hot-water pipes, should employ them as sparingly as possible during the winter. The tenderest plants should have the warmest part of the house, and consequently the hardest the coldest. Depend upon it, one great secret of successful greenhouse management during winter is abundance of air on all suitable occasions, not admitting it on the side of the house open to the quarter from which the wind blows cold, but on the opposite side. A close, hot, dry atmosphere is fatal to many plants. So many amateur cultivators of plants appear to fancy that they should be wintered in a close and warm atmosphere day and night, excluding air as likely to be injurious. What happens after such treatment need not surprise anyone. Let the house then be freely aired every morning, on all suitable occasions, from eleven to one o'clock. The time can be extended or contracted according to the state of the weather. If the weather is damp, and especially if it be raw cold, light a fire the first thing in the morning, and an hour or so afterwards give air, this will dry the atmosphere and keep it healthy. In frosty weather the house need not stand above 40° to 45° at night, but let everything be as dry as possible; all that is required in the way of watering should be done in the morning, that the floor, shelves, and plants may become dry or well drained before night, and when the frost is very intense, it is a good plan to cover the top and sides of the house with some covering, if it is practicable to do so. Coverings that keep out frost are better than fire-heat for plants that do not need it only as a protection against frost. It is a great advantage to a house to have a roller blind that can be let down or rolled up at pleasure, and which when rolled is protected by means of a cornice. Such a blind not only wards off the sunshine when it shines out too brightly, but it also comes in very useful in frosty weather as a protection to the roof of the house. By means of simple precautions such as I have sketched, a great many plants can be carried in safety through the winter.

It is a good plan to occasionally change the positions of the plants, turning them round, stirring the surface soil, removing any decaying parts, dead leaves, &c., and otherwise, by small attentions, maintaining the healthiest conditions about them.

R. D.

KITCHEN GARDEN.

TREATMENT OF CLAYEY SOILS.

MANY who have garden ground cleared of crops and not yet dug will be tempted to interfere with this long before it is wise to do so. Retentive soils or those of a clayey nature during mild and very wet weather, such as we have experienced up to the present time (Dec. 28), require the most careful treatment, as these, if dug too soon or while yet in a very moist or saturated state, will be ruined as far as free working is concerned for several years. Better not dig at all than disturb them now. These retentive soils are composed of very minute particles, much more so than is the case with those of a freer character, and by good cultivation they can be rendered by far the most fertile. The aim should be to bring about their thorough disintegration, and if they cannot be well laid up to frosts, the pulverisation must be accomplished later on with the aid of the drying March winds, sunshine, and rain. If it is not possible to wheel on the manure or to dig the ground without causing it to bind badly, they should be put off until they can be done properly, the delay being a great gain in the end. Clayey ground trampled on or wheeled over in wet weather binds badly, and no amount of exposure short of a long fallow will restore it to a

more free-working condition. As it happens, the pasty, congealed surface soil is, during the process of digging, buried rather deeply or where pulverisation is an impossibility, and there the lumps remain, first in sodden masses, and during the summer in hard dry lumps, which are of no service whatever in supporting any crops that may be growing over them. Not till it is possible to walk over ground without causing it to bind badly should it be dug, and it is certainly not fit to wheel over when it hangs to the boots badly.

Last winter sharp frosts were experienced early in January, and it may be we shall be similarly favoured this season. When the ground is frozen quite hard, a good opportunity is afforded to wheel or cart the manure on to land prior to digging. Some, in addition to getting out the manure, also attempt digging the ground, and this, again, is a mistake. If the surface is merely broken up or loosened, this favours pulverisation to a greater depth than would otherwise be the case. It must be remembered that it is the quick thawing that effects the desired end, this, following the alternate contraction and expansion of the frozen moisture contained in the soil, completely loosening or breaking up the quite large masses. When, however, large frozen spits of soil are buried deeply, this naturally has a cooling effect on that portion of deep soil surrounding it, and the thaw is very slow in consequence, the result being little or no pulverisation. Instead, therefore, of digging hard frozen ground, defer the operation till it is not only thawed, but also comparatively dry. It is no uncommon practice to continue digging after much snow has fallen, and this is even worse than burying frosted soil. Rain is colder than the ground on which it falls, and, it is almost needless to add, buried snow is even more cooling in its effect. One great drawback to heavy soils is their liability to become and remain much colder than those of a lighter nature. The latter, in very many instances, rest on a gravelly or naturally quickly drained subsoil, and these are not so easily injured by haphazard surface treatment. A perfect system of drainage and the exercise of good judgment as to when to dig and when to let the surface alone will more than compensate for any disadvantages that apparently dishearten many cultivators.

There are, however, some clayey soils that are exceptionally difficult to manage. Even these may be got into fairly good working order and be made to produce good crops of vegetables, but not if they were touched when in a greasy state, or say when they cannot be walked upon without the feet slipping badly. I have seen such clayey ground dug when water and thawing snow lay on the surface, and when water actually stood in the trenches, the process being more like preparing clay for bricks. I have had some experience with the lead-coloured London clay, and also with the yellowish fine-grained clay that abounds in the Wealds of Kent and Sussex, than which there are none more difficult to manage. Not only do these require to be dug when the surface at least is in a comparatively dry state, the spits being laid up like bricks set on edge, so as to expose them as much as possible to the action of frosts, winds, sunshine, and rain, but before they can be rendered fit for the reception of plants and seeds they have to be well separated with the aid of Canterbury or heavy two-tined hoes. The Somerseset clay is not nearly so tough as the Weald of Kent clay, and can be more quickly got into good working order. It is, however, remarkably retentive,

and if interfered with in wet weather it becomes very pasty and difficult to correct. Badly managed, it fails to get warm in a wet summer, while should a dry season be experienced it cracks badly, the crops in either instance being most unsatisfactory. W. IGGULDEN.

KITCHEN GARDEN NOTES.

FORCING ASPARAGUS.

No vegetable is more easily forced than Asparagus, yet it is the most valuable and the most appreciated of any in the list that may be daily sent to the kitchen for the cook to select from. The principal reason why many families are not kept well supplied with it, say from the early part of December till Asparagus is plentiful in the open, is the fact that the gardener responsible has either not sufficient facilities for preparing plants especially for forcing, or he is not in a position to break up an old bed every winter in order to procure abundance of roots for a similar purpose. Lifting and forcing the roots are the only methods of securing very early produce, say during December and January, but after that period good supplies of rather finer Asparagus can be had from permanent beds without disturbing the plants. In only a few gardens is there any special provision made for forwarding Asparagus where established, with the aid of either fire-heat or heating material of some kind, and this, seeing how well it answers where tried, is somewhat surprising. When there are a few beds formed either in the frame ground or adjoining the Rhubarb and Seakale beds, these having trenches between them with pigeon-holed walls, all that is necessary is to fill these with stable manure or other good heating material, and with a covering of frames the beds are quickly warmed through, active growth soon following. Sometimes a makeshift imitation of this practice is adopted with good results. Narrow beds or those about 3 feet wide are the most suited to the purpose, and I prefer span-roofed frames of the same width for covering them. On each side of the bed a trench about 2 feet in depth should be cut, some of the lightest or best of the surface soil being levelled over the bed to be forced and the remainder banked up conveniently near the trenches. The latter ought then to be filled with slightly prepared stable manure or a mixture of leaves and stable manure, this being rather firmly packed together and sufficiently high to cover the woodwork of the frames. It is advisable to cover the frames with mats and litter every night, and constantly in cold, frosty, or dull weather, and if the heat in the trenches declines very quickly, fresh manure must be added, or the forcing will be very slow indeed. If a length of about 12 yards or a short bed were covered at a time, or say at intervals of about three weeks or a month and duly forced, a good succession will be secured. Beds might be cut from for six weeks or even two months without being greatly injured, but they require a long rest afterwards, and ought to be forced every second year only. After the frames are removed, and this should be done directly cutting is discontinued, the heating material must be removed from the trenches and the soil returned. It is advisable to place a light covering of straw litter over the beds, or late frosts may injure the crowns and roots, which naturally are more tender than those not previously excited.

CARROTS IN FRAMES.

A plentiful supply of tender young roots is always appreciated, and in many gardens they are available all the year round. The sweetest and most delicious, however, are obtained from frames during April and May, and should the weather continue favourable, it is advisable to prepare a bed and sow the seed early in this month. A two-light frame will afford quite a long succession of roots, and a second sowing made under very similar circumstances a month or six weeks hence will be ample for most establishments, the supply lasting till such time as Carrots in the open are fit to pull. A hotbed should be formed facing south, with either well-prepared stable manure, or leaves and manure

mixed and firmly put together, the height at the back being about 3 feet, and 6 inches less at the front. If an isolated bed is formed, it is advisable to have this about 18 inches wider than the frame to be set on it. When the latter is in position, first throw in a layer of the shortest heating material, and on this not less than 6 inches of fine and rather sandy soil, the lights being put on at once. We use the shallowest frames for these crops, and when filled the soil is very near to the glass. When it is found there is no danger of the bed becoming violently hot, the seed should be sown in shallow drills, formed with the aid of the edge of a short rod, and about 8 inches apart. If the soil is at all dry, water gently prior to sowing the seed, otherwise no water will be necessary for several weeks. The French Forcing Horn and Golden Ball are the quickest to form bulbs, and Early Gem and Nantes Horn are also suitable for frame culture. As these grow larger they are of better colour than those first named. Preference should be given to new seed, this germinating the most surely and quickly, and ought not to be sown thickly. The frames ought to be covered with mats and litter till the seedlings appear, when they must be uncovered whenever the weather permits, and a little air may be admitted from the back of the frames on sunny, mild days. Very little thinning out is needed, this being delayed till the earliest roots are near the size of small Walnuts or large enough for use. When leaves are used in forming the hotbed, small white slugs are certain to be numerous and troublesome, and these ought to be trapped by means of Cabbage leaves and destroyed. Late-sown Carrots on warm borders have not ceased to grow, and if protected when necessary with frames, mats, or even straw litter, they will be available in all weathers and for several weeks longer.

EARLY RADISHES.

Quickly grown early Radishes are the most digestible, and, in addition, form a very attractive dish on the breakfast table. They may be either grown with the earliest Carrots, or, better still, in a frame separately. In the former case, the drills should be drawn midway between those intended for Carrots, the seed being sown thinly so as to necessitate but little thinning out. It germinates very quickly, and the frames must therefore be uncovered before the Carrots are visible, or the Radishes will be unduly drawn. Not much air is needed, but all the light possible should be admitted. If the seedlings are crowded they will fail to bulb quickly, and perhaps not at all; they ought therefore to be thinned out early, leaving them from 2 inches to 3 inches apart. When a frame is given wholly up to them, this may be prepared similarly to that intended for Carrots, and the drills formed 6 inches apart, the seed being sown thinly and the bed duly smothered over. We prefer to sow the seed broadcast, pressing it down and covering with a little fine soil. Sound seed being sown, an even plant should result, and little or no thinning out be required. There are now a considerable number of early varieties to select from. The red and white forcing Turnip-rooted are the quickest to form bulbs, and in close succession come forcing carmine Globe, rose Globe, violet and red French Breakfast, and Wood's Frame. The last-named is the most profitable variety, but a mixture of the others, in two or three colours, forms the prettiest dish.

SPRING SALADING.

Endive not being much injured by frosts will keep much better than usual, especially if not crowded in frames, pits, sheds, or other storing places, nor blanched long before it is needed for use. Continued mild weather has also favoured a steady growth of those plants raised late, and if the strongest of these are housed or protected in some way before the tips of the leaves are touched by frost, the hearts will be available as late as March. A still later supply can be had by moving the smallest plants from the open to shallow frames set on warm borders. If transplanted with a good ball of soil about the roots, disposed about 8 inches apart each way and duly protected, the growth will not be much checked, and a serviceable lot of Endive be available for mixing with the earliest

Lettuce. Many of the autumn-raised Lettuce plants have become too large to be hardy, and in order to protect them against frost, it is advisable to protect a portion or all of those requiring it. In our case, as fast as frames are liberated from Endive, Hellebores and other subjects needing temporary protection, they are set over the forward Lettuce, and mats also used if need be. Neither the Cos varieties nor the hardy Cabbage Lettuces force well, but they may be transplanted to frames or pits and forwarded somewhat. Early Paris Market, a quick growing and fairly hardy Cabbage variety, is well adapted for either forcing in frames or in boxes placed in early vineries or Peach houses. Seed may be sown now, or if there is a stock of autumn-raised plants, these may be forced from the present time. What we find answer best are shallow frames set on gentle hot-beds, about 9 inches of good loamy soil being thrown in and the plants put out 8 inches apart each way. Being duly protected and given air in warm weather, growth is rapid and excellent hearts the result.

W. I.

Tomato Earliest of All.—Whether this Tomato possesses any other superior qualities to those of other varieties is, no doubt, a matter of opinion, but that it is earlier than such sorts as Dedham Favourite, The Trophy, and several others when grown under exactly the same conditions I had good evidence last season, for I saw fruits of it quite ripe when those of the others were only changing colour. I am quite satisfied that where ripe Tomatoes are required this sort is worth a trial.—J. C. C.

Green vegetables.—Never perhaps have these been so abundant and good at this time of year as they are this season, and had it not been for the sharp frosts in October that cut Peas and Scarlet Runners off, I think we should have been able to have picked off plenty now, as the temperature all through November had been very high and the days bright and sunny, and as pleasant as those of May. Young Cabbages look very strong, and the chances are that many will bolt; and the same with young Cauliflowers, as both are very forward and are being forced rapidly on. Early Broccoli, such as Snow's and Backhouse's, are beginning to turn in; but up to the present Veitch's Autumn Giant Cauliflower and Broccoli have afforded a full supply, and fortunate are those who planted good breadths of these late, for both are first-class, and there is nothing to equal them. Brussels Sprouts have had a fine time of it, and the sprouts are solid; and Winter greens are full of growth, as is also Spinach. But there is another side to all this, for if we get severe weather after the turn of the year, vegetation, in its unprepared state, must suffer; but it is something to have gone so far and fared so well with our gardens.—Field.

Cooking Cardoons.—In reply to "C. W." (p. 567), a famous gastronomist said that good cooks were only those who knew how to prepare Cardoons properly. Cardoons can readily be made into a good dish for the table in winter, and they are largely used in France. If the plants have been closely bound and earthed up, they will become white and tender inside within a month or even a much shorter time by the following process. Early in autumn I was informed of the visit of some English friends only eight days before their arrival, and I wished them to taste French Cardoons, which were at that time of year still in full growth and wide open. Nevertheless, I had one bound up at once and every day tepid water poured between the leaves, and after eight days the Cardoon was fit for use. For cooking it, take the tender stalks, but not the hollow ones, and the large roots, which are the best part of the plant. Cut these into pieces 3 inches to 4 inches in length, pare them well, and drop at once in cold water, to which are added a few spoonfuls of vinegar and flour, in order to prevent the pieces of Cardoon turning black during the operation; drip them well and throw in boiling water with some salt and a spoonful of flour. Keep the water gently boiling until the pieces give under the pressure of the finger, then take them out. When well drained

they are fit for serving with gravy sauce, white sauce, &c., both of which are well known in England.—J. SALLIER, *St. Germain-en-Laye*.

MANURING.

Just at the moment of writing, the atmosphere is bright and clear; the frost is keen and will probably be hard in the morning; and thus is held out pleasant anticipation of a busy day's work, getting out upon the spare areas of ground the well-cared-for, but now thoroughly decayed garden refuse of the past summer and autumn. There can be no doubt but that in clear frosty weather there is hardly more exhilarating labour than is found in the wheeling of such refuse over the hard ground. If ordinary care be taken it could be done with absolute tidiness, and the work should cease wherever, under the influence of sunshine, the surface of the garden paths begins to soften. It is not only a source of satisfaction that an accumulation of garden refuse, thus decayed and prepared for use by several turnings, gives employment when frost shuts up other labour, but it also forms a valuable manure, especially for flowers, or for those crops which need only moderately enriched soil. It would be a misfortune in any ordinary sized garden were no out-of-the-way spot set apart for rubbish accumulation. Some terribly nervous people are always in a state of alarm lest a small heap of garden refuse should, in decaying, generate some frightfully foul gases, elements of disease in the human frame. People who are always in such condition of terror, suffering from a mind diseased by apprehension, soon bring the body into the same state. This terror is, however, very absurd and utterly groundless. Even the most offensive of vegetable matter, if in process of decay, can be readily deodorised by the application of slaked lime, or better still by a thin dressing of soil thrown over the refuse. Ordinarily, however, there is little or no offensiveness arising from decaying garden refuse, especially if such refuse consist of short Grass, weeds, Couch or Twitch Grass, Pea haulm, leaves, or, indeed, any description of rubbish such as usually accumulates in a well-kept garden. In some cases the rubbish heap is for the summer made to sustain the ordinary crop of Vegetable Marrows, and at the end of the season, if the soil used for the surface, with perhaps some manure also, be all turned up well together, a capital stack of manure is formed. Where it is not desirable so to utilise the refuse, it is best to make it into a tidy square heap, and to have cast over it during the hot weather house slops or other liquid compounds, which, if imparting little of manurial properties, will promote thorough decay. As in my own case, the refuse is accumulated behind a wall and adjoining an overhanging shrubbery. It is quite out of sight, and gets from time to time a thorough soaking of liquid. Thus just now, having been twice turned, it comes out literally a valuable manure, and is very serviceable in fertilising our stiff clay soil. It is a curious fact, and an instructive one, that whereas in ordinary moist and growing seasons evidences of a good spring dressing of stable manure soon disappear from the soil, a liberal dressing of the garden refuse so long endures, that when the soil is turned up a year later ample evidences of its presence are found. That is because the material contains so much of woody matter, and is therefore often richer in phosphates if poorer in ammonia than is animal manure. All through my gardening life I have strictly preserved garden refuse. Some of it is, perhaps, best burned, especially when it partakes of bushes or seedy stuff. But even seedy stuff will, if left to thoroughly decay in a wet state, soon become harmless, as seeds invariably decay also if left in such a heap. Whenever seeds are found to be germinating externally, the refuse heap should be well turned, and with some heat created the seeds are soon destroyed by the fermentation. Gravel and other road sweepings are best kept away from the refuse heap. All the same, it is only where the gravel is unduly shingly and loose or the sweeping is badly done that gravel is thus accumulated. Any good sweeper should long previously have acquired the art of taking up leaves and

other refuse from walks cleanly without picking up any gravel. In running out the decayed refuse now, some supervision is needed to prevent none too cleanly labourers from overloading the wheelbarrow, or from otherwise shedding the dirt on the paths. Garden men, however, as I have often noticed, soon fall into their employers' methods, and if tidiness be the gardener's dominant feature, the labourers soon learn to acquire the same taste, and a very pleasant garden taste it is. The slovenly man, as a rule, makes for himself double the work that a tidy man does, and at his best is never tidy then. The refuse heap once on to the spare plots and duly spread, the poor birds will find in the manure much acceptable food, whilst the moment the frost breaks it can be dug in, and the soil is thus admirably prepared for another season's cropping.

A. D.

STOVE AND GREENHOUSE.

THE HIPPEASTRUM.

WE commence repotting the *Amaryllis* in the second or third week of the new year, and as there seems to be some difference of opinion as to the time when this operation should be performed, I can only remark on this point that our practice results in the production of strong, well-developed flowering plants. In fact, our collection, for a private one, has taken the highest positions at the metropolitan flower shows for several seasons. I write this on the 18th of December, and I gave instructions for the crowns of the bulbs to be cleaned two days ago, and happening to call at Messrs. Veitch's nursery in the King's Road, Chelsea, recently, I found they had started cleaning their bulbs at the same time, and were finishing their work in a dense fog, which I would remark is a foe they have to fight against even more than we have a few miles further from its centre. At all events, they fight a winning battle, for the bulbs are the best I have ever seen. I would venture to prophesy that at least ninety-five per cent. of the bulbs will produce strong flower-spikes. Messrs. Veitch's collection is undoubtedly the best of its kind in the world, and I may say that the culture pursued with the *Hippeastrums* in the Chelsea nursery is the same as we pursue here, and is what I have recommended in this journal for the last ten years. The object of thoroughly clearing away any loose material from the crown of the bulb is to get rid at the same time of any insect pests that may be lurking within the folds of the downy scales. After removing the stuff, we dust the crown with tobacco powder, and by the time repotting is commenced the crowns are quite dry. If there are any signs of decay, the whole of it should be carefully removed, and the exposed part be dusted with quicklime; but it may be said that when *Hippeastrum* bulbs get into an unhealthy condition, they are not really of much value. Some varieties are naturally of a bad constitution, and it is disheartening work coddling them up into a flowering size, and when once they do produce a flowering scape the effort is too much for the bulb. Messrs. Veitch's foreman said that their main object was to obtain flowers of the best form and quality combined with a strong constitution. This desirable end has already been obtained, but the end is not yet. In fact, the florist does not admit of any limit to his work; his motto is onward, and he finds his greatest delight in anticipating the flowering of his seedlings. The only new species they have used in Messrs. Veitch's nursery as pollen and seed parents is the long-tubed *H. solandriflorum*. When I say new species, I mean so far as it has been used for seedling purposes

in recent years. Some of the hybrids from it are very distinct; the tube has been shortened, while the green and yellowish white flowers have been replaced by a glossy purplish and crimson-coloured tint in the flowers. But, in truth, the hybridist is just now where Dean Herbert was sixty years ago, as he used this long-tubed species freely to hybridise with. He named his best cross from it *H. Carnarvoni*, in honour of his brother, the Earl of Carnarvon. He also crossed it with *H. bulbosum*, and named the produce *H. Haylocki*; at least it was so named by Sweet. Another hybrid between *H. solandriflorum* and *H. stylosum* was named *H. Herberti*.

It may be well to remark that all Herbert's hybrids were also named after both parents—thus *H. Carnarvoni* was *solandrifloro-Johnsoni*, and *H. Herberti* was *solandrifloro-stylosum*. About a score of hybrids were raised in those early days at Spofforth and Highclere, but most of them passed out of existence a few years after the death of Herbert. From a horticultural point of view, we are greatly in advance of anything raised in those early days of hybridising; and the only object in hybridising with these old and distinct species is to obtain a new strain with flowers of a different form; and new colours may also be introduced. I believe the very distinct species *H. Rayneri* is in cultivation at the present time as “a blue *Amaryllis*.” We seem to have a blue Rose of a *Nemophila* colour; but the species in question is not a blue *Amaryllis*, yet it is distinct in colour, and, as figured in the *Botanical Magazine* (t. 5883), is a handsome plant. Its large falcate leaves are distinctly edged with buff colour. It is also winter-flowering, having been flowered in November by a Dr. Rayner, of Uxbridge, in 1870. Subsequent research, however, proved that it had previously been introduced to the Continent from South Brazil in 1863, and was described by Duchartre in the “*Flore des Serres*” (t. 2077-8) as *Amaryllis proceræ*. It is now given in Mr. Baker's new “*Handbook of the Amaryllideæ*” as *H. procerum*. The flowers are from four to twelve on an umbel, and of a beautiful pale purplish lilac colour. If this species could be used as a seed or pollen-bearer, some good results might follow.

In three or four weeks we will be engaged repotting our plants. The soil in the pots is now dust-dry, and no water will be given to the bulbs until a month or six weeks after they are repotted. The *Hippeastrums* like a moderately rich compost to grow in; a fourth part of decayed manure added to some good turfy loam, with a small portion of leaf-mould and sand, answers very well, an addition of good fibrous peat helping to keep the compost open. In potting press the material firmly around the bulbs, and let them be about half their depth out of the soil. We plunge all the best varieties up to the rims of the pots in which they are planted in warm tan, and the temperature of the house is not kept much higher than 45° to 50° to start with. There ought not to be much moisture from evaporation at first, and no water should be applied until the bulbs have had a chance to make some roots; this is also very material, as an excess of moisture in any way is productive of decay. The small seedlings are now quite green; they never lose their leaves in winter, and some fifty plants, or more, are growing in a 6-inch pot. These are carefully laid out in sizes, and three of them are planted in a 3-inch or 4½-inch pot according to the size of the plants. It is also well to urge the importance of having the potting soil in good condition. It ought to be warmed by being placed in the

house for twenty-four hours before being used, and should be moderately moist.

J. DOUGLAS.

Fuchsia ampliata.—In the remarkably interesting notice of the different species of *Fuchsia* on p. 362 occurs the name of *F. ampliata* among “Species not yet introduced into cultivation.” This is certainly an error, for I saw it beautifully in flower at Kew three years ago, and since then it has been catalogued by at least one of our leading nurserymen, from whom I obtained a plant last year. It is a remarkably pretty little species, but, as far as my experience of it extends, not so free blooming as *Fuchsia triphylla*, a very valuable introduction, or rather re-introduction, for it is, I believe, the oldest known species of *Fuchsia*, though lost to our gardens for a long period till re-introduced about half a dozen years since.—H. P.

Azalea roseiflora.—One great merit possessed by this *Azalea* is the fact that without forcing it will often produce a few scattered flowers throughout the latter part of November, and from that time maintain a succession of blooms till spring is well advanced. This habit of flowering in such an irregular manner is different from that of the numerous varieties of the Indian *Azalea*, most of whose blooms expand at nearly the same time, and consequently when a plant does bloom, it is simply one mass of colour. Though the flowering season of *A. roseiflora* is spread over such a lengthened period, so free blooming is it, that in the case of a good sized specimen there will be by April a great number of unexpanded buds, which with the brighter weather then experienced will all open at much the same time, so that even after blooming in this irregular way for months, it will be at last densely covered with blossoms. This *Azalea* forms a low, much-branched, globular-shaped bush of very slow growth. The blooms are of a pleasing shade of bright salmon-pink and very double, the petals being beautifully imbricated. Just as the flowers are partially expanded, they greatly resemble little Rose buds. This *Azalea* is by no means a novelty, for Messrs. Rollisson, of Tooting, were awarded a certificate for it by the Royal Horticultural Society many years ago under the name of *A. Rollissoni*, but it is still quite a rare plant. This is no doubt to a great extent owing to the fact that it makes such slow progress during its earlier stages. By some it is grafted on to a strong growing stock of *Azalea indica*, and when the point of union is close to the ground no objection can be taken to such a mode of increase; but I have seen plants grafted on clean stems 1 foot or 18 inches high which were far too mop-like to be pleasing. I find that the best way to treat this *Azalea* is, directly after flowering, to place it in a warm growing temperature, where it is occasionally syringed, as by so doing good growth is ensured. Then the plants may be gradually hardened off till they can be stood out of doors for a few weeks without injury, but it should not be in too sunny a spot, and at the same time they must be carefully attended to in the matter of water. As they are very impatient of an excess of moisture, care should be taken that they are removed under cover before the heavy autumnal rains set in. A coloured plate of this *Azalea* was given in THE GARDEN in 1880, and well it deserved that distinction. Besides the two names above mentioned, it is also known under that of *A. balsamiflora*.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

The Poinsettia as a wall plant.—It is not perhaps generally known that the *Poinsettia* succeeds very well planted out against a wall in a warm, light house. If the wall is shaded too much the bottom clusters of bracts will be proportionately small, but up near the glass I have cut very large heads of brilliant scarlet bracts. The border should be made rather firm, and liquid manure can be given to increase the size of the heads.—E. H.

Daphne indica rubra.—This deliciously fragrant subject is just now an object of great interest in the Rose house at Gunnersbury Park, where it is planted out in a raised bed with Camellias, &c., and

where it has grown into a large bush. This position appears to suit it, for it flowers abundantly and diffuses such a sweet fragrance as to completely fill the house. Pruning is not at all necessary; the growth is regulated by the constant cutting to which the plant is subjected. It is probably owing to the freedom the plant enjoys at the roots that it is in such a vigorous condition and blooms so finely. The form now under notice is one of the most fragrant of winter-flowering plants.—R. D.

Drooping Glory Tree (*Clerodendron nutans*).—This stove shrub, of which a coloured plate was given in *THE GARDEN* for May 5, 1888, and which attracted a good deal of attention when exhibited by Mr. Head at one of the Royal Horticultural Society's meetings a little more than a year ago, is very easily increased by means of cuttings put in during the early spring months, and so free-blooming is it, that a dozen plants which I struck last spring, and some of which are still very small, have flowered this autumn. It is indeed a remarkably pretty species of *Clerodendron*, and is so easily increased that the fact of its being lost to this country after having been in cultivation here is rather surprising, and we are certainly indebted to Mr. Head for its re-introduction. The fact of the Drooping Glory Tree producing its blossoms during the autumn months is a great point in its favour.—H. P.

Lilium neilgherrense.—This Lily has been noted in several horticultural journals as being very finely in flower at Kew, and in an article on the subject, p. 550, it is stated to require only ordinary care. Now this is undoubtedly quite correct, as far as its first season is concerned, for I find that imported bulbs require only to be potted and given the general treatment of greenhouse plants to ensure a good crop of blossoms, provided always, of course, that the bulbs are sufficiently strong. My experience of this Lily is, however, that the second season's crop of bloom will fall very far short of the first, and that each year will see a diminution in the floral display. I cannot find that others are more successful with it than myself, though many have tried, as it is such a beautiful autumn or winter-flowering Lily. It dislikes pot culture, for the flower-stem will frequently, after leaving the bulb, proceed in a horizontal direction for some distance, so that when in a pot it often travels completely round the ball of earth, and finally makes its appearance at the side of the pot. I obtained some imported bulbs nearly two years since, and they flowered beautifully last year, while this season most of them have bloomed again. While in the case the majority of them pushed up the flower-stem. This was especially noticeable in regard to two, one of which bore the finest flower of any, on a stem not more than 6 inches high, the remainder of the stem being wound round the ball of earth, while in the case of the other the flower-stem did not come to the surface, but made its way through the hole in the bottom of the pot, after which it took an upright direction and then flowered. This habit is also common to *L. neilgherrense* in a state of nature, for I have had imported bulbs the buried portion of whose flower-stem measured a yard in length.—H. P.

Anthracite coal.—In reply to "B." in *THE GARDEN* (p. 567) about the value of the above coal against good coke, I have been using it for the past three months, and so far have not found it answer the purpose so well as coke. It burns very fairly and is very lasting, but does not give out heat enough for my purpose, neither is it quick in heating, like coke. It appears to be best suited for mild heating, or where a regular and gentle heat is needed, but during a severe frost I should be sorry to have to rely upon it. The late frosty nights have proved coke to be the most reliable. I have two saddle boilers side by side; in one of them I used all coal, and the other coke, for the purpose of trial. With coke the heat needed checking long before the other had reached the proper state for comparison, though both boilers were allotted as near as could be the same amount of piping to heat. To get up a bright fire anthracite needs a much sharper draught than coke; even then it does not give suffi-

cient heat in time to be so reliable as coke against a sudden frost. Again, anthracite requires more frequent attention in feeding the fire. It needs it a little at the time and often in order to get the fullest amount of burning or heating power out of it. I remember many years ago, when living at a place in Kent, we had a small cylindrical boiler to every house in which Welsh coal (very similar to anthracite, if not the same under another name) was used, and answered very well, but when the arrangement was altered to the one-boiler system it had to be given up, because we could not get sufficient heat. With regard to "B.'s" second question, it is not so clean as coke, and there is more fine or dust coal than is desirable made principally in the breaking up for use. This need not be wasted, as by being made wet before putting on it does well for banking up, which operation, if properly done, will ensure a good fire in the morning. Anthracite has one advantage over coke, in that it makes no clinkers and very few ashes, so that everything can be burnt up. I have no information to offer "B." in his third question, beyond stating that one barrowful of coal will last out four of coke, but then there is a great difference in the price.—T. R. F.

—In answer to "B.'s" inquiries in *THE GARDEN* (p. 567), having given this a fair trial with several classes of boilers, I have found that the advantage is all in favour of coke. Anthracite may answer when there is a great draught, but if such is not the case the anthracite coal lies dead and refuses to burn. It also requires frequent attention, as if too much be put on at once the fire goes out entirely. Some few years ago in one of the leading establishments in the neighbourhood of London there was a house where a fire was only lighted when there were signs of a severe frost, and this having suddenly come on, anthracite coal was used to get up the heat and entirely failed, the frost having got into the house. Next night was equally severe, and recourse was had to coke, with which there was not the slightest difficulty in maintaining a sufficient heat. I have also tried it in saddle boilers with the same result. I have found a mixture of anthracite coal and coke answer well, the coke preventing the coal from "caking" and so checking the draught. I should certainly advise "B." unless he can obtain sufficient draught, not to trust entirely to anthracite. I understand that anthracite is largely used by some of our London market growers, and it would be well to have their opinion of it. The only advantage I could find in anthracite over coke was that there were no clinkers nor ashes, but in a boiler kept clean and well stoked, all the refuse of coke, with the exception of the clinkers, may be burnt up. The anthracite coal, as supplied above, costs 16s. per ton, delivered at Brentford Station.—X.

FRUIT CULTURE FOR PROFIT IN THE OPEN AIR IN ENGLAND.*

I THINK I may safely assume that a much larger quantity of English fruit would meet with a ready sale if put before the public in a tempting state. I think I may also assume that there are thousands of acres of land in Great Britain at present bringing little or no profit to owners or occupiers which, if planted with fruit trees, might be made to return a good profit to both. Not that I think large fortunes are to be made by the venture, but a fair remuneration for the outlay of capital, and the application of industry and skill.

To give these opinions a practical application, I propose to say a few words on the subject under the following heads:—

1. Climate. 2. Soils. 3. Holdings. 4. Sorts.

1. **CLIMATE**.—A mild equable climate free from sudden changes of temperature and storms of wind or rain should be taken in preference. I do not believe in planting Apples, Pears, Cherries, and Plums in the bottom of valleys. This is often done on account of the quality of the soil. But it is of little benefit to the grower to realise a good growth and

abundant flowering if his crop is destroyed in a flowering state by the spring frosts. Over the last few years there has been a wonderful show of blossom on the fruit trees in the valley of the Lea, but little fruit has followed, owing to the destruction of the embryo by the severity of the spring frosts in this low situation. This is the one point in climate that would seem to render it unsuitable for culture for profit, as it can be but partially amended by shelter or any other means.

It seems to me that many important points desirable to secure success, which are well known to those who are thoroughly versed in these matters, have not yet taken hold of the general mind, and they cannot be too often repeated till they do this. Only a few years ago I was surprised to meet with an orchard newly planted in the bottom of a moist valley, the climate of which in spring was trying in the extreme for early buds and blossoms. The sorts, too, were indifferently chosen. Nevertheless, the planter persevered with their culture, until he found that for three or four years in succession he got plenty of blossom, but little or no fruit. He has recently destroyed them and cropped the ground with vegetables. But what a waste of time and money, and what a source of vexation and disappointment.

I believe in planting on slopes or uplands, where the spring frosts are less destructive, with distant shelter to be provided, if not already existing. If cheap, quick-growing trees are planted for shelter within a few yards of the boundaries of the plantations at the time young fruit trees are planted, the former will afford the necessary shelter by the time the fruit trees come into bearing.

On a farm of 200 acres there may be a difference of climate that would render fruit culture profitable or unprofitable, according to the position in which the trees are planted. In the valley of the Lea I find that in some years the crop is mainly or wholly on the bottom, and in others on the top of the trees. This I attribute to the frost being more severe in the one case near the ground, and in the other at a greater elevation during the period of flowering.

2. **SOILS**.—A light or medium loam of good depth and well drained is generally accepted as the most favourable for the production of an abundance of good fruit. It matters not if it be poor, provided manure can be obtained at an easy distance or at a cheap rate. A bad soil in a good climate often yields the grower more profitable results than a good soil in a bad climate. If the ground be wet, thorough and deep drainage is an essential condition of land to be employed in fruit culture, for it improves the climate as well as the soil. Chalk or gravel would seem to be a better subsoil than clay, as the latter, especially if wet, favours the development of canker.

As to soils for the different fruits, I would prefer for Apples a medium loam; for Plums, Pears, and Cherries a light warm loam. For Strawberries a light rich loam, cool and moist, with ready access to water. For Raspberries a deep, light loam, also cool and moist. For Gooseberries and Currants a deep, strong loam. But I would not convey the impression that these soils are necessary; in well-drained soils cultivation may be safely extended even to strong or clayey loams.

Of course, the working of the soil is, or should be, much more costly than in ordinary farm operations, and the cultivation of the trees, by pruning and keeping free from insects, is also an item of cost in labour which must not be lost sight of. In estimates of profits lately put forward it appears to me that these facts in connection with the cultivation of trees and soil have not been sufficiently allowed for.

3. **HOLDINGS**.—It is often said one should not plant fruit trees for profit except on his own land. But this would unnecessarily limit the number of growers. A long lease, however, is indispensable. According to calculations I have made, but with which I need not trouble you, thirty years is the shortest lease I should advise anyone to plant under. If the lease be for a shorter period, I think the

* A paper read by Mr. William Paul, F.L.S., at the Apple and Pear Conference, Chiswick, October 17, 1888.

tenant should expect from the landlord either a renewal at the same rent as before, or that his trees be taken at a valuation.

It may be thought by some that this is asking too much from the owner of the soil, but I do not think it is more than it is his interest to concede. By such concession he may secure a good tenant and a good rent, and there is ample security for his rent in the value of the trees on the soil. I will read a brief extract from a recent number of the *Sussex Advertiser* in reference to land tenure in Kent, and without offering any opinion on the course taken by the tenant, as I know nothing of the case beyond what is here stated, I think you will all agree with me that such a state of things is to be deplored:—

"LAND TENURE IN KENT.—One of the results of the unsatisfactory system of land tenure now prevailing in this country is to be seen at Knockholt, Kent. The lease held by Mr. Edwin Bath, of Curry Farm, in that parish, expires at Michaelmas, and he is not allowed to renew his tenancy, nor can he recover compensation from his landlord for a valuable plantation of 30 acres of Raspberries on the farm. Consequently, the extraordinary spectacle may now be seen of a reaping machine cutting down, and a steam plough following it rooting up this plantation, which has cost a very large expenditure of time and money to produce. When it is considered that the produce of the plantation in question realised in the present year upwards of £1690, and that the plantation was vigorous and in full bearing, some idea may be formed of the sacrifice of property involved."

Further: It has often struck me that the manner in which the charges on land are levied is not equitable, and is calculated to discourage rather than encourage the planting of fruit trees for profit. A few words will, I think, make this plain. A man plants fruit trees, not looking for any quantity of fruit for four years. During that period he receives nothing, or next to nothing in the shape of produce, although rent charges on land and expenses of cultivation are going on and have to be met. Then when his crop brings him a larger return than ordinary farm produce would bring, the charges on the land are raised! Now it would seem only fair, if the charges on land are calculated according to the value of the annual crop, the planter of fruit trees should pay nothing the first four years.

4. SORTS.—Of large fruits grown for profit, Apples would seem to stand first, Plums next, then Pears, then Cherries. Of small fruits, Strawberries, Raspberries, Currants, and Gooseberries are the most important; Filberts may also be planted to give a profitable crop in odd sheltered spots where other fruits would not grow well. But these different fruits do not all require precisely the same climate and soil. The Apple is perhaps the least particular in these respects, some varieties of which will thrive and produce large crops of good fruit in almost any well-drained soil when grafted or budded on the Crab or Apple stock—the Paradise stock I have found next to useless under field culture on the clayey soils of *Sussex*. There are fifteen sorts of Apples which I should plant in preference to others in my own county (Hertfordshire), having an eye to the disposal of the crop as well as to its production. They are: Blenheim Orange, Cox's Orange Pippin, Cox's Pomona, Devonshire Quarrenden, Ecklinville, Duchess of Oldenburg, Irish Peach, Keswick, King of the Pippins, Lord Suffield, Small's Admirable, Stirling Castle, Sturmer Pippin, Warner's King, and Wellington.

I can speak favourably of the Ecklinville from experiments made both in Herts and *Sussex*. I planted in *Sussex* four years ago 200 Ecklinville Apples that had been cut back as maidens to 2½ feet. The soil (a quarter of an acre) was good, and had been subsoiled 18 inches deep a few years previously. They grew well. The third year they produced 5 bushels, the fourth year 17 bushels, which sold on the ground at 5s. per bushel. They were planted about 6 feet by 6 feet, but strong growers might be planted 9 feet by 9 feet, and small fruits or vegetables might be grown between

the trees for a few years. I estimate the expenses of planting and cultivating these 200 Ecklinville Apple trees on a quarter of an acre of ground in 1884 as follows:—

Cost of trees, 200 at 50s. per 100	£5 0 0
Planting and digging	0 15 0
Four years' cultivation, at 15s. per year	3 0 0
Rent, rates, &c., at 10s. per year	2 0 0
Returns in 1888: 22 bushels of Apples sold on the ground at 5s. per bu-hel	5 10 0
	£5 5 0

Next year I expect to get the outlay back, and look to the future for profit.

In exposed situations pyramid or bush trees are preferable to standards, because the fruit is not so liable to be blown down, and in large orchards, if the trees have stems 2½ feet to 3 feet, sheep could run under them to feed, and thus help the returns.

PLUMS.—The Early Prolific, Early Orleans, The Czar, Belgian, and the Victoria are good ones. Purple and Pershore Damsons also, of which the Farleigh is well to the front, are usually a profitable crop.

PEARS want a better climate and a warmer, richer, and deeper soil than Apples, and are not usually so profitable a crop as Apples. They do well as a rule on a subsoil of chalk. Of Pears, Aston Town, Eye-wood, Hessele, Williams' Bon Chrétien, Beurré de Capiaumont, and Beurré d'Amanlis are the most profitable sorts to grow in Hertfordshire; Louise Bonne of Jersey, where it will grow, and Marie Louise, where it will bear freely, are also good varieties.

CHERRIES like a lighter and deeper soil than Apples. The May Duke, Bigarreau, Napoleon, and Kentish are good.

STRAWBERRIES.—Vicomtesse Héricart de Thury, Sir Joseph Paxton, Elton Pine, President, Sir Charles Napier.

RASPBERRIES.—Carter's Prolific, Fastolf.

CURRANTS.—Black Naples, Lee's Prolific, Red Dutch.

GOOSEBERRIES.—Whitesmith, Warrington, Crown Bob, Lancashire Lad.

In selecting sorts of fruits it should not be lost sight of that some sorts flower later than others, and the blossoms of some sorts are more frost-proof than others, and thus the crop is often saved by late-flowering or frost-resisting blossoms. If I were about to plant fruit trees for profit, I should look closely to these matters in the selection of sorts. I would also examine all the fruit trees, and talk to all the practical gardeners in the neighbourhood whom I could persuade to listen to me to ascertain which sorts produced the best and most certain crops in the district.

In conclusion, let me say that the grower's work is only partly done when he gathers his crops. He has to sell them. Like other men of business, he must be sufficiently intelligent, industrious, and energetic to find the best market for them, and to pack them properly, if packing is needed, or he misses the reward of his skill and labour.

SHORT NOTES.—ROSES.

China Roses.—I am much obliged to "R. D." for his note (p. 524) about the common white China Rose. I have, I think, discovered its whereabouts, and hope shortly to obtain it, but I have only been able to find it mentioned in one solitary Rose catalogue in this country.—T. W. G.

Rose Ducher.—As for this Rose, if "R. D." will be so good as to tell me where there is an effective bed of it in bloom in summer, I should be very happy to go and see it, and to rejoice in someone else's success with a Rose that with me has proved to be a complete failure.—T. W. GIRDLESTONE.

Late Roses.—Under this heading, "J. C. C." in *THE GARDEN*, Dec. 8 (p. 523), speaks very highly of the old monthly China Roses as being continuous bloomers. I agree with all he has said in their favour. They have flowered here unremittingly for the past eight months, and show every sign of continuing if the weather keeps mild. I am glad to see that the old favourite *Gloire de Dijon* comes in for a word of praise. I may mention two others which are very free autumn bloomers, viz., *Cheshunt Hybrid* and *Marie Van Houtte*.—H. LOUVE, *Paversham, Kent*.

SOCIETIES.

THE GARDENERS' ORPHAN FUND.

THE usual monthly meeting of the committee took place at the Caledonian Hotel, Adelphi, W.C., on Friday, the 28th ult., Mr. George Deal presiding, there being a full attendance of the members. The minutes of the last meeting having been read, a communication was submitted from Mr. S. Knight, announcing the death of Mr. C. Howe, of the Gardens, Benham Park, Newbury, a member of the committee and hon. local secretary for that district. The balance at the bank in favour of the fund is £346 18s. 9d., and it is the intention of the committee to fund another sum of £500 at the earliest possible moment. A letter was read from Mr. O. Thomas, the Gardens, Chatsworth, enclosing the sum of £31 as the proceeds of the entertainment recently given at Chesterfield by the gardeners of the district on behalf of the fund, and requesting that it might appear in the subscription list as a donation of £2 11s. 8d. from the twelve gardeners constituting the committee of management, as it was the intention of that body to continue the entertainment annually, and so add annually *pro rata* the proceeds to each man's donation. It was pointed out by the chairman that if this arrangement were carried out, the division would not apportion enough to each man to give a vote at the next election, as the moneys could only be classed as donations, and no donation under £5 carries a vote. It was therefore suggested that the matter should be referred back to the committee of gardeners with the recommendation that they should ballot among themselves so that six of their number might be credited with £5 and upwards each, in order that votes should not be lost, and this was agreed to. The sum of £42 9s. was announced as having been received from seven local secretaries, and £1 1s. was handed in from the West Kent Gardeners' Society at Bexley Heath; 13s. 1d., the proceeds of a collecting box at the Chrysanthemum show at Chiswick, and 18s. 6d. found in the box at the Chiswick Apple and Pear congress. A donation of £5 5s. was also received from Mr. McKenzie. A letter was read from Sir Somers Vine announcing the intention of the governing body of the Imperial Institute to contribute the sum of £5 5s. to the fund, in recognition of the services rendered by Mr. A. F. Barron, who suggested that it should take this form. Mr. Thomas H. Barroway, Vicarage Street Nursery, Warminster, was appointed hon. local secretary for that district. A letter was read from Mr. W. Thomson, Clovenfords, Galashiels, which illustrated the strong prejudice which exists in Scotland against the fund, it being evidently held that the orphan children of Scotch gardeners would have no chance of election to the benefits of the fund. The usual quarterly allowance to the children on the fund, viz., £35 11s., was ordered to be paid, as also some small accounts.

A draft form of petition to the City Companies, soliciting assistance from their funds for the Orphan Fund, was referred to the sub-committee that has this matter in hand. A vote of thanks to the chairman brought the proceedings to a close.

National Chrysanthemum Society.—The sub-committee—Messrs. Castle, Gordon, and Payne—appointed by the National Society to make arrangements for a conference to be held in conjunction with the winter show of Chrysanthemums at the Royal Aquarium on January 9 and 10 next, announce the following programme. The conference will be opened in the Westminster Aquarium at 5 p.m. on January 9, when it is expected that the president, Mr. E. Sanderson, will take the chair. The subjects of the papers (each limited to a quarter of an hour) will be as follows: "Manures for Chrysanthemums," by Mr. E. Molyneux; "Damping in Blooms," by Mr. C. Gibson and Mr. J. Doughty; "Mid-Winter Chrysanthemums," by Mr. Kipling; and "Sports," by Mr. N. Davis. Each paper will be followed by discussion as far as time permits. All members and visitors to the show will be admitted to the conference, and the room

or hall in which it will be held will be announced on the morning of the show.

NOTES OF THE WEEK.

Chrysanthemum Guernsey Nugget.—This is a good old kind indispensable to those who grow plants for a quantity of fair-sized flowers. It was the most conspicuous and most beautiful kind at Christmas in the conservatory at Betteshanger Rectory.

Chrysanthemum Georges Sand.—Whilst many of the new kinds are useless for the open garden the above-named appears most useful, and is very beautiful in a mild season such as this. It is an Anemone-flowered variety with medium-sized flowers of a bronzy hue. During Christmas week we noted this variety in full flower in several East Kent cottage gardens, especially beautiful being some plants in a little front garden in the town of Deal.

Asparagus decumbens is now very beautiful in Mr. T. Bunyard's Ashford Nursery. It is trained up a pillar, which is nearly hidden by graceful spray, which also bears a profuse crop of berries. In size and shape these may be likened to those of *Fuchsia procumbens*. In colour the berries are white, as are also the miniature Lily of the Valley-like flowers which precede them. This is a deciduous species, which dies down in summer, but when it commences to grow it will soon wreath a pillar in a garland of elegant spray, pretty flowers, and distinct effective berries.

Kalanchoe carnea.—A spray of this comparatively new and sweet-smelling flower comes from Messrs. J. Veitch & Sons, of Chelsea, who truly observe "it is a beautiful winter-flowering plant," and when it is known that it will thrive in a greenhouse it should become common. Its native country is doubtful, but it is allied to the scarlet *Kalosanthes*, to which it bears some resemblance in the character of the flowers and the way they are produced, as they are in dense flattish corymbs of the faintest pink, and with a fragrance of Hawthorn or of *Luculia gratissima*. It blooms during the first two months of the year.

Primroses in December.—In the garden at Betteshanger Rectory the Primroses are flowering so abundantly as to suggest spring rather than the last days of December. The tufts of the single lilac variety are full of flower, and the old double crimson, of which a plate was some time ago given in *THE GARDEN*, is also in bloom. Moreover, whilst in some seasons Primroses for Easter decorations have been difficult to obtain, they were sufficiently plentiful to be used for church decoration at Betteshanger this Christmas, where we saw Primroses and Christmas Roses displaying their charms in association.

Iris reticulata var. sophonensis.—This seems to be the first to bloom of this pretty family, as a bulb of it sent up its flower without any foliage around it (although the leaves usually precede the appearance of the flower by a week or more) on December 23, and opened it next day. The flower is decidedly inferior in beauty to that of the type, being destitute of the beautiful clear golden centre to the lower petal which forms such an exquisite and conspicuous contrast to the deep purple of the rest of the flower. The midrib of the lower petal of this variety is curiously raised, and is of a dull greenish yellow shade, with distinct green markings on either side of it.—W. E. G.

Open-air Carnations in January.—Early in November "H., Sandwich," sent us some Carnations blooming gathered in the open air, and in the accompanying note said that there were hundreds of buds then unexpanded. Unharmful by wet and frosts sufficiently hard to kill Pelargoniums, these Carnations have continued flowering, and a few days ago we saw a magnificent gathering of blooms and buds. This kind is a yellow self, and as the yellows are generally somewhat tender, the characteristic hardness and profuse flowering qualities of this variety should lead to its extended cultivation. In the previous note it was said that the shoots were

pulled off and put in like Gooseberry cuttings. A Carnation such as this has two of the most desirable qualities for a garden Carnation, namely, hardness and a free and prolonged season of blooming. These late flowers are produced upon the current year's growth, and are the outcome of exceptional vigour. This tendency, moreover, is exhibited by other vigorous selfs of the French strain, and to such an extent as to favour the possibility of our being able to obtain a new race of garden Carnations that will materially prolong the outdoor season of this beautiful flower. The garden in which the Carnations are still blooming is that of the Rev. J. Jacquet, at Tilmanstone, near Sandwich, Kent.

Orchids at Mr. Bull's.—A list of the Orchids flowering in Mr. Bull's nursery at Chelsea has been sent to us, and from this we observe that many rare kinds besides innumerable commoner species and varieties are in full beauty, comprising several genera from *Ada* to *Vanda*. *Cattleya chocoensis*, the variable *Percivaliana*, *Trianæ delicata*, and the beautiful *virginialis* are in bloom, and also the exquisite *Lælia albida bella* and the white form of *anceps*. *Lycaste Skinneri alba* is also flowering, and Mr. Bull has an excellent stock of this lovely Orchid. When a good form is obtained it is absolutely pure white, as large as the ordinary type, and just as massive. *Cypripediums*, of course, are well represented. So also are the *Odontoglossums*, especially the neglected *cirrhosum* and its variety *Hrubyannum*; *Insleayi leopardinum*; a richly coloured form of this showy Orchid; *hebraicum*, *grande* and *Rossi majus*, the next useful form, perhaps, to the common *O. crispum*. *Oncidium varicosum*, *cheiroporum*, the pretty *cucullatum*, and the handsome *tigrinum* are also in bloom. The great evil to Orchids in the winter is the fogs, which quickly affect delicate flowers as these, and at Chelsea they are, perhaps, as dense and stifling as in any part of the metropolis.

Arum Lilies in Trelissick.—Of the numerous accounts published of late anent the mildness of the season, I doubt if any of them present greater evidence of the abnormally mild winter we are in the midst of than could be found in this place on last New Year's Day, 1889. We have here a carriage drive over an embankment 120 yards long, crossing the head of a sheltered, sunny creek, with the sea on one side and a fresh-water pond on the other. On the salt-water side there is an unbroken line of Tamarisk, clothing the embankment with a mass of feathery, green foliage from the top to the beach below, and on very high tides it is covered by the sea to a depth of 2 feet to 3 feet, and seems to enjoy the briny element. On the fresh-water side, and growing in the water from 2 feet to 3 feet deep, are from thirty to forty luxuriant clumps of *Arum Lilies*, many of them immense masses from 10 feet to 12 feet across. There are only two fully opened flowers, but scores of spathes are showing above the foliage, and although for three nights in succession we have had 3°, 4°, and 5° of frost, these South African beauties have not suffered in the least.—W. SANGWIN, *Trelissick*.

Poinsettia pulcherrima.—This lovely Euphorbiaceous plant has been seen to great advantage during the festive season of Christmastide, the mild weather allowing of its being used much more freely than if we had had cold frosty weather. Nothing could exceed the brilliancy of the display made in all the florists' shops, the Poinsettias in all cases being the most conspicuous. It is a great pity that this useful plant cannot be used freely except in mild weather. In sharp frosty weather it is impossible to make such a display as has been seen this season, for as soon as exposed to cold the bracts and leaves droop down, and it is impossible to revive them again. Although no amount of hardening off will make these beautiful plants stand at a temperature approaching to freezing point, yet, if carefully hardened off, they will stand much better than if taken from the high temperature necessary for the full development of the beautiful bracts and at once exposed to a much lower temperature. As soon as the bracts are fully developed, the plants should be removed and gradually exposed; they will then last

much longer, and will not suffer unless the thermometer falls somewhat below 40° Fahr.—A.

Phalænopsis intermedia Portei.—There is now to be seen in Mrs. Perrins's collection, Davenham Bank, Malvern, one of the grandest specimens of this Orchid that it has ever been my good fortune to witness, a single spike bearing more than fifty of its most lovely blooms. The whole of this large and varied collection is most promising and healthy. Phalænopsids here are grown under a double glazed roof—evidently the most suitable way, judging by results.—M.

Covent Garden sales.—Will some reader be good enough to tell me how to proceed in the following case? I obtained from an October issue of *THE GARDEN* the address of a fruit dealer in Covent Garden Market, and having a surplus stock of Apples on hand, wrote and arranged with him as to the disposal of same. Subsequently I forwarded a large hamper of choice Apples which he acknowledged, and placed an insignificant sum to my credit, which sum I have since asked him repeatedly to remit, with the empty hamper, but he has taken no notice of either of my applications.—CORNWALL.

Death of Viscount Eversley.—That charming Hampshire garden, Heckfield Place, has at last lost its aged and esteemed owner, and our correspondent, Mr. Wildsmith, a kind and generous employer in the person of Lord Eversley, who died on the 28th ult. If he had lived till February next he would have been ninety-five years of age. Natural good health and bodily strength have doubtless helped that end, but we can hardly doubt but that the deep love for gardening in general he possessed, and for his own garden in particular, in which, when at Heckfield, he fairly luxuriated, helped materially to promote that longevity, allied as it was to a kindly temper and suavity of disposition. Lord Eversley did not merely enjoy his garden, but he took the deepest interest in its welfare, and every alteration or improvement in it, however trifling, was with him the subject of keen attention. When in London for the season, Heckfield and all associated with it were pre-eminently in his thoughts. Lord Eversley was from 1839 to 1857 Speaker of the House of Commons, filling that position with remarkable dignity, and, as a reward, receiving a peerage and pension, which he enjoyed for over thirty years. The title is already extinct, there being no male issue to continue it, but Heckfield will be occupied by a daughter, Miss Shaw Lefevre, for her life, and it is hoped that not only will Mr. Wildsmith continue his long and honourable connection with the gardens, but that under the new régime the old glories of the place will suffer no diminution.

Death of Charles Howe.—A gardener of marked ability in his profession and a man who made many friends by his kindness of disposition has passed away in Mr. Charles Howe, who died on Christmas Day, at Benham Park, Newbury, Bucks, the seat of Sir R. F. Sutton, Bart., whom he faithfully served for many years.

BOOKS RECEIVED.

"The English in Canary Isles." By S. Frances Latimer. Simpkin, Marshall and Co.

"Notes of Travel in the Islands of Tenerife and Grand Canary." By Isaac Latimer. Simpkin, Marshall and Co.

Names of plants.—*G. Montin*.—1, *Dendrobium infundibulum*; 2, *Epidendrum*; 3, *Lycaste Skinneri*; 4, *Oncidium Krameri*; 5, *Dendrobium*; 6, *Vanda suavis*.—*J. M.*—1, *Cypripedium Harrisonianum*, good type; 2, *Cypripedium barbatum*, good form; 3, *Cologyne barbata*, true, very good form.—*John Bennett*.—Good form of *Dendrobium nobile*.—*A. E. F.*.—Your Fern has been injured by frost.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d.

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London: 37, Southampton Street, Strand, W.C.

WOODS & FORESTS.

THE HIMALAYAN SPRUCE.

(ABIES SMITHIANA.)

THIS is said to be the most graceful of all the Fir tribe inhabiting the Himalayas, for although in a young state it has a rival in the Deodar, yet as the latter grows up it loses its light elegant habit, which the Spruce in question retains, a fact fully borne out by its appearance in this country, for where the branches have plenty of room in which to develop themselves their disposition is most graceful. The cones, which are freely produced after the tree has attained a height of from 10 feet to 15 feet, are very handsome; at first they are of a glaucous green hue and upright, but as they increase in size they become pendulous, and when full grown are 6 inches or 8 inches in length. The leaves are longer and of a paler green than those of the common Spruce, to which they bear some resemblance.

It is freely distributed throughout the Himalayas at high elevations, grows there from 100 feet to 150 feet in height, and 15 feet or 20 feet in circumference, and bears at a distance, when in masses, the appearance of a forest of Norway Spruce, but lighter in appearance, and, on closer inspection, the beautiful pendulous branches and the light open character of the tree become apparent.

This Fir, which is now much planted, grows freely in this country; but, in common with many other Conifers, if in a low or damp situation it commences to grow early in spring, and often suffers from late frosts. When more elevated, however, the growth is retarded until all danger from frost is past. As regards actual frost, it has withstood without injury the severity of two or three hard winters. The name of Smithiana was given to this Fir by Loudon, but it has several others, the most common of which are Khutrow and Morinda. The last is that under which it is now most commonly known in nurseries.

When scarce it was often propagated by grafting, and also by cuttings, as it roots freely; but the difficulty of getting it to form a leader was against such a mode of propagation, and as seed is now so readily obtainable, owing to its having ripened in many places in England, and large quantities of it having been imported, no other mode of increasing is practised. D.

Planting street trees.—It is a common practice, in planting shade trees along the borders of streets, to remove nearly all the tops by a single cut across the stem, converting the trees into blunt-headed poles, the object being to reduce the mass of leaves which the mutilated roots must support and to lessen the action of winds. The operation is usually successful, but it is a long time before such trees attain a handsome or symmetrical form. A much better way, after having secured a copious supply of roots by careful digging, is not to cut off any large limbs (unless to give the head a good form), but to thin out all thick, small branches and shoots, leaving only a few evenly distributed, and cutting partly back all that remain for reducing the amount of leaves. In this way we retain the form and size of the head to a greater or less degree, with little draft on the shortened roots, and little chance for the winds to affect the trees.

Wood-cutting in America.—It is stated in the New Hampshire papers that preparations have been made to cut 6,000,000 feet of Spruce lumber this winter from the forests which lie about the base and cover the lower slopes of Mount Washington, the most important and the most frequently visited of the New England mountains. Six million

feet of lumber is not a very large amount. It might be cut, if proper care was taken in doing it, out of the White Mountain forests without inflicting upon them any serious injury, and without in any way impairing the value of the White Mountain region as a reservoir of moisture, or as an agreeable and health-giving summer resort. But care is never taken, or only very rarely, in American wood-cutting operations, and it is a foregone conclusion that in this case it will be followed by disastrous fires, which will render useless what is now of great value.

Preserving timber.—Among recent devices for preserving timber is that advocated by Filsinger, who recommends impregnating the wood with a weak solution of aluminium chloride. Another suggestion is that a solution of gutta-percha, obtained by a mixture of two-thirds gutta-percha and one-third paraffin heated together until the gum melts, shall be forced into the cells of timber from which the air has been previously exhausted. The gutta-percha, as it cools, hardens and completely fills the cells. But the latest suggestion is that of Von Berkel, who proposes first to impregnate wood with a saturated solution of lime water or milk of lime. The board is then dried and placed in a vacuum cylinder and impregnated with a mixture of calcic acid and mineral oil or some other fatty or bituminous substance, by pressure applied for a considerable time, when a process of petrification takes place and a kind of asphalt rock is formed within the wood cells. The industrial value of this invention has not been demonstrated yet, although the possibility of using water gas for these purposes, of which Von Berkel's plan appears to be only a modification, has long been recognised.

BOOKS.

THE PRACTICE OF FORESTRY.*

IN compiling his book the author has given large and extensive extracts and quotations from other papers and reports on the same subject. These will prove instructive and interesting to those who have not formerly been privileged to read them. In writing a new book it is quite admissible to use quotations from other authors with the view of giving additional weight and force to any particular passage, but in this we cannot help thinking that Mr. Michie has overshot the mark.

SECTION 1 contains a series of reports from a number of authors on preparing ground for planting, draining, fencing, transplanting large trees, &c. The article on fencing gives instructions as to the erection of wire fences, turf dykes, stone dykes, and wooden palings, with a detailed list of prices and other information which will prove useful as a reference to those engaged in such undertakings. In the article on transplanting large trees the author points out the advantage of lopping and reducing their tops as a means of attaining success, but as a great many gentlemen of refined taste will not allow their trees to be mutilated in this way, and as large trees of considerable size can be successfully transplanted without disfiguring the top if proper methods are used such lopping becomes unnecessary except under exceptional circumstances. The article on successive cropping with Scotch Fir is from the pen of Mr. William M'Corquodale, Scone, Perthshire, and is valuable for this reason, that it shows both failure and success under different modes of treatment. The plan of burning surface herbage is a capital one, as it destroys numbers of the Pine weevil and the nests of field mice, both of which are destructive to young trees. Mr. Michie says: "I am certain it will be found that the beetle only attacks unhealthy plants, and that is borne out by what Mr. M'Corquodale states both in regard to herbage-burning and egg-destroying by fire." Both writers, however, are in error here, as neither the beetle nor weevil deposit their eggs in surface rubbish; both feed upon healthy trees, and use

sickly trees for breeding purposes. The beetle feeds upon the pith of the terminal shoots of branches and leaders, and the weevil upon the bark and sap of the stems and branches of young trees; consequently it follows that it was the Pine weevil and not the Pine beetle that destroyed the young trees. There is an interesting paper on planting the Culbin sand-hill in the vicinity of the sea, but as it has been reported on by the late Mr. John Grigor and others, I shall not dwell on the subject. Other papers on trees suitable for planting in the vicinity of the sea are given by different authors, and will be found useful and interesting. An article from the *Journal of Forestry*, Nov., 1884, giving information on road-side and town planting, as well as other parts, may be perused with advantage by all who are engaged in such undertakings.

SECTION 2.—THINNING.—In handling the matter contained in this section, the author also supplements his own fund of useful knowledge and practical experience by giving copious quotations from other experienced writers in different parts of the country. The author gives directions for measuring standing timber, and a table showing the cubic contents of the same by his method, but in testing its accuracy I find it not altogether correct. As, for example, a piece of timber 12 feet long and 12 inches to the side of the square gives 12 cubic feet neat; whereas the table gives 12 feet 4 inches. And, again, a piece of timber 12 feet long and 24 inches to the side gives 48 cubic feet as the true contents, but the table gives 48 feet 9 inches. The difference is not much, yet it would amount to something in measuring large quantities. The good effects of thinning are exemplified by a section of a Larch tree that was grown in the centre of four others which had grown within 4 feet of it on all sides. The united concentric growth of this tree in seventy-three years, as shown by the rings, is only 3 inches in diameter. At the above date the four trees are thought to have been cut to afford space and freedom to the Larch, and the results are clearly shown in the diagram. It appears that the tree grew in soft, peaty soil, and probably this had something to do with its extraordinary growth. In speaking of the effects produced by thinning advanced Pine plantations, we are told, "When two trees have grown up side by side for many, or it may be only a few, years, they have formed such an affinity for each other that separation becomes a painful and dangerous ordeal, so far as trees can be imagined to sympathise with or feel for each other," &c. When compared with the Larch tree referred to, this statement appears to be paradoxical, but the species of trees and local conditions will perhaps afford an explanation. The author's remarks with regard to starving the roots of surface-rooting trees are thoroughly original and perfectly correct.

SECTION 3.—PRUNING.—In his introductory remarks on this head the author tells us that, "The leading principle to be observed is never to cut off a branch from a tree unless absolutely necessary." When we contrast this advice with his former definition about the propriety of pruning and reducing the tops of large trees when transplanted, we find that this advice is not in keeping with that previously given. Notwithstanding this, much practical information can be gathered from his article on pruning, and we commend the perusal of the paper to all who are interested in tree culture. With regard to the French system of pruning, as well as that of the late Mr. Cree, the absurdity of their theory and practice has been exposed and denounced long ago, and as it is never acted upon by practical men in this country, it is a waste of time and space to notice it at any great length, further than to say that I think the Frenchman was justified in using coal-tar for dressing wounds, as it not only keeps out water, but likewise effectually kills the spores of parasitic fungi, which settle on the surface and thus lay the foundation for rot and decay. Coal-tar is cheap, requires no elaborate preparation, and can be used by a man or boy at small cost. The value of the book would have been increased immensely had the author given a chapter on the culture, management, and diseases of the Larch.

J. B. WEBSTER.

* "The Practice of Forestry." By C. Y. Michie, forester, Cullen House, Cullen, Banff. London: Messrs. W. Blackwood and Sons.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE." *Shakespeare.*

PROPAGATING APPLES BY CUTTINGS.

WHILST the orthodox and express method of increasing Apples by grafting in March and budding in August is patent to all, it may not be generally known that most fertile little trees can be made from cuttings. The method, nevertheless, is by no means new, as I recollect seeing, when quite a boy, most perfect trees of the far-famed Newtown Pippin which I was told struck root nearly as freely as Gooseberries and Currants, and recently a gentleman living in this neighbourhood assured me that the finest Apples he had gathered this season were the produce of trees from cuttings. Propagation by cuttings, as a matter of course, like the propagation of Hybrid Perpetual Roses in a similar way, is too slow for the trade; consequently the method will never affect their interests, but this fact does not lessen the value of one or the other when fairly established on their own roots. Indeed, so generally is the value of own-root trees and bushes admitted by the trade, that the fruit nurseryman assures buyers of Pears on the Quince and Apples on the Paradise that these stocks are only the means to the end, whilst the Manetti Rose grower says, plant deep enough for the soil to cover the union, and own-root bushes will be secured in a twelvemonth. The well-to-do amateur who thoroughly enjoys his garden, and is never more happy than when wielding the knife, delights in putting in a few cuttings of Gooseberries, Currants, and Roses annually, and in due course sees a fair percentage of his bushes yielding fruit and flowers. In like manner, having the trees close to his hand, I see no reason why he should not increase his fame by operating upon Apples. To the tyro in the propagation of hard-wooded deciduous trees it is only fair to say some sorts of Apples strike better, or rather with less trouble, than others. Also that a fair percentage of nearly all the varieties may be induced to form roots if taken at the proper time and judiciously managed. If a professional propagator were asked why some sorts succeed when others fail, he would most likely say, all depends upon the maturity of the wood of the current year, for precisely as ripe flower-buds produce the best fruit, so in like manner the best ripened shoots form a callus, and in due time roots; whereas gross sappy growths fog off and perish. This reasoning, I believe, is borne out by the well-proved fact that the early varieties of Apples, including the Codlins, the Suffields, the Juliens, and some others, root well on warm open borders, whilst later sorts, which do not ripen their wood so well, succeed best in warm sandy soil and covered with movable frames or handlights. Yet another method, well known to successful propagators of delicate Roses, and by which much time may be saved, is close dibbling into spent hotbeds, where the bottom heat ranges about 60°, but from which the glass should be removed to prevent the excitement of the buds and the exhaustion of the storage sap before the callus is formed at the base. The

SELECTION OF CUTTINGS for the different modes of propagation should be made so soon as the wood is ripe early in the autumn, but before proceeding to detach them, the borders for the open-air batch should be broken up to the depth of 18 inches, treated to a layer of rubble for

drainage, and raised somewhat higher than the original level with free sandy loam made very firm to exclude air, and, at the same time, to prevent its holding too much water in suspension. The best situation for the open-air and cap-glass batches is a warm, but shady border protected by a hedge or wall and facing west—a position in which the natural rainfall will keep them quite moist enough certainly through the winter, if not up to the time of rooting, which will not take place until after midsummer. Open-air cuttings will not require shading at first, but a few Yew or Spruce branches stuck amongst them in March and changed occasionally may be of service, whilst large Rhubarb leaves or sheets of paper cast over the south sides of the cap-glasses will keep the heads of the cuttings moist and cool. Next, as to the sort of wood most likely to callus and form roots; short, stubby pieces 9 inches to 12 inches in length and well ripened to the points should be preferred, and each cutting should be slipped off with a heel, or, better still, detached by a clean cut with a sharp knife with about half an inch of two-year-old wood adhering to its base. If not more than a foot in length the cutting will be made, otherwise it may be shortened to that length for the sake of uniformity when inserted in the soil; indeed, the propagator who would succeed with Apples must proceed precisely as he would in the selection of Rose cuttings by eschewing gross sappy shoots and adhering to the hard intermediate, well-ripened growths generally so plentiful upon spur-pruned fruit bearing trees. Having made a selection of cuttings of a given sort, disbud each cutting from the base upward, leaving three or four, including the terminal bud, at the top, and dispose of them by dibbling in 4 inches apart and a foot from row to row. If the soil naturally is sandy, the cuttings will take care of themselves; that is, provided they are made very firm and well watered home; the soil, on the other hand, being of an unctuous or clayey nature, good sharp grit or washed road sand should be placed under and around each cutting and pressed very firm to preserve it through the winter, and, at the same time, to facilitate the emission of roots. Where cap-glasses or portable propagating frames are at command and home-grown cuttings are plentiful, the latter might be put in closer than I have advised for open-air cuttings; also they might be much smaller, provided they were quite ripe, whilst the facilities thus offered for keeping them moist and close would favour detachment before the leaves fall or the cutting bed has lost its summer warmth, as there is no gainsaying the fact that a warm heel and a cool head are favourable to the rooting of all hardy deciduous cuttings. Treated in this way, the lights should be kept quite close until the stem-buds commence pushing in the spring, when air must be given to prevent the tops from exhausting the store of sap before roots are formed. When rooted—a condition which no experienced person can mistake—gradual exposure by tilting, and eventually by the entire removal of the glass, will ensure a short-jointed, healthy growth, which must be supported by occasional overhead waterings in dry, hot weather. Early in November a piece of light, rich ground should be prepared for the reception of the rooted cuttings, which again must be disbudded, as in the case of Currants or Gooseberries, to ensure clean suckerless stems, whilst those which have formed the callus only may be re-inserted under the cap-glasses. W. C.

The Bullace.—Will any reader kindly say if this is to be had in nurseries? Mr. WATSON of

Leicester, replying to a note of ours says, "The Bullace is seldom wanted. I generally work six or eight when budding my Plum stocks just for local demand, but which I sell at the same price as Plums; but I have no idea where you could buy 100, or even twenty."

—The Bullace grows in the hedgerows in many parts of England, and the best way to raise a stock would be to sow half a bushel or so of its fruits in nursery lines. It is not uncommon in old orchards, but I suppose the Damson supplanted it in most places, just as the Apple and the Pear did the Service Tree. The Sloe is confined to Europe, but the Bullace extends to (or from) the Himalayas and North Africa. I should think the Mirabelle race or the Cherry Plums are cultivated descendants of the Bullace.—B.

CHRYSANTHEMUMS.

E. MOLYNEUX.

MRS. GEORGE RUNDLE FAMILY.

IF there is one family or type of incurved Chrysanthemums which is more fitted for ordinary decoration for both large and small growers, it is what is commonly known as the Rundle family. The prevailing rage for size in cut blooms has ousted these small-flowered varieties from the exhibition table, for although blooms of any one of this type are generally voted pretty little flowers, it is found by exhibitors that something more than mere beauty is needed to win prizes. Ten years since any one of this family was considered quite sufficient for a stand; now it is only when any other variety cannot be obtained that blooms of the Rundle type are admitted into competition. The blooms of this family are all of good form, and for general usefulness there is no type superior to the one now under consideration. Some societies, notably the Portsmouth Chrysanthemum Society at their last exhibition, with a view to encourage these varieties for cut blooms, offer as much as £4 for the first prize for thirty-six blooms of the three varieties, Mrs. G. Rundle, George Glenny, and Mrs. Dixon combined. It cannot be said that this class was a success, as only three persons competed. The smallness of the blooms left too much bare space on the boards, and beside their larger neighbours they faded in interest. If these varieties are wished to be seen in a cut state on the exhibition table, why not stage them in bunches of three blooms each? In this manner they would impart a change to the show tables, and everybody's favourites would find a place. To produce the finest blooms in point of size, form, and breadth of petal and richness of colour in the two coloured varieties, the plants must have good cultivation. The plants grow tall, oftentimes 7 feet and 8 feet high. Pots 8 inches in diameter are large enough to grow the finest blooms in, or two plants in a 10-inch pot will succeed equally well. From three to six stems to each plant will suffice. Crown buds must be selected to develop the best blooms. Plants of this family are highly prized for growing into specimens of all forms. For producing cut blooms in quantity the plants of this family are very useful, while for market or bouquet work they have no equals in the incurved section. Strike the cuttings during January or the early part of February, top the shoot at a height of 4 inches, repeating this operation several times in some cases as growth proceeds; in others once or twice is sufficient, so as to get a succession of bloom. Good blooms, and a number of them, may be had with a minimum of trouble by striking the cuttings at the time named, afterwards planting them out on an open space of ground, where they will complete their sum-

mer's growth. During the month of September, according to circumstances, the plants may be lifted with a good ball of soil attached and laid on the bed of a Cucumber house, or other convenient structure, where they will flower abundantly, and succeed those grown in pots.

MRS. G. RUNDLE has been in existence twenty years. The flowers are especially well formed, being globular, the petals thoroughly incurving towards the centre. The flowers are of the purest white, but with age become tinged with pink at the base.

MRS. GEORGE PARNELL is considered by some to be distinct from the above, but the only difference I can detect is that the petals are broader in Mrs. Parnell than in Mrs. G. Rundle. This is possibly only the result of cultivation.

MRS. NAISH is distinct from the original in the formation of the petals, which are more erect and square at the points, not incurving nearly so perfectly as those of the type.

MR. GEORGE GLENNY is a soft primrose, the exact counterpart of its parent in form.

MRS. DIXON, of an orange-yellow colour, is very effective.

Chrysanthemum Lilian B. Bird.—This variety was received from Japan with the now famous Mrs. Alpheus Hardy. It is a flower of the largest size, with a full, high centre when at its best. Although it resembles somewhat in form the old Gloire Rayonnante, it is very distinct in colour, being throughout of that clear and soft shade of pink, commonly called "shrimp pink," a tint quite new to the Chrysanthemum. The florets are all tubular, or quilled, long and slender, with the ends scarcely expanded and slightly curved inwards. The unique colour, large size, and vigorous habit make this one of the most valuable of recent introductions. —ARTHUR H. FEWKES.

Chrysanthemum lacustre.—When authorities disagree, who is to decide? Mr. W. E. Gumbleton states that the late-flowering Giant Daisy, which we know as *C. maximum*, is not *maximum* at all, but *C. lacustre* or *latifolium*. Now, there resides at Smithy Bridge, near Rochdale, a Mr. D. Percival, who is acknowledged to be an accomplished botanist and possesses an extraordinary knowledge of hardy plants. I sent him what Mr. Gumbleton regards as *C. lacustre* under that name, and Mr. Percival informed me that I was in error, and that he had sent me the true form of *C. lacustre*. This I planted and it has made a strong clump, and in habit of growth and character of flower it greatly resembles *C. Leucanthemum*, but is later in blooming, though this latter peculiarity might have been caused by removal. I confess that between two such authorities I am in a state of considerable perplexity. Messrs. Vilmorin & Co., in their "Les Fleurs de Pleine Terre," appear to coincide with Mr. Gumbleton, and against Mr. Percival. What "A. D." grows as *C. maximum* I got originally under the name of *C. lacustre*. —R. D.

New Chrysanthemums.—According to a contemporary, there are already 241 Chrysanthemums announced as new for the year 1889, and it is more than probable that this number will be considerably augmented. Now, if there is any one thing that can detract from the popularity of these beautiful autumn and winter-flowering plants it is this practice of sending out a long list of new varieties every year, for in nearly every instance the majority are inferior to others in cultivation, while in a great many cases the name is the only new thing about the plant. It is a well-known fact that flowers vary a good deal in colour, according to the treatment which has been given them, and in some of these so-called novelties the description is quite one of degree only. I should be afraid to say how many varieties have been put into commerce as new within the last half a dozen years (especially among the Japanese), yet, on referring to the catalogue of the National Chrysanthemum Society I find that in the list of the best forty-eight Japanese Chrysanthemums nineteen only have been sent out within the last half a dozen years, and the remain-

ing twenty-nine previous to that time. This certainly speaks more in favour of the discrimination formerly brought to bear on new Chrysanthemums than it does of the selection as now carried out. If raisers could only be brought to understand that half a dozen good varieties would bring them more credit than twice that number interspersed with a score of inferior ones, fit only for the rubbish heap, the public would then feel confidence in purchasing them. —H. P.

List of decorative varieties.—Below I give a selection of sorts of Chrysanthemums which will come up to the requirements of the writer of the paragraph on Peter the Great, Dec. 22 (p. 570). The variety Peter the Great is a free-flowering sort, with handsome deep green foliage, but its worst feature when cultivated for decoration is that it often shows an objectionable dark green eye which mars its other qualities. *Japanese varieties:* Source d'Or is one of the best sorts we have for bush form; Roseum superbum, Bouquet Fait, Mons. H. Jacotot, Triomphe du Nord, Madame Bertie Rendatler, Mons. William Holmes, Tendresse are good coloured sorts; while the best white varieties are Lady Selborne, Mrs. J. Wright, Fair Maid of Guernsey, and M. Astorg. By adding a few incurved varieties the list is more representative. Mrs. G. Rundle, George Glenny, Mrs. Dixon, and Aureum multiflorum are capital sorts for this mode of cultivation; add to these Cullingfordi and Dr. Sharpe, two bright-coloured reflexed sorts, and Sœur Dorothee Souille, a free-flowering Japanese Anemone, with a faint blush disc and a deeper outer, and sufficient variety is obtained to meet the requirements of most cultivators of Chrysanthemums for the production of a quantity of blooms on each plant. —E. M.

Show v. decorative Chrysanthemums.—In THE GARDEN of January 5, 1889 (p. 10) occurs the following:—

It will be seen from the descriptions given of the blooms as grown, that there are only two kinds which come up to exhibition standard at present. This paragraph refers to a list of varieties given which in the eye of the writer are not of the ideal standard of excellence, but others may differ from his views. It does not follow that a Chrysanthemum if not of exhibition character is therefore worthless; but many regard a flower that lacks the essential characters of a show bloom as fit only for the rubbish heap. It often, however, possesses an intrinsic beauty, a grace, elegance, beauty of form and colour that are totally wanting in the stereotyped examples that are dressed with care and placed on the exhibition table. There are many varieties the frequenter of exhibitions never sees, simply because they are not suitable for showing, but rather for the greenhouse and house. The intolerable rage for size seems to have no limit, but such a frenzy never stands. By all means have exhibition flowers, but not at the expense of the many beautiful and useful sorts that are known as "decorative." —X.

SHORT NOTES.—ROSES.

Rosa Regeliana.—Is not the Rose now offered by M. Paillet, Chatenay-le-Secaux, near Paris, at very high prices, the same as the now common and very cheap *R. rugosa*? —G.

Rose cuttings after frost.—Many deaths occur among cuttings of Roses when planted in the borders in autumn, from the lifting power of the frost loosening the soil and letting the air in around the base when the wound is healing, and forming a callus preparatory to the emission of roots. This might be obviated by placing a mulch of old leaf-mould between the rows as soon as the cuttings are planted. When the mulch has been omitted, the soil should be made firm around the cuttings after a frost as soon as the surface gets dry enough to tread upon without sealing up its pores too much. The mulch can then be added and all will be safe. —E. H.

Comtesse de Frigneuse.—This yellow Tea, of recent introduction, and of which great things were promised, has thus far failed to realise, at least for

commercial purposes, the expectations of those who have tested it. The colour is pretty and it has a pleasant fragrance, but the flowers have but little size, and the plant itself is not very strong in growth, and thus it is found lacking in two very essential points. The flattering descriptions of new Roses, and the unqualified assertions as to their value made by some of their introducers before any adequate test of their merits has been made, must eventually prove an injury to this line of business. The notable failures of the past few years, such as Her Majesty, Princess Beatrice, and, with a majority of growers Puritan also, has brought about a much more conservative temper on the part of the large Rose growers, and in the future it is highly probable that many of them will test new varieties by the dozen instead of by the hundred. Experience with novelties in Roses has proved very costly in some cases. —JAS. TAPLIN.

KITCHEN GARDEN.

MARKET VALUE OF VEGETABLES.

DURING the past few years there has been a marked increase in the number of private growers who market a considerable amount of garden produce, surplus and otherwise, and the contagion appears still to be rapidly spreading. It is not my intention to discuss the propriety or morality of owners of private gardens competing with the more heavily rated market growers, and shall therefore content myself with the common-place remark that there is much to be said for and against the practice. It has been my lot to be associated throughout the best part of my gardening career with places that market all their surplus produce, and this I do not in the least regret, but, on the contrary, consider I have been a gainer thereby, notably in the way of experience of a useful kind. In my capacity as a private gardener as well as a contributor to horticultural literature, I am frequently asked by owners of gardens whether it pays to grow vegetables for sale; and these are easily answered. Others there are who wish to know if it is not possible to make a garden self-supporting, or, in other words, whether enough can be grown to supply an establishment and the surplus realise sums sufficient to pay all costs attending the production of plants, fruit, and vegetables, as well as the labour expended on the place. Yet another class of inquirers write to know if it is possible to realise a certain sum annually without being obliged to make a large outlay of capital in the first instance. In neither of these instances could I safely or rightly give very encouraging replies, and especially do I combat the idea that it is possible to make a private garden self-supporting. It is only the shrewdest and most persevering men who can make any real headway against the excessive competition, both English and foreign, which is to be met with in all parts of this country, and even these have to be content with very small profits. The market gardener generally has the advantage of position or nearness to a town or railway station, and he is also free to do as he wishes. His houses, cheaply constructed though they may be, are admirably adapted for the purpose designed; nothing useless or unsaleable is grown, and regular senders invariably get better returns from the salesmen than do the consigners of fitful supplies. The private gardener, on the other hand, has to contend with a variety of hindrances, being hampered in all his undertakings, not only by the unsuitability of the garden and many of the houses for the growth of saleable produce, but more especially by the necessity of keeping up appearances. If many thousand summer bedding plants must be win-

tered or propagated every spring; if conservatories, entrance halls, and the employer's dwelling-house generally must be kept gay with plants and cut flowers; if the town house is to be equally well supplied; if the same amount of waste of fruit, flowers, and vegetables is still permitted; and finally, if the best of everything is expected and the rest only sold, the private gardener is much to be pitied.

Employers who have unfortunately imbibed the notion that their gardens can be made self-supporting ought to listen to all reasonable suggestions made by the gardener. Economy, as most of us are well aware, is absolutely necessary in too many instances, but this ought not to be one-sided. If a reduction is made in the staff, and this is usually the first proceeding, let there also be some relaxation on the part of the employer, as it is most unreasonable to expect a gardener to do as much with six men as was previously accomplished with three or four more. To be plain, if private gardeners are to compete with the professed market growers, they ought to be allowed more latitude. Allow them to lessen labour where this can be done without disfigurement to a beautiful place; also permit them to consign much that is comparatively useless to the rubbish heap, and to cultivate only what is saleable or most needed by employers and buyers alike; above all, give them a direct interest in this fresh phase of gardening in the shape of a commission on sales effected, and if the garden is not made self-supporting, it will yet be a very cheap luxury.

Many err in placing too great a market value on the produce of the kitchen garden. What has to be paid for good fresh vegetables in a town is no criterion whatever, and, speaking from experience, I am of opinion that very few private gardeners obtain anything like remunerative prices for vegetables other than Cucumbers and Tomatoes. The case is somewhat different when a regular supply is guaranteed, but, as a rule, private growers can only send to the markets and shops when vegetables are most abundant everywhere. At such times they scarcely pay for collecting, sorting over, and carting to the nearest town, and certainly not for the labour and expense previously expended on them. It does not pay to grow good Celery that only realises 10d. or 1s. per dozen; Brussels Sprouts at 1s. 3d. per half sieve; Savoy, 9d. per doz.; Broccoli and Cauliflowers at a similar price; Carrots and Parsnips, 2s. per hundred-weight, and other winter vegetables at similarly low rates; nor is there much profit attending the growth of Peas that only realise 10d. per peck; runner and kidney Beans at the rate of 12 lbs. for 9d.; Lettuces 6d. per doz., and other summer vegetables at proportionately low prices. Yet these prices were given during the year 1888 in this district for the best samples only, much inferior produce either fetching lower prices or not selling at all. Nor were better prices obtainable in large towns in the western counties, or otherwise much that was spoilt hereabouts would have been consigned to them. London is even better supplied with fresh vegetables than are many provincial towns, and only very early or choice produce ought to be sent to Covent Garden, commoner vegetables as well as fruit not realising more than enough to pay incidental costs. The sooner, then, owners of private places and intending beginners in market growing realise the fact that vegetable culture is a very doubtful mode of gaining money, the better it will be for all concerned. Especially do I warn retired tradesmen and other inexperienced people from risking their capital in anything connected with speculative horticulture. The

risks are too many, and the profits, should there be any, not at all commensurate.

The question may occur, "What, then, does pay?" and in anticipation I will state my views on this important matter. Those who wish to succeed ought to devote much more attention to the production of more choice vegetables than is generally the case. For instance, late Potatoes can now-a-days be bought more cheaply than they can usually be grown; many more summer vegetables are planted than the home establishment can make use of, and which, as I have shown, fail to fetch remunerative prices in the market; and in many gardens various winter vegetables are grown more extensively than there is any necessity for. It is advisable, therefore, to devote less space to these, and more to choicer kinds of vegetables that I will name as being much more profitable. There is always a good demand for forced and naturally grown Asparagus, and if it is well grown the profits are high. It pays even to raise plants specially for forcing. Seakale also finds a ready market. The best prices, as may be imagined, are obtained from early forced produce, but the very latest or that blanched, but not forced, in the open ground also proves profitable. Rhubarb does not pay particularly well, this being largely due to the more general distribution of fine samples from the north of England, but in spite of this, I would cultivate it and force it extensively. Well-grown Horse Radish is a profitable crop, and Herb growing on a fairly large scale often proves remunerative. The earliest crops of Potatoes, Turnips, kidney Beans, and Cauliflowers, these being grown principally on warm borders and protected at the outset, frequently pay well, and so also does early salading, including Lettuces, Radishes, and Mustard and Cress; while a good supply of Endive during the winter rarely fails to be profitable.

A kitchen garden, to be profitable, ought to be well stocked with pits and frames, and forcing houses are also largely utilised for the production or forwarding of certain kinds. With the aid of these frames and gentle hotbeds, large quantities of early Potatoes, Carrots, Radishes, and Lettuces may be grown with advantage, and the most profitable crops in the houses are Cucumbers and Tomatoes. The latter will not often fetch such good prices as they did in 1888, when disease both under glass and in the open was so destructive, but early and late crops will always pay well for growing. Yet one other remunerative crop remains to be noticed, viz., Mushrooms. It is surprising how badly country towns are supplied with these, it being no uncommon occurrence for greengrocers to send to London, or upwards of 100 miles, for a few pounds at a time, and which any ordinary gardener ought to be able to supply them with. It is really astonishing what heavy and continuous crops those ridge-shaped open-air beds will produce, and if these are supplemented with a Mushroom house, good dishes ought to be available in all weathers. We hear of numerous commencements in Tomato culture, but, in my opinion, those who take to Mushroom culture are far more likely to succeed in realising a small fortune.

W. I.

Cooking winter vegetables.—Having just seen "W. I.'s" article on the above of December 29 (p. 597), may I ask him if he ever cooked the Brassica tribe of vegetables in two waters? Some years ago an eminent physician told me to cook all in two waters, and then no harm, but benefit would come from partaking of them every day. The way I have had them cooked for some years is to put them on with cold water, let them come fairly to the boil,

then pour off. Another pan containing an equal quantity of boiling water should be ready to put on when the first is poured off. In this put salt and cook quickly until done, but not to rags, as "W. I." says. I think that if this method is given a fair trial the one-water system will be dropped; besides, the vegetables are much more wholesome cooked in this way.—A. H. T., *Thoresby*.

KITCHEN GARDEN NOTES.

KIDNEY BEANS.

DURING the dull winter months the crops obtained from a considerable number of plants in pots are very light, but as they must be forthcoming in many instances, much room and fire-heat have to be expended on them. Successional batches raised during January and the next two months are much more productive, and if the French Beans do not actually pay for the trouble taken with them, they are yet of great service and are fully appreciated as a choice vegetable. In only a few establishments can the best portion of one or two low forcing houses be given up to kidney Beans, and various makeshift plans of growing them have to be adopted. Seeing that a few dishes at wide intervals rarely satisfy the demands for these Beans, successional batches have to be sown every fortnight or three weeks from the present time till gatherings can be made from plants in pits or frames. Room has to be found for three or four batches at one time, and it is this that constitutes the greatest drawback to their culture. Kidney Beans require plenty of heat, light, and room, and unless these conditions can be complied with, it is unwise to sow any seed before March. They succeed admirably on the front walls of Pine stoves and forcing houses generally, and also in well-heated houses, on gentle hot-beds formed either with leaves and manure, tanners' bark, or Cocoa-nut fibre over hot-water pipes. If there is abundance of top heat and moisture in the atmosphere, bottom-heat can be dispensed with, but the moist bottom-heat is one of the best preventives of the one great enemy of kidney Beans, viz., red spider. After trying different methods of raising and growing the plants, I have arrived at the conclusion that the simplest is also the best. Instead of raising the plants in small pots and shifting into larger sizes, the seeds are sown direct into the pots in which the plants are to perfect their crops. Nor is there anything gained by only partially filling these pots and top-dressing or filling up later on, this really being so much labour wasted, as the roots rarely take possession of the added soil in time to benefit the plants. We use 9-inch pots and find about thirty of these sufficient for a batch, and not many more are needed in larger establishments if justice is done to the plants. The pots are lightly drained and filled with fairly rich loamy compost. At this early date especially, new seed should be sown, about a dozen of these being placed in each pot, duly covered with soil and plunged in the hot-bed or set on hot-water pipes to germinate quickly. If the soil used is rather dry, a watering should be given, otherwise none will be needed. Nor must the soil be frequently or heavily watered before it is well filled with roots. When the seedlings are well up they ought to be freely thinned out, six strong plants in each pot being sufficient. These ought to be supported early either with a few Birch sprays or light stakes and strips of raffia. After they have set a few pods, liquid manure should be given frequently, and this and overhead syringings in clear weather will materially prolong their productiveness. It is doubtful if there is any variety to surpass Ne Plus Ultra for culture under glass, but those who possess a good selection of Sion House will not err greatly in relying upon this. Osborn's Forcing is of quick growth, and the produce is of exceptionally good quality, but the plants fail too quickly.

PEAS IN POTS.

Peas are not amenable to hard forcing, nor can they be said to be a very profitable crop under glass. They may, however, be forwarded considerably, especially when grown in pots, and if the early dishes are small they sometimes give much

pleasure. The best positions for Peas in pots are the shelves in newly started vineries and Peach houses, or they may be grown on the front staging in these or other slightly heated houses. Either 9-inch or 10-inch pots are suitable, these being lightly drained and firmly filled with rich loamy soil. About eighteen seeds may be sown in each pot, and after being pressed in, covered with an inch of soil. If the majority of the seed germinates, it is advisable to reduce the number of plants to about ten, and they ought to be staked early, and much as advised in the case of kidney Beans. Very little water is needed at the outset, and not till they are strongly rooted should any liquid manure be given, a too free use of the watering-pot and stimulants frequently doing much harm. Plenty of light and air must be given them, or otherwise the growth will be spindly and the flowers fail to set. A batch, to be of any real service, ought to consist of from thirty to fifty pots. If one or two sowings of this extent is made, these will maintain a fairly good supply till those in pits or frames are available. American Wonder succeeds well in pots, but is not quite so profitable as the more vigorous Chelsea Gem.

RAISING TOMATO PLANTS.

Where no small plants have been kept through the winter the earliest crops have to be taken from plants raised from seed, and, on the whole, I am disposed to give the preference to the latter. Seedlings are less liable to be infested by insect pests, and they produce fruit nearly, or quite, as early as plants from cuttings, and not unfrequently yield the heaviest crops. Plants are very easily raised from seed, but all do not succeed in rearing strong sturdy specimens, or such as are best adapted for fruiting in positions where head room is limited. What are needed are dwarf healthy plants that will produce their first strong cluster of fruit from 12 inches to 15 inches from the soil in the pots, and these may easily be raised. We use clean freely drained 6-inch pots, nearly filling them with light sandy soil. The seed is sown very thinly and lightly covered with fine soil, the pots being then plunged in a fairly brisk bottom heat, and if the soil is dry a gentle watering is given. Every sound seed quickly germinates, and before the seedlings become unduly weakened the pots are either raised well up to the light or else set on a warm shelf near the glass. If the seed is sown at all thickly, or the plants have come up more thickly than anticipated, thin out early, as it is very unwise to raise many more than are needed, and, perhaps, spoil all at the outset. When a second pair of leaves are partly formed, all may be turned out of the pots and carefully shaken clear of each other. Clean, lightly drained 5-inch or 6-inch pots should be prepared, and any moderately good and previously warmed soil is suitable for them. It is advisable to do the potting in the house where the plants are raised, as a few minutes' detention in a cold potting shed will cripple them. When potting, a single plant may be placed in a 5-inch pot and a pair in the larger size, these in each instance being sunk into the soil up to the seed leaves. If the soil used is at all dry give a gentle watering, and the plants will recover from the check given most quickly when partially or wholly plunged in a gentle hot-bed. In any case they require to be kept rather close and shaded from bright sunshine for a few days. Directly they assume a greener appearance root action has recommenced, and the plants should again be exposed to the full light and sunshine. Shelves near the glass are the best positions for them, and if duly supplied with water of the same temperature as the house, strong plants soon result. Before they are badly root-bound, they ought to be shifted into the fruiting pots. Not till they are root-bound do the plants begin to lengthen and become spindly, and those who prefer to first put the seedlings into quite small pots, ought always to give these an early shift. There are a considerable number of new and old varieties that are suitable for pot culture, some, however, being more easily grown than others. The ribbed or corrugated varieties are the surest setters, and of these there are none to sur-

pass a good selection of the large red. Dwarf Orangefield never fails, and the fruits, though small, are of excellent quality. Perfection, Hackwood Park Prolific, and Dedham Favourite all produce heavy crops of handsome fruit, and no fault can be found with the quality. W. I.

MARKET GARDEN NOTES.

THE new year has opened with more seasonable weather, as dry, frosty nights and cold, sunless days have checked vegetation, and will, it is hoped, harden the growth before any more severe visitations are upon us. Work is still plentiful, for as the ground is fairly dry, the work of preparing it for spring crops is being pushed on rapidly, and the change to colder weather has already had the effect of causing both green and root crops to realise better prices, so that the land can be cleared more rapidly.

BROAD BEANS claim the earliest attention as regards sowing, and these are being got in now in quantity, for market growers do not go in for successional crops of these as they do of many other things. One or two good sowings only are put in, as consumers soon tire of Broad Beans after Peas, runners, &c., become plentiful. The early Longpod and the Broad Windsor for second crop form the mainstay of market growers' lists.

PEAS of early kinds are also claiming attention, for the land is in such excellent condition for sowing, that growers are anxious to get as much as possible of the early cropping done lest they should get a spell of rougher weather to prevent its completion. The dwarf varieties of Peas that produce good-sized pods are becoming greater favourites every year, and for growing without sticks and at moderate distances apart, it is a great advantage to have kinds that commence podding near the soil. Some of the very best kinds for private gardens and that require stakes 6 feet high are quite useless to the market cultivator for field work.

MANURING ground ready for digging or ploughing is pushed forward whenever the surface of the land is frozen or dry enough for carting, as the quantity of manure employed in vegetable culture is enormous, and at this season of the year when work is not so pressing, many of the most successful cultivators take time by the forelock and get beds prepared in readiness for crops that need manure in quantity. Ground having had one good manuring is made to carry two or three good crops before another winter's cultivation, and generally the land that is cleared this winter will be carrying Broccoli or some winter crop the next.

PRUNING all sorts of fruit trees and bushes is now in active operation, and certainly there has been a marked improvement in the cultivation of hardy fruits during the past few years. The centres of old Apple and Pear trees are being cleared of useless spray and the outer branches thinned, as growers are becoming alive to the fact that it is only good fruit that pays, and this can only be had by good and generous culture. The stems of the trees are being dressed with lime to clear them of Moss and other parasitic growth, and with paraffin oil for American blight or scale. Bush fruits that never fail, if not so profitable as the larger fruits, are being pruned and liberally dressed with manure, as they are very gross feeders, and unless the produce be of good size it is comparatively useless for market. Birds are the greatest enemies to the buds, and lime and soot are spread over the bushes when they are wet, while shooting keeps the feathered enemies at bay in open fields where there are no large trees for them to retreat into, as in gardens.

STRAWBERRY BEDS are being lightly forked over, just enough to get the weeds out, and a good dressing of manure is then applied to the surface; young beds are merely divested of any late runners and the weeds cleared off the surface; a light dressing of manure is then spread over the ground and left rough until spring, when it is raked over and the soil trodden firmly around the crowns.

HOTBEDS are being made up for forcing, and seeds of Cucumbers, Tomatoes, and other early

crops are being sown. Seakale and Rhubarb are being forced in quantity, and a number of pits and frames have been planted with early Potatoes. These get a little bottom-heat to warm the soil and give them a start into active growth. The old Ashleaf Kidney and Myatt's Prolific are still grown largely for the main early crop. A new variety called Sharpe's Victor is now being tried as a rival to these old favourites. Light, rich soil about 1 foot deep is employed for the Potatoes, and a thin crop of long Radishes is taken off the surface, as they are pulled up before the haulm of the Potatoes needs the space. Seed Potatoes for planting outside are being laid out in single layers to sprout, so as to keep the first shoots from getting drawn up weakly. Mint roots are being taken up for forcing, as there is a large demand for green Mint about Easter, and if roots are put on a gentle hotbed they come up strong and yield a quantity of tops for cutting. Lettuce and Cauliflower plants in frames are well covered when frosts prevail, but freely ventilated on mild days. J. GROOM.

Gosport.

NOTES OF THE WEEK.

Lælia anceps.—Mr. F. Bedford, Straffan House, Co. Kildare, writes, "Lælia anceps has been nice, but the flowers are nearly over. One specimen in a 12-inch pan had sixty flowers on twenty spikes."

Flowers in bloom at Cork.—Mr. Hartland, of Temple Hill, Cork, sends the following note: "All the plants mentioned are blooming here out of doors: Double red Hepatica, Narcissus corbularia citrinus, N. minimus, Gentiana acaulis, Christmas Roses in great variety, double and single Primroses, and Polyanthus and Oxlips of sorts. In a cold house Narcissus Ard-Righ and the white Hoop-petticoat Narciss (N. corbularia albus) are flowering."

Asparagus decumbens.—How curious to read of this being trained up a pillar (THE GARDEN, Jan. 5, p. 19). I have seen it frequently very beautifully grown, but always in a hanging basket, and when the plant is strong, its decumbent stems hang down to the length of 6 feet or 8 feet, flowering and fruiting freely. I remember once seeing two such plants, one on each side of the doorway of one of the glasshouses at Straffan, and which formed quite a frame of soft green drapery.—T. SMITH.

Winter scenery.—Few transformation scenes could equal the one seen in the park at Hull on the morning of Sunday, the 6th. The registering thermometer told us of 11° of frost. The air was perfectly still, not a breath to ruffle the scene. The fairy-like forms of the trees and shrubs, both evergreen and deciduous, seemed as if veiling with one another in beauty of outline. Form and symmetry were never more conspicuously seen than in their wintry livery—the work of a single night. The fringing, indeed, of stem and branch was simply fairy-like, and the eye could recognise through it all, so clear was the delineation against a blue and sunny sky, the rich tracery of each individual tree. The Weeping Willow was at once conspicuous from its long pendent twigs. The Birch was not far behind, the drooping of the catkins adding materially to the light and shade. The various Hollies each had a pattern to admire, the spines exhibiting their serratures to perfection in rich contrast to the Mahonias that were of lowlier growth. The Conifers, especially the Pines, had a beauty peculiarly their own, the needle tufts exhibiting their bosses of leaves and showing how silently the frost-work had fringed them. The Wych Elms, beautiful as they are in their summer dress, were more so, to my fancy, in their winter one, the apparent stiffness of form toning down under their fleecy covering of snow. The white and yellow Brooms never looked more beautiful, not even when festooned in wreaths of bloom in the merry month of May. The Lombardy Poplars threw up their shafts of pyramidal growth in contrast with the lovely landscape. It would be useless to try to tell all, and I heard it remarked that very seldom had Nature's winter panorama been seen to such effect as on this Sunday morning.—PETER INCHBALD, F.L.S., Belgrave Terrace, Hull.

ARUNDEL CASTLE.

THE visitor to Arundel obtains a fine view of the castle when approaching the town by rail. It stands out conspicuously, crowning a bold escarpment of the Downs, beneath which nestles the little town. Arundel Castle has an ancient history extending back beyond authentic record, although it was known as a Saxon stronghold in the year 800, our forefathers readily availing themselves of a position naturally strong, for, unlike the usual easy slopes of this great Down formation, the ground here falls away suddenly, so that the castle seems to stand on the edge of a precipice. Time and war, for the castle has been thrice besieged, have long ago left their marks and partly dismantled the original structure, so that much of the present building is of modern erection, but the early style has been still kept up and the

very fine Tulip trees are here, one on either side of the walk, and then we come to a group of trees planted by notable visitors. A *Cryptomeria japonica* planted by the Duchess of Kent in 1848 has made a handsome specimen nearly 50 feet high. Two Oaks are next seen, one planted by the Queen and the other by Prince Albert, when on a visit to the place in December, 1846. Curiously enough, although both were planted on the same day, the one planted by the Queen is nearly twice the size and girth of the other. Close by, a large Deodar is labelled as having been planted in December, 1836. It has made a wonderful growth in the time, and instead of keeping to one main stem has branched out close to the ground, and these branches are now like the great limbs of some ancient Oak. A fine Manna Ash, 50 feet high, that had flowered freely, showed what a distinct

acuminata is a large tree 80 feet high, but the best Magnolias we have ever seen are in what is known as the dairy garden. *Magnolia grandiflora*, *Soulangiana* and *purpurea* have grown into trees. Of these there are a dozen, one of *grandiflora* having branches covering a piece of ground 10 yards in diameter, the stem of the tree girthing nearly 5 feet. Some Camellias planted out also promise to grow vigorously. Two very fine Minorca Box demand special mention. Near these is a Loquat, the finest probably in the country and growing fully in the open. It was planted some years ago by Lord Edward Howard and is now 25 feet high, the branches coming down to the ground. Mr. Burbury said it flowered profusely in November, 1887, but the flowers were not so pretty as those of the common Medlar. For noble-looking foliage the Loquat



Arundel Castle, from the meadow. Engraved for THE GARDEN from a photograph by Messrs. Poulton.

castle is quite as imposing. The now Ivy-mantled keep is probably the remains of the Saxon fort. It is a fine example of massive masonry, with walls from 10 feet to 15 feet thick, reared upon a mound quite 100 feet above the fosse beneath. Notwithstanding the great undulations of surface, necessitating artificial means of access, the natural gradation of the ground has been preserved in its entirety, and the result is charming. In the more level portions of the grounds the walks are margined with broad grassy verges of turf with groups and isolated specimens of beautiful trees. One walk was bordered with Pine trees, among which were noticed fine specimens of *Pinus Strobus*, *P. Laricio*, *P. Cembra*, and a very fine *P. insignis* in the best of health and from 80 feet to 90 feet high. Here also was noticed a noble tree of *Abies Morinda* fully 60 feet high. Two

and beautiful tree this is. *Koelreuteria paniculata* has grown into a great tree nearly 50 feet high, and last year flowered most profusely. Close by and fruiting freely, whilst of still larger dimensions, was a noble tree of the Hickory Nut. The great tree of *Ailantus* justifies the supposition that it was one of the earliest planted ones. It had some magnificent leaves with twenty pairs of leaflets, and the tree also flowers freely. The Kentucky Coffee Tree (*Gymnocladus canadensis*) was a grand specimen from 70 feet to 80 feet high.

Some fine old Medlars were very beautiful and showed how in our search for novelty we have neglected them and overlooked their capability for making in many places distinct and pretty effects. We noted a fine old tree of the Catalpa and an old Judas tree that has been supported with iron bands. *Magnolia*

is distinct, so also was a great tree of the Japan *Sophora* that stood near. In some parts were deep shady dells between great banks of chalk, and here the natural vegetation was sufficient in itself. Along these glades, shaded by large Beeches, Wych Elms, and Yews, was one of the most beautiful aspects of native vegetation we have seen. The chalky banks were but sparsely clothed with Ivy and Grass, above which the Hart's-tongue Fern grew in abundance. There were immense broad sheets and isolated tufts that sent up fronds nearly a yard long. Ferns generally do not like chalk, but the Hart's-tongue revels in it. This shady walk emerging from between steep banks leads along the side of another steep slope and again down to where the chalk rises up like a straight wall. The *Polypodium* may be seen, high on the trees. It is not uncommon to see it grow-

ing around a tree stem or clustering in the hedgerow, but to see it growing 100 feet up on the branches of a tree is certainly unusual.

We now reach the higher ground, passing into the flower garden, environed with a flint wall. In this enclosure is the great pattern flower garden, but it was indeed a surprise to find it without a bedding plant, yet gay with flowers. Mr. Burbury said that the late Duchess of Norfolk did not like the incongruous effect produced by introducing modern flower gardening in proximity to the keep and ancient castle walls. The bedding out was done away with, hardy flowers, annuals or any of the simple old-fashioned flowers being alone permitted. Though the hardy flowers were pretty, they did not look perfectly at home in a formal garden with pattern beds. It is something we are quite unaccustomed to to find a garden without bedding plants, and this garden was the most interesting and prettiest we have seen for a long time. There was plenty of flower and abundance of colour. The beds of *Alstroemerias*, especially the variable coloured *A. chilensis*, were most beautiful. In this garden, too, were *Pyrethrums*, *Aquilegias*, *Pinks*, *Carnations*, *Phloxes*, *Clematises*, great bushes of hardy *Fuchsias*, summer-flowering and annual *Chrysanthemums*, *Salvias*, *Day Lilies*, *Hya-cinthus candicans*, *Lilies* of different kinds, *Pentstemons*, and beds of choice annuals. It was not the usual indiscriminate mixture of hardy flowers, as usually seen, but each bed had its distinct kind, provided its own mass of colour toned down by its own foliage; some plants were tall, others short; each showed its own individuality, and the picture was one of simple, quiet beauty, and a striking contrast to the commonly seen "bedding out."

The park is indeed an ideal English park, 6 miles round and some 1100 acres in extent. It is really a great enclosure of the South Downs, and although there are great masses of woodland and Fir-crowned knolls, the trees are not of extraordinary size by reason of the poor soil in which they grow. There are some fine groups of aged and gnarled Hawthorns and stunted Maples, and the scenery is of the grandest description. We crossed the park to view the landscape, and in doing so came to one of those deep natural glades of which the "Devil's Dyke" is a good example. From a plateau the ground suddenly slopes down, steep, yet smooth, as though graded by the hand of man, and carpeted with turf, sloping down and terminating in a flat, smooth bottom, which looks almost like an ancient river bed. A herd of deer, numbering about 1000, were in the distance. This is essentially a deer park of sufficient extent to keep the deer without showing so much of the hideous fencing which mars the landscape of many an otherwise pretty park. Looking southwards, the scene is very pretty; the park suddenly slopes down to a level plane, through which the little river Arun meanders, passing close beside the park walls, past the town, and away to Littlehampton, which is seen upon the sea-coast some miles away. A good view is obtained of the sea and the Isle of Wight; in fact, all the elements of beautiful English scenery here combine to produce an enchanting spectacle.

Swanbourne Lake, a fine sheet of natural water, is mentioned in the Domesday Book, when probably it was much larger. It is pretty now, and is bordered on one side by the main road, flanked on the other by a steep Beech-clad slope, making a great bank of foliage which comes down to the water's edge. At one end of the lake is a narrow strip of level ground

backed by chalk walls festooned with Traveller's Joy. Fringing the water is a *Privet* rarely seen (*Ligustrum lucidum floribundum*), and which has here grown into a tree 40 feet high. Mr. Burbury says it is as pretty in October as a large bush of white Lilac is in May.

In the glasshouse department the great crops of Grapes and Pines merit a passing word, and Melons are admirably grown. Three batches of Melons had been grown in the Melon house last season. To keep up this successional cropping Mr. Burbury grows the Melon plants on into 6-inch pots, and when one crop has been matured the old bed is cleared away, a new one made, and a few days having elapsed for the soil of the newly-made bed to become warm, the plants are put out and soon commence fruiting.

FLOWER GARDEN.

FLOWER GARDEN NOTES.

BORDER VARIETIES OF CARNATIONS AND PICOTEEES.

—The ground is so wet by reason of the abnormal amount of rain that fell last month, that the present spell of frosty weather makes us anxious as to the safety of these plants. The plants made comparatively little growth during last summer, and that was late, so that layering could not be done at the proper time; consequently very few were well rooted at the time for severing them from the parent plants. We decided, therefore, to let all of them remain as they were till spring. This will explain the anxiety for their safety, all our stock being, as it were, at the mercy of the weather. Cocoa fibre has been applied for root-protection, and a light straw covering for the tops. It is only two years since that these plants were first made a speciality of here, but they have in that time done so well as to gain, if not quite, almost the first position amongst border flowers generally, and especially have they been prized for use as cut flowers and for button-hole and bouquet making. The following are some of the most favourite varieties of Cloves: The Old Red, known to everybody, if not so refined a flower as many, is still the sweetest scented. Also good are *Amethyst*, another scarlet; *Duchess of Westminster*, white; *Improvement*, purple; *Mrs. Teigner*, rose; *Mary Morris*, deep rose; *Prince Imperial*, purplish crimson; *Royal Purple* and *W. P. Milner*, pure white, a good grower and early. The freest growing border Carnations and Picotees are *Comet*, *Endymion*, *Guiding Star*, *Mirabel*, *Queen Victoria*, *Warrior*, *Pride of Penshurst*, and *Sir Beauchamp Seymour*.

HARDY FLOWERING PLANTS OF EASY PROPAGATION AND CULTURE.—Since increased interest has been given to hardy flowers, I have occasionally talked with persons who, whilst expressing themselves as being partial to hardy flowers, yet fought shy of their cultivation on the ground of expense and the time it would take to get up a collection. One—a lady fond of a garden, yet of limited means—even went so far as to tell me she despaired of ever getting up a collection worth looking at, because she had recently sent for the highest priced collection named in the catalogue of a firm that made such plants a specialty, and they had sent her the most insignificant bits of plants that would take years (she thought) to grow into good pieces. I had a good deal of sympathy with her, as more than once I have been a similar victim. I think unintentionally though, small pieces having been sent simply because the demand had been so great. The remedy for such a state of things is, I think, mainly in our own hands, and that is to grow plants for ourselves. Everybody having the most ordinary garden appliances can do much in this direction, either by raising from seeds, or by division of roots of any of the following, all of them being amenable to the simplest mode of propagation and cultivation. I name them alphabetically:—

ANTHRINUMS (or Snapdragons).—Seeds of these plants sown now in pans and placed in

an ordinary Cucumber frame, where the temperature ranges between 45° and 65°, will quickly germinate and grow away so freely, as to be ready to plant out by end of April and flower profusely by midsummer and throughout the summer and autumn. Cuttings strike readily under the same conditions, and when it is wished to retain a favourite variety this is the only mode of propagation that should be attempted. Though Snapdragons are proverbially sun-loving plants, yet throughout the "wet-winter" summer of last year few hardy flowers continued so gay as these.

AQUILEGIAS (or Columbines).—The varieties of these are now immense and from a shilling packet of seed scores of plants may be raised. Sow the seed in pans of light vegetable soil, press down firmly, cover the pans with glass, and place them in a cold frame. The seedlings come up much stronger and grow away better than when raised in warmth. If sown now a few will flower towards the end of the summer, and the second season they will be equal to the finest plants that can be bought at any nursery. The best *Aquilegias*, I think, are *cærulea*, *chrysantha*, and *glandulosa*, but amateurs may prefer to have a mixture of all the kinds, and this can be obtained of any respectable seedsman.

DELPHINIUMS (perennial Larkspurs).—These are amongst the first to make a good show in the herbaceous department of a garden, and as they continue for a very long time in a gay condition and are also invaluable for cutting, I class them very nearly at the top of the list of herbaceous perennials. Seeds never fail to germinate well, and the best way to raise them is to sow in pans and place them in warmth—say about 55°—till the seedlings appear, then transfer them to a cold frame there to grow on until ready to plant out in the open borders. It is very rarely the plants flower before the second season, but after that they grow away at a great pace, after which division of roots is, perhaps, the best way of getting up a stock quickly, as it certainly is of increasing good varieties. Seedlings vary, and cannot always be relied on to turn out well. Propagation by division may be done any time between November and February. I note that old stools are throwing up new growths already, and no time should therefore be lost in taking offsets or of transplanting any that are intended to be moved.

ENOTHERAS (Evening Primroses).—This is a class of hardy perennial plants that continues flowering for a longer period than any other I can call to mind, and in addition to this free-flowering propensity, all the varieties have beautiful foliage, mostly of a bronzy coloured green, and the colour of the flowers ranges from what I shall call a white-sulphur colour through all the various shades of yellow to deep orange. Seeds are of easy germination if treated in the manner named for raising *Delphiniums*, and division of plants is also just as readily performed. For getting up a large stock quickly, seed-sowing is best, and, contrary to the general rule, the varieties come very true from seed, or, in other words, reproduce themselves. The varieties I prefer are *acaulis*, *Lamarckiana*, *Fraseri* and *macrocarpa*. All the varieties are not only first-rate border flowers, but the growth being half trailing in character, they are well suited for planting on rockwork or other positions where a pendent habit is desirable.

PHLOX, PERENNIAL.—Perennial *Phloxes* were last year the best of the border flowers. They began to flower in May and till the severe frost of October 2 there was no waning in their beauty. Add to this free and continuous flowering, the great range in colour of the long-lasting flowers, and their use when cut, and an approximate estimate of their value will be obtained. They can also be obtained from seeds, but I have never known the seed to germinate well, and do not therefore advise this plan. Cuttings taken any time during the summer and inserted in handlights on a shaded border strike freely. They should as soon as struck be planted 3 inches or 4 inches apart on a warm border and be allowed to winter there, and permanently planted in the borders in

spring. Division of roots is also a successful way of increasing stock, but plants so obtained, I always fancy, produce inferior flowers to those propagated by cuttings.

RUDBECKIAS.—There are no hardy autumn-flowering perennials that better withstand all the vicissitudes of weather without injury than do the several varieties of Rudbeckias, and few that make a better show and none that stand for a longer time when cut. To those who do not know the plants, the flowers may be described as large Marguerites, having deep yellow petals and jet-black centres, with long stout stems most suitable for vase decoration. They are free-growing, and stock can be rapidly increased by splitting up old plants, as the merest particle soon grows into a good plant. The plants bear removal at any time, but early spring-time is best. I have never attempted raising any from seeds; consequently cannot say whether or not they come true, nor yet advise as to the way of raising the seedlings. The best variety is Newmani, but californica and maxima are also good.

GENERAL WORK.—To push along with shrub-pruning and clipping hedges so long as the weather continues dry. Dig and sift gravel for repairing walks and coach roads. Wheel soil and manure to stations that are to be prepared for tree planting as soon as frost has ended. Indoors, to look over the roots of Dablias and put in warmth kinds that are to be propagated in quantity, and see that all other flower roots and tubers are securely protected from frost.

W. W.

SINGLE VIOLETS.

THERE is probably more money in good single Violet flowers now than there is in any other ordinarily grown market flower. That is saying a good deal in face of the fact that Chrysanthemums, Roses, and many other flowers are grown in large quantities. But what better flower is there of which we can gather great quantities from the open ground through the month of December, or indeed at any time during the winter if the weather is for a few days open and mild? Then, let fashion in flowers be what it may, the taste for Sweet Violets never varies, the popularity of these humble flowers never wanes. As long as Violets have sweet perfume, so long will the fancy for them last. We have been having Violet flowers in great profusion this winter; indeed, we have rarely had a better time for them. This abundance of flowers is most chiefly due to the cool moist summer, which preserved the foliage and kept the plants growing, and it is to some extent also due to the better knowledge possessed by planters of treating Violets so as to induce them to bloom during the autumn and winter. Ordinarily, old plants are broken up and the side pieces taken off and dibbled out in the spring as soon as the bloom is over. That method answers very well when the summer is cool and rains are abundant, but should the summer prove hot and dry, growth is slow, many pieces die, the plants generally suffer from thrips and spider, and the resulting crowns in the autumn lack strength. Now, some growers have taken to breaking up old clumps in the autumn, and filling up the ground after Potatoes and other summer vegetable crops are off. All such plantings do well; they soon make root, grow all the winter, and are too strongly rooted to suffer from the summer heat. They then bloom early in the autumn, and more or less all through the winter. It is very easy to have Violets in abundant bloom in the spring; ordinarily, the end of March and beginning of April are the Violet months, when every plant will flower in great profusion. But just then, because the market is glutted, the flowers bring but a poor return, and should the French flowers be good, sale at any price is often difficult. Growers, therefore, do not care to have all their plants blooming in the spring, neither also do the women pickers. In all cases, if the gatherings be at all considerable, the pickers are paid at the rate of 1d. per dozen bunches, and in a good season a smart hand will gather from forty to sixty dozen bunches per day, each bunch then, without leaves, consisting of twenty flowers. The leafing is done later in a shed

or cool room, very often by members of the grower's family, and after a very hard winter or a very hot, dry summer, the obtaining of leaves is a matter of considerable difficulty. It is found needful in some cases to grow plants beneath dense trees to ensure ample leafage, as in such cases flowers are not sought for. Generally the best flowers, both for colour and perfume, are obtained in the open ground, and where so many acres are grown any other method would be impossible. This winter, which has been so rich in flowers, finer blooms and more of them have been found right out in the open than beneath shelter. When gatherings begin in September and continue to give varying quantities all through the winter, it is remarkable how large a return is obtained ere the gathering is finally over for the season. Market prices range from 6d. to 1s. 6d. per dozen bunches, but a fair average price seems to be 1s. for the winter. It is not the moderate quantity of flowers obtained at but one or two pickings which tells, but the many pickings regular in open weather and intermittent in mild weather, which spread over several months, show that money can be made by growing Violets.

A. D.

DOUBLE PRIMROSES GROWN IN POTS.

AT the recent committee meeting of the National Auricula Society I endeavoured to induce the committee to require that for the future the double Primroses shown in the class for six pots or pans at the Auricula show in April should be grown in pots. At present, as the class stands—and I am sorry to say as it is to stand for another year—anyone who has a number of plants of the necessary varieties, can lift them from the open ground, place them temporarily in pans or baskets, and exhibit them in this class. Thus the leading prizes are at the mercy of the largest growers who can make up an exhibit in this way, and the amateur with a love for these pretty spring-flowering subjects, who may desire to cultivate a few in pots, is discouraged, and in the face of such odds makes no attempt. My simple desire is to encourage the culture of double Primroses in pots, and especially by those who may not care to touch Auriculas. But I am told this desirable state of things must give place to the necessity for providing a show, and things in bulk are desirable in order to secure this. It is a striking fact that in no other class in the show is more than a single plant allowed in a pot.

I have also another purpose to serve. I want to rescue from the obscurity into which they appear to have fallen some of the delightful varieties of the double Primroses. Only let a good and well-bloomed plant of the old double crimson velvet Primrose be produced at the Auricula show, and straightway it engages more of the popular attention than the finest Auricula staged, not only for its great and distinct beauty, but because it is so rarely seen. Here, in the south, it is difficult to grow these plants in the open ground, and even were it possible, the flowers would scarcely open in time out of doors so as to be ready for exhibiting the third week in April, unless cloches or something of the kind were placed over the plants; and even if they did expand early enough, some protection from frost or rain or vermin would yet be necessary. The best plan would be to lift them, place them in pots, and give them the protection of a cold house for a few days.

In April last three collections of six double Primroses were shown. One was the big made-up specimens to which I have alluded, and it being a recognised principle that bulk is required to make up an effective show, it is only necessary the judges should favour bulk at the expense of quality, the latter being necessarily on a much smaller scale. The other two collections had been grown in pots—one by Mr. H. Selve Leonard, and the other by myself. Now the hot, dry summer of 1887 was decidedly unfavourable to double Primroses, as they lost their leaves, and there was great difficulty in getting them into growth again. The spring of 1888 was a very late one, and considerable difficulty was experienced in getting the plants into bloom,

and yet with these difficulties in the way a creditable representation of double Primroses grown in pots was afforded. I am trying to do something very much better next season, and with good hope of success. If I can show double Primroses in pots, the plants having been cultivated in pots since the early part of September, and if I can produce these each carrying eight or ten well-developed and fine blooms, they ought, I think, to carry more weight than large baskets or pans of plants lifted from the open ground merely for the occasion. But this cry for mere bulk will, I fear, prevail, and the grower of the large collection will again take the highest honours.

I am particularly anxious to see the amateurs taking up their culture. Despite the fact that they are seriously handicapped, as against the large trade grower with his made-up pans, I hope they will enter the lists as cultivators and exhibitors, and by so doing shame the committee into doing them justice. There is no difficulty in obtaining from six to nine distinct varieties of double Primroses, such as the crimson, crimson-purple, purple, late yellow, lilac, white, Croussi, and platy-petala, with which to form a collection for show purposes.

R. D.

Primroses in winter.—Those of your readers who are fond of Primroses might like to hear of a simple way of having them on the table all winter. Where any quantity are grown there are always buds. When those showing colour are picked, even in hard frost, and put in a deep plate, the bottom of which has been previously covered with tall green Moss, they come out well, and even when the stalks are very short, as they are when picked off a bunch, the Moss supports them so as to keep the flowers out of the water. The Moss we use is commonly called Fir tree Moss (being like a miniature tree). There is now on the table a china plate more than a foot across, and full of Primroses of all colours, the buds of some of which were picked after 14° of frost. The combination of green and bright colours is very pretty.—GEORGE F. WILSON.

AMERICAN NOTES.

A FEATURE of the recent Pomological Exhibition in Vienna was a special display of fruits ill adapted to local cultivation and labelled "warnings."

A MEMORIAL to Alexander Humboldt was recently erected in the so-called Humboldt field, one of the new parks of Berlin. As a statue of the great naturalist already stood in the centre of the town, the new monument was given a very different form. From all parts of the province of Brandenburg the largest possible erratic stones (glacial boulders) were brought together and arranged in imitation of a terminal moraine. In their vicinity curious stones of many other sorts are grouped, and one bears a simple inscription telling that the "monument" was erected in Humboldt's honour by the city of Berlin. Our correspondent, Dr. Bolle, has long been actively engaged in forwarding this movement.

AT the late Chrysanthemum show in Philadelphia, Mr. W. K. Harris exhibited a plant upon which twenty distinct varieties had been grafted, and all were in bloom at the same time. This suggests a new line of work, inasmuch as such plants would be objects of great popular interest at exhibitions if a proper selection and arrangement of colours were made. It may be questioned, however, whether a plant bearing several different kinds of flowers possesses any value except as a curiosity. Whether some varieties of feeble growth would be improved if grafted on a more robust stock can be ascertained by experiment.

It has sometimes been stated that the worst monstrosities in the way of formal planting which disfigure some of our western parks—figures of men and animals and even portraits of various celebrities—should be charged to the bad taste not of native American, but of German, gardeners. The statement seems to find some support in the fact that at a horticultural exhibition held not long ago in

one of the smaller German towns, a portrait of the Emperor William I., 4½ feet high, was displayed in bright-leaved plants; and in the further fact that none of the parks of our eastern towns, except in Pittsburgh, where German influence is less strongly felt than at the West, are deformed by similar horrors.

BERBERIS EMARGINATA.—It is hard to imagine any shrub with more brilliant or strikingly coloured foliage than this. *Berberis chinensis* is very brilliant, too, but *B. Thunbergi* has already lost its leaves entirely. The fruits will remain, however, upon the branches bright and unshrivelled until spring, and considerably later than those of the last-named species, which on the whole, although still almost unknown in gardens, is a more graceful and desirable plant and unsurpassed among Barberries in the beauty of fruit.

THE WASHINGTON THORN (*Cratægus cordata*) is a brilliant and beautiful object, with its small, bright red fruit and orange and scarlet leaves. This is one of the most rapid growing and desirable of all our Thorns as an ornamental tree, and it is free or nearly so from fungoid attacks, which ruin the beauty early in the season of many Thorns. Formerly it was much more generally planted than at present, especially as a hedge plant, for which purpose it is well suited. It is one of the most desirable of the smaller North American trees for ornamental planting. The foliage, however, of *C. arborescens* is still more brilliant, surpassing here this year not only that of all other Thorns, but nearly every plant in the collection. *C. arborescens* is found in the South Atlantic States rather sparingly, and again west of the Mississippi River from Missouri to Texas. Like many of the other Thorns, it is most common and most fully developed in the valley of the Red River; here it is, when in bloom, a conspicuous feature of the region, bordering the low, wet prairies and the banks of streams, sometimes reaching a height of 40 feet, with a round, wide-spreading top. The bark of the trunk is much lighter coloured than that of the other species, and the flowers, although small, are produced in the greatest profusion. The fruit is small, hardly larger than a Pea, and bright red. It is rather a surprise that this plant should prove hardy here. So far, however, it grows vigorously and rapidly, and its further development will be watched with much interest. The astonishing and unsurpassed colour of its foliage at this season of the year should give this Thorn a place in every garden where it can be grown successfully.—*Garden and Forest*.

FERNS.

W. H. GOWER.

LINDSÆAS.

THIS genus comprises a large number of exceedingly handsome and distinct Ferns; they are dedicated to the memory of Dr. Lindsay, who in his time wrote largely upon the germination of Ferns and Mosses. Many years ago, when the search for new Ferns was as eager as it is at the present time for *Cypripediums*, many species of this family were said to be in cultivation, which, however, to this day have never been seen in English gardens, and one should be careful in looking over lists of names in dictionaries and garden catalogues. It is not enough to read them there; one should know if they are to be found in cultivation before he credits the statement. At the present time I do not suppose that many of the *Lindsæas* here enumerated are to be found alive in this country, but I have seen them all in a growing state; the Messrs. Backhouse, of York, devoted much time and spared no expense in searching for them, but owing to the difficulty experienced in their cultivation and the taste for rare Ferns falling away, they tell me at the present time none exist in their establishment, and it is with a view of showing my readers what a great

loss we have sustained by their disappearance and to induce some *Lindsæa* growers to spring into existence that I introduce them here. *Lindsæas* are *Adiantum*-like plants, but they are destitute of the black polished stems which such conspicuous features in the Maiden-hair Ferns; some of the species are dwarf, whilst others attain a height of upwards of 2 feet, and the fronds are much-divided, so that there is no lack of variety. These plants are widely scattered in the Tropics, and for their successful culture require strong heat and an atmosphere well saturated with moisture; few of our Fern



Lindsæa Lessoni. Engraved for THE GARDEN.

houses yield enough, and I therefore recommend a large Wardian case for them. At the same time, although such a moist atmosphere is necessary for their well being, and they also enjoy a large supply to their roots, nothing stagnant must be allowed to stand about them. I am under the impression that they do not like to be overloaded with mould about their roots, and what they do have should be of the roughest; therefore drain well and mix some stones and broken crocks with the soil, which should consist of turfy loam and sand, with a little peat added, whilst the potting should be very firm. Water freely, and do not allow the soil to become like a bog, hard potting being the best way to prevent this. I have received these plants from their native homes in a calcareous, clayey marl, but have not found them thrive in that soil under cultivation. A somewhat light

loam mixed with stones and made firm appears to suit them best. The following kinds were all introduced in a living state by the Messrs. Backhouse, and I do hope the taste for these plants will again revive, so as to induce them again to import them. I may add that I have found the young imported plants to thrive better than the larger examples:—

L. TRAPEZIFORMIS.—This is the finest species of this family that I have seen alive, and when established it would form a splendid object. The fronds attain a height of 2 feet or more and bear several pairs of pinnæ, each of which is some 9 inches long and thickly clothed with large, flat obtuse pinnules, the upper edge being rounded, bearing a continuous line of sori on the upper edge; the stem and rachis are pale straw colour, and the frond a lively green. It appears to be common in the West Indies, especially in the island of Trinidad; it is also distributed over Tropical America, and extends to the Malayan Islands.

L. FALCATA is a form with fronds a foot long; these are simply pinnate, the pinnæ large, obtuse, rounded on the upper edge, the lower pair being distinctly sickle-shaped. The upper edge bears a continuous line of sori. This form is thought by some to be a simple state of the previously named kind. This it may be, as it always comes from Trinidad with *trapeziformis*. I, however, have had this form growing for two years, and it did not show the slightest inclination to make more compound fronds. The pinnæ are larger than those of *trapeziformis*, and the stems are chestnut-brown.

L. STRICTA.—This is a variable plant. The only form I have seen living was bipinnate, although it is not always so highly developed. The frond is about 18 inches high, bearing from three to six pairs of side pinnæ, which are thickly furnished with small rounded pinnules, which do not overlap each other. The sori form a continuous line round the upper edge. The frond is very rigid and the colour pale green. It is a beautiful species from Brazil, &c.

L. GUIANENSIS.—This may be said to resemble *L. trapeziformis* in miniature, but the habit of the plant is more rigid. It grows from 1 foot to 18 inches in height, the fronds varying from bipinnate to tripinnate, the pinnules being obtuse and of a lively green. It comes from Tropical America.

L. SAGITTATA.—This is a singular and distinct plant from French Guiana. The stem is ebony-black, about 6 inches long, and it supports a simple frond, which, in the specimen before me, is 4 inches long and 2 inches wide. The texture is coriaceous and the colour deep green, while the sori form a continuous band on the edge. A somewhat similar plant is

L. RENIFORMIS, which also has a shining dark black stem and a somewhat reniform simple frond, and in size resembles the preceding. It is a native of Guiana.

Besides these I have also had the following species in cultivation; the New Zealand kinds were largely imported by the late Messrs. Rolleston, of Tooting, and found a ready sale, but I fear very few examples could now be found in a living state:—

L. TRICHOMANOIDES, of which we here give an illustration, is a very pretty species, but not of large growth, as it seldom attains to more than a foot in height; the fronds are bipinnate, the pinnæ being variously lobed and bright green in colour. It is plentiful in New Zealand.

L. LESSONI.—This, figured in THE GARDEN Oct. 15, p. 349, under the name of *L. trichomanoides*, is by some authorities considered a variety only of the preceding, but for garden purposes it is distinct. As will be seen from our illustration, the fronds are simply pinnate and deeply lobed; these are of a lively green. It is found in New Zealand.

L. MICROPHYLLA.—This, with the two previously named kinds, thrives well in a cool house. It grew well at Tooting with the *Todeas* and *Filmy Ferns* from New Zealand, and was by no means difficult

to grow. The fronds are about a foot long, lanceolate in outline, three times divided, with triangular lobes, and the colour bright green. It comes from North Australia and New Zealand.

L. LINEARIS.—This is an elegant little species, which appears to be very abundant in New Zealand, and one which grows very freely in this country. It is said to attain a height of 18 inches, but I have never seen it so large. The fronds are linear, pinnate, the pinnæ being small and bright green, the stem purplish.

L. WALKERE.—Perhaps this plant is valued by me for its rarity more than for its beauty, and I never have had but one example of this species. It is a plant with a slender creeping rhizome, clothed with short brown hairs. The fronds as grown by myself did not exceed 9 inches in height. They are simply pinnate, the pinnæ being linear, somewhat distant, the stem and rachis deep shining brown. The plant in question was sent home by Mr. Thwaites, when director of the Botanic Gardens in the island of Ceylon, and I believe the species is also found in some other of the Indian Islands.

L. CULTRATA.—This is a species of dwarf habit from Northern India, and indeed would appear to be widely distributed, as it has been found in Japan, and I have also received it from North Australia. The fronds are erect, about 6 inches high, pinnate, the pinnæ curved upwards and more or less lobed on the upper edge. This species emits a fragrance resembling new-mown Grass, and it retains the odour for years after being dried.

L. BOTRYCHIOIDES, by some said to be a variety of *L. guianensis*, and by others of *L. stricta*, but still a beautiful and attractive Fern. In a growing state I have had the fronds a foot long. They are simply pinnate, the pinnæ being closely set together, but they do not overlap, each frond bearing some four dozen pairs of pinnæ. These are recurved on the lower edge, the upper edge being wavy, and the colour bright green. It comes from Brazil.

THE COLD FERNERY.

To the several instances of the extraordinary mildness of the season which we daily receive from various parts of the country, and which are rendered manifest by the abnormal flowering in our woods of Violets, Primroses, and other wild flowers, as also by the flowering out of doors of Roman Hyacinths and other early flowering plants, of which our market growers yearly secure a large stock for forcing, may be added the summer-like appearance of cool and hardy ferneries in and around London. These unheated structures, which, according to the severity of the weather usually present at this time of the year a more or less desolate appearance, have this season preserved their freshness to a most surprising extent. On account of its situation being in the midst of a populous district which, through its close proximity to the river and also to extensive gasworks, is particularly liable to the pernicious effects of London fogs, the hardy fernery at Messrs. J. Veitch and Sons, at Chelsea, is, perhaps, at the present moment the most conspicuous and interesting of these structures. Though built some twenty-five years ago it may still be shown as a model in construction of rockwork, one of the very rare examples existing where the comfort of the plants is considered of primary importance, and not in any way sacrificed to the appearance of the rockwork itself, as is too frequently the case in ferneries of more modern construction. In this case the most has been made of what, compared with many other places devoted to the same object, may be termed a small space; and by the art and taste displayed in its original disposition, no less than through the judicious selection of Ferns with which it is planted, this remarkable house, only 36 feet long by 20 feet wide, may be said to rank as one of the very prettiest and most attractive ferneries now in existence. Here no reflecting mirrors are brought into requisition to provide for optical illusion; nooks

and corners cleverly managed in so small a space, a centre-piece not too high, yet of sufficient elevation to break the view from whichever of the four doors with which it is provided the entrance is effected, are quite sufficient to give this truly charming place much greater dimensions than it really possesses. In its construction the natural style, as may at once be noticed, has been most carefully observed, not only by the arrangement of the whole place, but also in the details which show us that no regular pockets have been provided for the reception of the Ferns, all of which are planted in a most natural way, either on the sloping sides which thus enjoy an equal amount of light, or on some little mounds made of turfy peat carefully and strongly held together by means of wooden skewers and covered with a layer of common Moss, which in such positions rapidly grows and firmly binds the whole mass together. The advantages derived from such a position are manifest. In the first instance, it does not necessitate in the building of the fernery such a great



Lindsæa trichomanoides.

quantity of stone material as is otherwise required, and which, however pretty in itself at first sight, soon becomes monotonous, while a greater bulk of earth generates a greater amount of natural humidity not obtainable from the stone, even when this is very porous, which is not always the case. In the second instance, which is of quite as much consequence, the Ferns, not being planted in pockets, which, after all, are nothing but substitutes for pots, have more freedom of action allowed to their roots, which, as a rule, have a roaming propensity much greater than they are generally credited with. Another benefit derived from this mode of planting consists in the total absence of sourness in the soil through the air having free action all around the surface of the earth—a state of comfort to which the plants cannot aspire when planted in pockets, however spacious and well drained these may be. The planting of a fernery is frequently spoilt by the use of specimens of too large a size, as it also is sometimes made very tame by the excessive use of small-growing kinds planted in profusion. The plants employed should be selected according to

the size of the place, and a most pleasing effect is produced here by the happy combination of Ferns and other plants, such as *Aspidistras*, *Ophiopogon*, *Begonias* of the Rex section, *Aralia Sieboldi* and its variegated form, *Saxifraga sarmentosa*, &c., all of various sizes, and placed in positions most suitable to their respective sizes and habits. In the original plantation of the Chelsea fernery, British Ferns were almost exclusively employed, and it is only some twelve or fifteen years ago that, considering the deciduous nature of many of these kinds and their consequently ragged appearance during six months of the year, these were gradually replaced by thoroughly evergreen sorts, mostly natives of Japan and New Zealand. These having proved as hardy as our own native kinds, it was decided that, for the summer at least, a certain quantity of warmer exotic sorts should have their place along with the others, and thus impart quite a tropical aspect to the fernery. The experiment was quite a success, and we have now the curious and interesting spectacle of beholding in a structure deprived of any artificial heat, but simply protected by a glass roof, which in severe weather only is covered with mats, Ferns from nearly all parts of the globe growing luxuriantly together. Here the glorious Tree Ferns of Australia and New Zealand, the beautiful Silver Tree Fern (*Cyathea dealbata*), the gigantic *C. medullaris*, *Dicksonias antarctica* and *squarrosa* are found in company with the curiously crested and variegated forms of the Japanese Ribbon Fern, *Pteris serrulata* and *P. cretica*, the latter of which is represented by a giant form named *P. Ouvardi*; while the equally handsome and useful, though softer, Australian *P. tremula* and its garden forms, *flaccida*, *crispa*, and *foliosa*, are quite at home with our own *Scolopendrium* or Hart's-tongue Fern, many forms of which are well worthy of special attention. Here, again, are seen in perfection the two most beautiful Ferns native of Madeira, the curious *Balanium culcita*, better known perhaps under the popular appellation of Cushion Fern, and the gigantic *Woodwardia radicans* with immense fronds, producing at their extremity one or more young plants, which freely root into the Moss with which the surface of the ground is covered as soon as they reach it. The extremely curious and pretty *Woodwardia orientalis* from Japan is also seen here in all its glory, with each one of its long flattish fronds completely covered with hundreds of young plants. Japanese kinds, such as *Cyrtomiums*, *Onychium lucidum*, *Lastrea Standishi*, *opaca*, and *Sieboldi*, flourish by the side of *Asplenium lucidum*, *A. bifforme*, and other New Zealand kinds, which are intermingled with tropical American and East Indian forms of *Nephrolepis tuberosa*, *N. exaltata*, and *N. philippinensis*. Again, the Australian Stag's-horn Fern (*Platyserium alaicorne*) and the Australian Maiden-hair (*Adiantum formosum*) side by side with our own *A. Capillus-veneris* and the lovely East Indian *Pteris argyrea*, the useful *Todeas Vroomi* and *arborea*, the splendid *Lomaria platyptera*, and a host of other kinds too numerous to mention here are all doing equally well. When the Chelsea fernery was created, it was with the object of showing what could be done in London without artificial heat, for the difficulties experienced by owners of small places in the metropolis are very great indeed. If, as is frequently the case, the fernery is heated by pipes connected with the kitchen, then during the day the heat is unbearable; whereas at night, when most wanted, it is conspicuous by its absence. When, on the other hand, a boiler is specially devoted to such a structure, its small size makes it extremely tedious and difficult to manage with success the regulation of the temperature, which in a small house fluctuates much more than where there is a greater bulk of air. That the house above described has been a complete success there is little doubt, for its present appearance amply testifies to the foresight displayed by its original designer.

VISITOR.

Derivation of the word "Potato."—Can any reader inform me what are the root derivation and meaning of the words "Potato" and "Tumato"? I suppose they are modifications of similar Indian words. What is the original meaning of the terms?—J. H. REINE.

ORCHIDS.

W. H. GOWER.

VANDA ROXBURGHII.

THIS is a lovely dwarf-growing kind, and it is the type of this genus, which is remarkable for so many truly beautiful flowered kinds. The majority of the plants are objects of great beauty, even when not in flower, and deserve more attention at the hands of the Orchid growers than they have obtained for some few years. Vandas lost their popularity to a great extent soon after the introduction of *Odontoglossum Alexandræ* and other popular plants from Columbia and Peru; indeed, every one almost went crazy upon cool house Orchids, totally ignoring the fact that Vandas do not require the amount of heat which is usually accorded them. I have grown many Vandas, and flowered them well also, with a winter temperature of 60°, the summer heat running up with the sun *ad lib.*, and having no injurious effect if a thin shading is used during the hottest part of the day, the atmosphere at the same time being well charged with moisture. Ventilation is very essential, and, saving in frosty weather, air was continually admitted night and day during the whole year. The plant in question is a native of various parts of the Bengal Presidency, and is found somewhat plentifully on the Mango trees. It is a dwarf, erect plant with two-ranked leaves, which are leathery in texture, channelled, and deep green, the ends terminating in an oblique treble point. The flower-spike is erect, and bears numerous blooms, the usual number being from six to twelve, each of which is about 2 inches across. The sepals and petals are china-white on the exterior, ground colour of the inner surface pale yellowish green, tessellated with bronzy-brown; the lip is three-lobed, lengthened behind, and forms a short straight spur of a rosy-pink hue; the side lobes are erect and white, whilst the obtuse middle lobe is of a rich deep violet-purple. It blooms at various times of the year, and when growing vigorously will frequently flower twice in the season. There are several forms of this plant, or, perhaps better, several Vandas bearing the name of Roxburghi, which upon better acquaintance will be found distinct kinds; but there is one plant which apparently grows with it which has obtained the name of *Roxburghi rubra*. This form produces a denser spike; the ground colour of the sepals and petals is olive-brown tessellated with greenish-yellow, and the front lobe of the lip is rosy-pink or red instead of violet-purple. The flowers of both species yield a powerful and agreeable odour, and remain in full beauty for upwards of a month without the slightest injury to the plant. Both forms are beautiful, but I prefer the typical plant with its beautiful blue or violet lip. I hope to see these plants restored to that popularity from which they were dethroned without a reason, and, to assist beginners, will from time to time refer to the most beautiful kinds in the genus.

Dendrobium Wardianum.—This fine species is now plentiful in this country, thanks to the Messrs. Low, of Clapton, who have so frequently imported fine masses of it from Barmah, and a very fine example of the Burmese form is now flowering in the Wilton House collection at Southampton. This plant grows freely during the summer months if suspended near the glass in a moist atmosphere, and it also flowers profusely if properly rested. This is best effected by removal into a cool, dry, and airy house after growth is finished, at the same time keeping the plant quite dry. When the flowers begin to appear from the sides of the bulbs,

remove the plants into heat and water moderately at first. If a succession of plants is maintained, the blooms can be enjoyed from the new year until May.—W. H. G.

Dendrobium superbiens.—This fine North Australian species is just now very fine in Mr. Williams' nursery at Holloway; indeed, it is such a profuse bloomer that, one can scarcely ever visit this establishment without finding some plants in bloom. It is a most desirable species, and I am informed by a friend at the Antipodes that it is more difficult to obtain there than it was a year or two ago. Orchid growers at home should take care the plant does not become extinct.—W. H. G.

ORCHIDS OF 1888.

THE year just closed enables us to record many new and valuable additions to the long list of Orchids, but it is worthy of notice that the results are mainly due to the hybridiser. A careful perusal of the novelties of 1888 will at once convince the reader of the truth of our assertion; and if one cannot fail to notice the paucity of foreign productions, on the other hand the constantly increasing number of home-raised hybrids is as healthy a sign as could well be brought forward in proof of the vitality of horticulture in this country. The majority of the imported Orchids are mostly sub-varieties. Exception, however, must be made in favour of the wonderful *Cypripedium Elliottianum*, which must head the list of new-comers. It is of noble habit, with long and broad deep green leaves, and a slipper which is very similar to that of *C. Stonei* as regards both shape and colour—ivory-white, suffused and veined with very delicate pink; the dorsal sepal is ivory-white, overlaid with about fourteen or fifteen dark crimson stripes of various lengths. The petals, however, are the most conspicuous portion of this singular and beautiful flower; they are long and narrow, like those of *C. Sanderianum*, also white, but their upper part, which is wavy and ciliated, is ornamented with crimson spots, disposed in three or four lines extending to the points. The fact of its producing as many as five flowers on the same spike greatly adds to its value. *C. Rothschildianum*, though somewhat similar to the one just described, is a sufficiently distinct novelty to hold its own. As in *C. Elliottianum* and *C. Sanderianum*, the petals are of unusual length, rigid, and stand almost at right angles; they are yellow in the centre, shading to a pale lilac colour at the edges. The dorsal sepal resembles that of the two above-named species as regards colour, and it is also rigid, and the lip is of the same peculiar shape as that of *C. Stonei*, but of a deeper shade. This new introduction bears three flowers on the same spike, resembling in that respect some of its congeners with which we are better acquainted. They all come from the Philippine Islands. Exceptionally good also is *Catasetum Bungeirothi*, a native of Ecuador, and by far the best representative of the genus to which it belongs. An excellent plate of it has been published in *THE GARDEN*, Vol. XXXIII., p. 388. This *Catasetum* is as beautiful as it is interesting. The quaint flowers, when at first they open, are of a creamy colour, but become pure white with age; the sepals and petals are somewhat narrow, and the two erect sepals form a hood to the flower, thus showing the spoon-shaped lip, which is beautifully serrated on its margins and ornamented with a spot of orange colour situated at the orifice of the thickened sac. These flowers are disposed on long drooping spikes springing from the bottom of the bulbs, and spikes of seven to nine flowers are not unusual, while their beauty is greatly enhanced by the glistening whiteness of the column and their fragrance. Next to the above-named thoroughly distinct species, we have among the new Orchids which we owe to the importer some which, on account of the doubtful character of their origin, have justly been termed supposed natural hybrids. Foremost among these is the superb *Oncidium Mantini*, a supposed natural hybrid between *O. Forbesi* and *O. Marshallianum* (among which it was imported from Brazil), a supposition which is fully warranted by the characters

of the flowers, which are of a good size and shape, with sepals and petals of a reddish brown colour margined with bright yellow, while the labellum is bright yellow copiously spotted with reddish brown. These handsome flowers, which appear intermediate between those of the two supposed parents, are produced in medium-sized panicles. *Lælia porphyrites* is another supposed natural hybrid of dwarf habit, belonging to the *L. marginata* section, to which species, as far as size and shape are concerned, its flowers bear some resemblance. They are produced in pairs and are of medium size, the sepals and petals being of a curious rose-purple colour and tinted with fawn, while in the lip a splendid contrast is shown by the dark amethyst-purple colour of the front portion with that of the throat and lateral lobes, which are much lighter and pencilled with crimson. In *Odontoglossum Humeanum* we have a plant closely allied to the justly popular *O. Rossi*, and possibly a hybrid between that elegant species and *O. cordatum*. The flowers, which are large and tinged with yellow, seem to point to that conclusion; the lip is broad, white or light sulphur in colour, while the petals are spotted with brown, and the sepals are narrower and almost entirely covered with chestnut-brown.

Our collections have also during the past year been enriched by some half-a-dozen kinds or so which are particularly striking on account of their originality, such as the South African *Disa racemosa*, known also as *D. secunda*. The flowers are comparatively small, but what they lack in size is amply compensated for by the bright rosy colouring of the whole flower, which is of singular appearance on account of the upper petal being hollowed and surrounding the lip. The foliage is narrow and of a bright green colour. The two *Angræcums*, *A. Sanderianum* and *arcuatum*, are curious, and the former deserves, and no doubt will receive, general cultivation, for though belonging to the small-flowered class it is particularly graceful, its racemes bearing from twelve to eighteen flowers each, pure white, nearly $1\frac{1}{2}$ inches in diameter and furnished with a long straight spur. *Angræcum arcuatum*, though a distinct species, is more curious than beautiful. Its small white flowers, crowded together, are disposed on a short, stiff raceme. Its petals and sepals are very narrow and revolute, but it differs from all other *Angræcums*, as the flowers are of delightful fragrance. *Spathoglottis Kimballiana* may also be classed among remarkable new Orchids. It is a pretty terrestrial plant with flowers over 2 inches wide, and disposed on scapes 2 feet long. With the exception of the small lip, which is dotted with red at the base, the whole of the flower is of a bright and pleasing yellow. Then we have a certain quantity of accidental variations, from which, selecting only the most striking forms, we note, in the first place, *Cypripedium bellatulum*, to which the name of *C. Godefroyæ* var. *bellatulum* would have been much more appropriate, since it is evident that the good forms of *C. bellatulum* are identical with the equally good forms of *C. Godefroyæ*. Not long since, a nameless flower was shown for identification to one of our leading orchidists, who, without hesitation, pronounced it to be a good form of *C. bellatulum*. Yet the plant which produced that flower, and many similar ones before, had been in the hands of the grower for upwards of four years, being one of the first specimens of *C. Godefroyæ* which were sold, and certainly long before *C. bellatulum* was even known to exist. It is true that all varieties of *C. Godefroyæ* are not of the same quality; far from it; but the same variations exist in regard to the new-comer. We have in *Lycaste Skinneri* var. *Imperator* one of the best known forms of this popular species, with bold flowers measuring from 5 inches to 6 inches from tip to tip of the sepals. Its broad petals are of an intensely deep velvety crimson colour, the lip, of the same colour, being ornamented with white mottlings; the sepals, which are of a light blush tint, form a beautiful background to the flower. *Dendrobium Cooksoni* is a very interesting plant of the noble type, which it resembles in general appearance, but the lower half of each of the broad petals is of a rich purplish crimson shade,

the expanded portion white, with the tip magenta; the sepals are rose-magenta at the apex and suffused with a similar tint. Several handsome forms of the deservedly popular *Odontoglossum crispum* have also made their appearance, the two principal ones being *O. crispum pardalinum* and the Charlesworth variety. Both forms belong to the section with heavily blotched flowers; in the latter one, indeed, the flowers, which are well formed, show scarcely any traces of white, except at the margins of the petals, which are very broad and slightly fringed. The whole of the flower is of a rosy-crimson hue and heavily blotched with reddish-brown. The flowers, disposed on a long raceme, are about 20 inches long. The variety *pardalinum* is undoubtedly one of the most striking of the numerous forms known, and is characterised by the bold spots and bars with which the petals and sepals are ornamented. They are of a deep brownish-crimson colour on a naturally white ground. The beauty of the flower, which is of medium size only, is further enhanced by the bright yellow colour of the crest. Poe's variety of *Odontoglossum Pescatorei* must, however, not be omitted, for it is a striking variety of a species which is not much given to variation. The flowers are of exceptionally handsome form and excellent outline, the sepals and petals being of firm texture and marked with rich spottings of the deepest purple-crimson imaginable. The lip is pure white and ornamented with a bright yellow crest. S.

Cypripedium Sallieri.—My note upon this plant in THE GARDEN of December 22 (p. 587), in which I noted the fact of an imported seedling *Cypripedium*, flowering in Mr. Shuttleworth's nursery at Clapham, being exactly like a good form of *C. Sallieri*, thus tending to prove that if not a species it is a natural hybrid, has brought the following note from M. Sallier fils. He says—

For the sake of truth I must say we never made the supposed cross. Twenty years ago, at a time when Orchids, and especially *Cypripediums*, were not so hunted for, we had many large plants of *C. insignis*; amongst them two plants were noticed and labelled as good varieties, and these years, after we named *C. Sallieri*,

so that this statement would lead one to suppose the above were imported plants, and the appearance of Mr. Shuttleworth's seedling confirms the supposition that if is a hybrid form, it is of natural origin. This, however, does not in the least detract from its beauty. M. Sallier fils says further that

The two original plants were not alike, and that probably the variety now called *Hyanum* is from one of these plants.

This, however, I cannot agree with, as it is so very distinct, and we have two forms bearing the name of *Sallieri* besides it in our gardens. For the means of clearing up the origin of this species or variety called *Sallieri*, I have to thank M. Sallier fils, who thus prevents the supposition of its garden origin from being spread erroneously.—W. H. G.

Cypripedium margaritaceum.—This is a remarkable species, figured in the December number of M. Godefroy-Lebeuf's "L'Orchidophile." It has not yet been introduced to Europe in a living state, but I have little doubt but that this ardent horticulturist will spare no pains to introduce it to his establishment at Argenteuil. I observe in a contemporary notice of this plant in which it is said "it is reported to grow on trees." This is, however, incorrect, as M. Franchet, in describing the plant in "L'Orchidophile," says: "This curious plant grows under large trees in a soil of *débris* and leaves." It is thus plainly seen that it belongs to the terrestrial section, but of such a distinct type as to induce M. Franchet to form a new section, which he calls *Trigonopodia*. It is curious to observe that *C. japonicum* from Japan and this Chinese plant both differ from each other, and also from the North American and European terrestrial kinds to which they are allied. *C. japonicum* was grown in quantity in the nurseries of the late Messrs. Rolleston at Tooting with the North American species, but I have not seen it lately. I hope it is not lost, or if so, that it will soon again be imported, whilst this Chinese species introduced to

our notice by M. Godefroy-Lebeuf will be anxiously looked for by our *Cypripedium*-loving amateurs. Judging by the plate, it is a very handsome flower; the leaves are profusely spotted with dull reddish purple on a light green ground. The flower is represented to be 3 inches across, and the sepals and petals of a reddish violet hue, ornamented with dark purple spots arranged in lines between the veins; the lip is reddish black, dotted all over with black wart-like spots, whilst its form is very curious. In shape it is said to resemble a boat, but to me it appears to more resemble the frame of a guitar, and it has the same circular opening with a frilled edge. It is figured in the Chinese Encyclopædia under the name of *Lau-houa-Chouang*, which name, however, will certainly never become popular in England for this beautiful and distinct species of Lady's Slipper, which we sincerely trust M. Godefroy-Lebeuf will soon introduce to us in a living state.—W. H. G.

ORCHIDS AT LOWFIELDS.

MR. DOUGLAS alluded, recently, to the homely contrivance used here for avoiding high heating of the pipes in Orchid houses, on frosty nights, by sheets of sacking drawn over the glass outside. The idea is not so brilliant but that it may have occurred to more experienced growers than myself; though, as Mr. Douglas believes, it may not be usual to let Orchids sleep under both panes and counterpanes. I am, however, sure that there is a kindlier and less exciting warmth obtained by checking loss of heat through radiation than is possible by keeping up the temperature with pipes alone under the naked glass. The difference is perceptible, if difficult to describe, between one and the same temperature maintained under bare or covered glass. The nature of the heat, in the former case, feels hard and forced and feverish; in the other it seems of a softer, gentler, and more restful character. The one is dry and wakeful, and of less equal distribution, while the other has a dewiness, mildness, and equability that make it feel the cooler, and that is something.

There are few nights throughout the year on which I do not make a round through all the houses; and I noticed how the sharp frosts or biting winds of winter nights so chilled the bare glass of the heated houses, that faint mists of condensed moisture would steal fainly along the wet glass inside, and wreath themselves round any plants suspended near the light. Now these ghostly vapours lay no clammy touch upon the foliage, and the plants have been fatter and glossier for being no longer haunted by such sap-curdling apparitions.

I think the atmospheric moisture in the Orchid quarters here might be considered high for winter, though distinctly below that maintained in summer. However, there is no stagnation of air or water, and no mischief comes. In a much mixed collection a number of species will be growing through the winter, and I cannot keep these to themselves; but I find if those at rest are kept dry in pot or block or basket, they do not dislike, but rather enjoy an atmosphere congenial to growing plants. *Thunias*, *Cycnoches*, *Mormodes*, *Catasetums*, some *Dendrobis* and others of like habits that resent dampness when at rest are dry enough on shelves over the pipes and near the glass.

I think a well mixed collection is the most enjoyable form of Orchid culture—the most interesting, the most changeful, and the most educational. Over the Orchid house door might be written for a motto: "*Ne quid nimis*. Too much of nothing!"

I rejoice in having no flagged or tile-patterned floors nor any surfaces (except one length of shelf for dry rest) that may quickly dry and re-

quire to be suddenly "damped down." With the exception of a hardened pathway, the floors are of the native earth, slightly covered with bright coke siftings, and almost uniformly moist. Here, again, there is a kindlier and more fragrant moistness given off than that which is produced by periodic splashings upon hard, unsympathetic flooring.

Non-terrestrial as so many Orchids are, they yet all seem so far to love and look to mother earth as to delight in the sweetness that earth gives off. One valuable result of a soft, rich, equable moisture is that I have had no trouble with red spider. Even those two *Dendrobis* of so susceptible leaf, *D. Falconeri* and *D. Devonianum*, to which a red spider will resort if he can exist at all, are not visited by one. With this freedom gained, I have no difficulty with them, though *Falconeri* is worth any further care. A practical old fellow, who grew it splendidly, said that in summer-time he tossed it into the water-tank before breakfast and picked it out when he came back. It does well with frequent baths in dry summer weather, and I keep it close to the glass (roof and side) at the brightest end in an intermediate temperature. In this way it forms nodes that swell and ripen well. Narrow little knots, with feeble foliage soon shed, cannot bloom. I do not dry it off as long as it chooses to grow freely. Young growths retain their foliage and some growth through the winter, but the fat little ripened nodes lose theirs when matured, only a few bright leaves remaining at the end for continuations. The needle-like stems, on which the buds are carried, are easily rubbed off when young, and hence the plants should not be exactly "tossed" into the tank at that stage.

Mr. Douglas will know I did not mean to be vague when I said of *Cattleya citrina* that I did not know what I did particularly with it. All, however, I can say is, that I do not grow it so cool, or so bare, or so dry as I have seen it in collections where it certainly does not thrive. In a sense not evil, it is a very restless plant with me, and I let it have its own way. It starts into fresh growth not long after the bloom is over, and always will grow vigorously through the winter. It seems to pause awhile just after the tips of the flower-spikes appear, which are showing on some of the plants now. It is kept as close to the glass as the blocks will go. I have the most of it of any Orchid. None are more progressive or more vigorous; it was in bloom in four successive months last season, and there is no credit in growing it. It remains in a full *Cattleya* temperature. The bulbs retain their foliage till the third year, and the young growths are liable to spot or damp off if, after being dipped, any pearly drop of water is left lodged in them. The whole habit of the plant is well adapted for throwing off water. Naturally thatched, so to say, by its downward growth, the leaves also have a surface that turns rain as readily as those of the *Nasturtium*. But the leaves, that are proof against any natural rainfall, are not arranged to meet the adventitious deluge of a dipping, and may require help.

There is a large pod on one *C. citrina* which I fertilised with a fine form of *C. Mossie*, and a still larger one from the reverse cross. I do hope that some seed may germinate; for, to say nothing of a joy so distant as that of seeing a hybrid seedling bloom, great would be the reward, along the way, of seeing what arrangements of their own the seedlings would adopt between parents of one family so different in habit as these two *Cattleyas*. One thinks the more of such wayside pleasure because it may be all that we may live to see. Yet, let not the

thought, that oftentimes "another reapeth," deter the hand that can sow.

Burton-in-Lonsdale. F. D. HORNER.

HARDY ORCHIDS.

THE WAVY-LEAVED ORCHID (*Orchis undulatifolia*) succeeds admirably as an outdoor plant; indeed, next to *O. foliosa*, I consider it one of the most valuable for gardening purposes. I have grown it for many years and found it to be perfectly hardy, of very free growth when suitably placed, and a most ornamental and desirable species. There is a beautiful form of this Orchid having mottled leaves, but it is extremely scarce, and in which the flowers are individually larger, of far brighter colours, and of better substance, lasting nearly half as long again as those of the normal green-leaved plant. It flowers at the same time, but so distinct and superior is it to the typical form, that I have frequently been tempted to describe it as a distinct species. I have succeeded best with the wavy-leaved Orchid when planted in limy loam and in a partially sheltered position, but I do not think that it is at all a miffy plant to deal with, for I flowered for four or five years a clump of half-a-dozen plants that, for want of space elsewhere, were planted out beneath a big Corsican Pine. The plants start into growth in late winter, so one would naturally conclude that they would suffer in consequence; but not so, for nearly ten years' experience of them has proved that they are quite hardy. A top-dressing of good leaf-mould and sharp sand is highly beneficial, and it is quite interesting to watch the thickish rootlets strike directly upwards to the freshly-applied compost. In planting I always surround the tubers with rough sand.

O. GLOBOSA I consider an easily managed and highly ornamental plant. It grew well with me in ordinary red loam, mixed with about one-third of its bulk of rough boggy earth—not good peat. The flower-head is globular in shape, about 2 inches long, and of a most attractive shade of red, while the flowers are of great substance and last well. It has pea-green, stiff foliage, and with me attained to fully 18 inches in height. A clump of three or four plants when in full flower has a distinct appearance, and from their bright shade of red and peculiar spherical shape they are sure to attract attention. Rarely have I seen this species under cultivation, and the "more's the pity," for it would charm any flower lover when seen in good form during early June. Both this and the latter species increased with me under outdoor cultivation, which speaks much in their favour.

THE BROWN MAN ORCHID (*O. fusca*) is one of our handsomest native species, and one that is by no means difficult to manage if well-rooted plants or sound, uninjured tubers are at first procured. It is distressing to see the poor, dwindling, cut-rooted specimens of Orchids that are sent out to fulfil orders; indeed, it is not the first time that I have thrown on the rubbish heap a tenth of the plants that have been sent me and for which I paid dearly. Let everyone remember that there is perhaps no tribe of bulbous plants that so keenly resents maltreatment as terrestrial Orchids, for, coddle them as you will, you cannot resuscitate their impaired faculties. We must not, however, be too hard on Orchid collectors, a truth that was forcibly brought home to me the other day when striving to lift a few plants of *Cephalanthera grandiflora*. Silky loam of the very best quality, not too deep planting, and a fair supply of moisture are about the main requirements of *Orchis fusca*. For its quaintly shaped and richly marked flowers, everyone who can command a specimen should endeavour to grow this pretty native Orchid. I do not know if there are now any plants of it really wild in England. I hope so, but I have not met with one in the Orchid county of Britain—Kent.

THE SHOWY ORCHID (*O. spectabilis*) I have grown well from plants kindly supplied me on more than one occasion by Mr. Ellwanger, of Rochester, N.Y. He always speaks highly of it as an ornamental plant, and of how well it does on his rockwork. It delights in loam and leaf-mould, but the latter should

be in greatest quantity and freely intermixed with clean sand. The flowers are almost a bright pink, occasionally purplish pink, and borne in rich profusion. In its native Canadian wilds it is found growing beneath Beech and other trees, but it will succeed perfectly well in the open. In growth and habit it is remarkably stiff-set and stout of scape, with green leaves and a neat habit.

THE ELDER-SCENTED ORCHID (*O. sambucina*) does fairly well in the open border, but it wants a sunny, dry summer to perfect the yellow blooms. It is a sweet little plant of robust growth, and puts one somewhat in mind of a flower of the Butterfly Orchid (*Haberaria bifolia*) placed on the stem of *Orchis ustulata*. The flower-head is big in proportion to the plant's height, compact, and unusually gay when fully developed. I grew it well in very sandy leaf-mould and where partially screened from the mid-day sun and hard-blowing winds. That it is a very satisfactory outdoor Orchid I will not say from my own experience; at least, it cannot in this respect compare with any of the fore-mentioned species. *O. sulphurea* or *pallens*, *O. Stabiana*, *O. pauciflora*—a most ornamental Italian species—and *O. Robertiana* I have repeatedly tried, but they bloom well enough for two or three years, but are then worked out, and I defy all the coddling and best of management to bring them up to their original vigour. To anyone who can afford to buy an annual supply of these four species, I would say by all means do so, as their flowers are pretty and of distinctive character.

Amongst our native species, as well as *O. fusca* already spoken of, there are several that are very satisfactory subjects for the outdoor garden, foremost amongst which the early purple Orchid (*O. mascula*) and the spotted-leaved (*O. maculata*) are conspicuous. They are easily managed when good, uninjured plants are at first obtained, of very free growth if planted in a rational and commonsense way, and remarkably handsome when clumped in good broad masses, as they always should be for effect. Some years ago a friend in Edinburgh asked me for a few tubers of *O. maculata*; I sent them, and on visiting the friend some years afterwards was shown such clumps of the Orchid in full flower as quite surprised me. No extra care had been expended on planting; they had been put in holes without any addition to the ordinary garden soil, which was a peaty loam. The roots of *O. mascula* are readily enough raised, but when we come to the palmate section, and of which *O. maculata* is an excellent type, then the trouble begins, for the wandering rootlets get nipped and broken.

THE MARSH ORCHID (*O. latifolia*) I never could manage, but perhaps I had not the swampy bed that it so delights to send out its stringy rootlets into. It is a lovely plant, the well-packed head of deep port-wine flowers being particularly attractive. For several years a friend of mine has flowered it well as a pot plant, the soil being almost wholly a roughish peat. The pot is occasionally stood in the slate cistern where the Cape Pondweed and white Water Lily are grown.

A. D. WEBSTER.

SHORT NOTES.—ORCHIDS.

Odontoglossum Alexandræ guttatum.—A plant of this variety is now in flower in Mr. Jacob's garden at Cheam Park. It is a very heavily spotted form, and the spots of chocolate are very richly coloured. The blooms will last several weeks in water.

Sophronis grandiflora.—I recently noted the finest variety of this plant which it has been my good fortune to observe flowering with Mr. Bonny in his nursery at Hextable, Swanley. The flowers measured fully 3 inches across, the petals being very broad, whilst the colour was a brilliant scarlet.—W.

Cypripediums in winter.—These plants are excellent winter bloomers, and where a fair collection is maintained, flowers will never be wanting at any time in the whole season. I noted some eighteen kinds in many examples flowering in Mr. Williams' nursery at Holloway during the Christmas week.—G.

The Fog Demon.—This is one of the most annoying experiences for London Orchid growers, nothing yet having been discovered to avert the

destruction wrought by this unmerciful fiend, and during the last days of December and the first few days of January the destruction done has been something sad to contemplate. I cannot help thinking but if some efforts were made to exclude the murky fumes from entering the plant-houses, that it might be done, and no doubt the double roofs, which were tried some few years back and found unsuitable for the growth of Orchids might avert the damage wrought by the fog. These, however, are now not available, and I think the next best thing would be some sackcloth to fit close down to the glass and close the laps. I know from experience that plants in flower set on the floor under the stage remain comparatively unharmed, and I think for those in the neighbourhood of London and other large cities something might be done to avert the calamity. What effect does the fog in country places have upon the blooms of Orchids? As far as I have seen, very little damage accrues, but in London it is not Orchid flowers alone that suffer, but every plant under glass is more or less affected. The question should be taken in hand, as the benefit to be obtained is so immense, that the expense necessary would be well laid out if some antidote could be found.—W. H. G.

GARDEN FLORA.

PLATE 683.

VENICE MALLOW.

(WITH A COLOURED PLATE OF HIBISCUS TRIONUM. *)

WHEN seen at its best, few annuals are more admired or more worthy of careful cultivation than that represented in the accompanying coloured plate. Those of our readers who are well acquainted with the typical *H. Trionum* as commonly found in old-established mixed borders, beds, &c., and rarely absent from good collections, will at once see the immense improvement in our present plant. *H. Trionum* appears to be an extremely variable species, and little wonder, seeing the length of time it has been cultivated in gardens, and also the fact of its being so widely dispersed over all the warm regions of the Old World. It is usually described as a common sub-tropical weed, found plentifully in cultivated fields in Afghanistan. Specimens of it, which, however, were very small-flowered—indeed, not so large as what we look upon as those of the type in gardens—were collected near Khorasan by Dr. Aitchison, of the Afghan Delimitation Commission. It is found in several places in China, and is a very common weed in waste garden ground and rich damp soil throughout the Cape Colony. It has given rise to almost innumerable varieties, a few of which are so distinct as to have at one time been considered species. In Harvey and Sonder's "*Flora Capensis*," however, they are all placed as varieties of *H. Trionum*, and seeing it is a polymorphous species, this is doubtless the most sensible conclusion. The order in which the above authors give them is as follows: *H. Trionum*, type, var. *hispidus*, lower leaves deeply three-lobed, upper three to five parted, incised; var. 2, *ternatus*, leaves mostly tripartite; var. 3, *cordifolius*, lower leaves roundish cordate, upper tripartite; var. 4, *hastatofolius*, leaves hastate, three-lobed, the middle lobe very long; var. 5, *cordatus*, all the leaves roundish cordate, obtuse, dentate; var. 6, *lanceolatus*, all the leaves ovate-lanceolate, serrate. The above varieties of course include numerous synonyms which need not be detailed here, with the exceptions of *vesicarius* and *africanus*, both of which names are frequently used for the common *H. Trionum*.

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, September 4, 1888. Lithographed and printed by Guillaume Serreyens.



VENICE MALLOW (HIBISCUS TRIONUM.)

The present plant was introduced by the Royal Gardens, Kew, seeds having been received last year from the Orange Free State and Zululand, but chiefly from the Spitzkop Mountain, 11,000 feet high, and Drakensberg, 8000 feet high. It is probably a cultivated form, as none of the dried specimens from any other part of the Cape quite agree with it in size of flowers, &c. The great objection to the type (figured in the *Botanical Magazine*, tab. 209) is the short-lived flowers, which Gerard says open at eight in the morning and close at nine, and which supposed fact gave rise to the curious appellations, "Flower of an hour," "Good night at noon," or "Good night at nine." The popular name of Venice Mallow is the one commonly used in gardens, with the addition of Bladder Hibiscus by Aiton. The time given above is hardly correct in the case of the type as we know it; the flowers do not quite close, and, from above, anyone can see the beautiful effect caused by the rich purple ring against the creamy-yellow petals. In the plant figured, however, this objection is quite done away with, the flowers opening in the morning, and, on bright days, remaining so until late in the afternoon. Individual flowers do not last very long, but there is such a succession on a well-grown plant as to always ensure plenty of blooms open at one time, and these are so large and beautiful as to entitle the plant to a place in the greenhouse, its effectiveness in pots having been already proved. It is for open-air culture we would, however, most strongly recommend the above variety. It is quite as hardy as the one usually grown, seeds as freely, and withal is so much more striking and beautiful, the effect of large clumps of which would certainly not fail to attract admirers. Like other hardy annuals, it needs no care in sowing in spring—the seeds simply scattered in the open on the spots where they are intended to grow, thinning, where too close together, to 6 inches or 1 foot apart, and leaving the sun, &c., to do all the rest. It will even sow itself, the seeds coming up in plenty the following spring if the winter has not been unusually severe, but sowings should be made at different periods to ensure bloom all through the summer and autumn. There are, we believe, several annual species of Hibiscus found at the Cape, but the above is the only one to our knowledge in cultivation, although the others are said to be equally beautiful.

D. K.

The Vanilla trade of Bordeaux.—The United States Consul at Bordeaux in a recent report states that one of the most interesting and delicate articles of trade in the Bordeaux market is Vanilla, which is imported from the coast of Vera Cruz, the west slopes of the Cordilleras, Java, Mauritius, Tahiti, the West Indies, and other places. Vanilla belongs to the Orchid family, and is a sarmentose plant, furnished with thick, oblong, glaucous-green leaves. The vine sometimes attains a height of 45 feet. It begins to bear the third year after planting, and continues bearing thirty years. Each vine annually produces from forty to fifty-five capsules or seed-pods, which are gathered before reaching complete maturity between April and June. For one method of preparation they are gathered after they have lost their green tint, and are then exposed to the sun in woollen sheets which have previously been thoroughly heated. They are then put into boxes covered with a cloth, and are again heated in the sun, twelve to fifteen hours, after which they should assume a coffee colour. If this is not obtained they must again be covered and again exposed, the whole process lasting about two months, after which they are packed securely, fifty each, in tin boxes. By the second method about a thousand pods are tied together and plunged into boiling water to bleach them, after which they are exposed to the sun, and then coated with oil or wrapped in oiled cotton to

prevent them from bursting. During the drying process the pods exude a sticky liquid, which is expedited by gentle pressure two or three times a day. By this process the pod loses about a quarter of its original size. The best quality pods are 7 inches to 9 inches in length, and large in proportion, and possess in greater abundance the characteristic and agreeable perfume which gives Vanilla its value. The vine is sometimes covered with a silvery efflorescence, producing an essential salt similar to that found in the pod, and this is diffused on the outside of the capsule. It is called Vanilla rime, and is in great demand in the Bordeaux market. Vanilla is used in perfumery and in flavouring confectionery and cordials. It is supposed to possess powers similar to Valerian, while it is much more grateful. Its production in Réunion has increased in the past forty years from a few pounds to nearly half a million, and that colony is now the principal rival and competitor of Mexico. The total import into France rose from about 200,000 pounds in 1880 to about 260,000 in 1886, but the annual import fluctuates considerably.

FRUIT GARDEN.

W. COLEMAN.

ENCLOSING OLD FIG TREES IN WALL CASES.

A SHORT time ago, when walking through one of the finest walled gardens in the west midlands, I was told by the able superintendent that the noble owner contemplated enclosing with glass a wall some 70 yards in length and 16 feet in height, already furnished with Fig trees, from which catch crops are gathered late in the autumn. Having had some experience in turning very old trees to profitable account, with or without fire heat, I strongly urged him to lose no time in getting to work, as these useful structures springing up in many gardens are now forming missing links where this wholesome and delicious fruit is appreciated from the end of April to the end of October. There are, I have no doubt, hundreds of old Fig trees unpruned and almost uncared for, occupying sheltered walls and lofty buildings in various parts of the country, which yield heavy crops of fruit almost every year; but then, on the other hand, a still greater number do not pay for pruning and training, and yet very few conservative owners care to destroy semi-barren trees, which carry them back to their boyhood. But why allow trees to remain unproductive when cheap glass and timber will convert them into full bearing in a year or two? and the inexpensive wall cases are worth all they cost as winter storehouses for half-hardy plants, choice salads and vegetables.

Where large old trees of the prolific Brown Turkey, the Black, White, or Brown Ischias, White Marseilles, or the large, but less luscious Brunswick, which improve with age, are enclosed with glass, the first cultural operation will be the re-arrangement of the drainage, if it exists, root-pruning and renovation with fresh compost. Autumn is the proper season for this work, great care being exercised in the selection of compost free from animal manure—in fact, poor rather than rich, otherwise the growths will run gross, and the fruit, without the aid of fire-heat, will be late in ripening. The heads of the trees placed in a climate equal to that of Penzance and the limited root-run made satisfactory, the next important point will be the dislodgment of insects from their old-established colonies in the hoary stumps and the mouldering walls. Winter, when the sap is down, is the best time for this; therefore, when all danger of continuous frost has passed away, detach the branches from the walls, scald, point, and limewash the latter, run stout wires

along every third or fourth course, the closer to the joint the better, and see that the studs are strong enough to bear the strain that the old branches will place upon them. Leave well alone until the spring; then towards the end of March cut out all the superfluous inferior wood, retaining, as a matter of course, the short, weak, spur-like pieces which look most like carrying fruit and producing an even spread of foliage. If the preceding season has been good enough to ripen the shoots, the young points will be furnished with embryo Figs, which must not be injured, as they will be the first, if not the only, fruit to ripen in the following August. Anything, however, larger than a small Pea may be rubbed off, as figlets which commence swelling in the autumn rarely survive the winter check and hang to ripen. When the trees are pruned and well washed, tie in the main branches obliquely or horizontally, still further reducing superfluous shoots by cutting back to a single eye for close-at-home breaks, which, if they do not ripen fruit in September, will most certainly produce the main crop the following season. Trees upon open walls and in cold houses do not, it is true, produce more than one crop in a season, but, considering that the examples under treatment have been checked by root-lifting and rather severe branch-pruning, moreover, that they can now be treated to tropical heat and moisture by the early closing of their new glass house, it is by no means improbable that a large percentage of the spring shoots will form a valuable autumn succession. This class of trees, again, rarely requires summer pinching, but, assuming that naked parts require filling up, why, then, fruit-bearing shoots may be pinched at the fifth or sixth leaf to increase the size of the swelling Figs and at the same time to secure short, stubby spur-wood. Once the skeletonised trees are laid in, the next question will be the future mode of training; if on the thin, but let-alone principle, the short spurs must be allowed to grow out at right angles from the wall; if on the long shoot extension principle, then they must be tied in to the wires, great care being observed that no part of the wall is crowded with or destitute of foliage.

STARTING THE TREES into growth is a matter which must be governed by the absence or presence of hot-water pipes. If the former, ventilate very freely to prevent them from breaking early, but if possible make the case useful for a thousand occupants in winter by the introduction of pipes from an existing boiler, or a slow combustion apparatus which can be let into the thickness of a 14-inch back wall. To those who have not tried these little boilers, which require no setting, I can safely say their quick action and power are truly astonishing, whilst the fuel they consume may be summed up in a few barrowloads of small coal and cinders. For argument's sake I will assume that this provision for getting the most out of the glass case has been made; and, further, that a good broad shelf near the front has been provided. Fill the latter with Strawberries in pots, back them with a row of Tomatoes in pots, and commence gentle coaxing forward early in April. The Figs after the severe ordeal they have passed through will be weak at first, but rest through the night and early closing with sun heat by day will soon show how they luxuriate in a slight approach to their natural climate. Mulch the roots and give them liberal supplies of tepid water; also, if space admits, introduce a few heaps, or a ridge of warm leaves, which will render syringing on dull days quite unnecessary. Otherwise, defer syringing until the point-buds begin to break, then give them the warm bath pretty early in the day. As days increase in

length and brightness, fires may be gradually discontinued, and more air may be given to prevent the young shoots from becoming drawn, but, never forgetting that the Fig delights in light and heat, do not neglect early closing, as elongation of the joints, not only of Figs, but of all forced fruit trees, is due to a high night temperature and insufficient ventilation before the sun reaches meridian. If all goes on well, the trees by the end of May will be in full leaf, and the fruit upon the points of the past year's shoots will be swelling freely. Blanks, too, in some parts will most likely be conspicuous by the absence of foliage, but seeing that old shoots can be notched to induce the breaking of dormant buds and young ones can be trained in any direction, these spaces can be completely filled up by the end of the first season. When the incipient buds have started and midsummer is nigh, red spider which may have been lurking in ambush may be expected to attack the foliage, but this enemy can always be kept in check by copious syringing up to the changing period and liberal watering, a most important matter, as half the losses from dropping are due to checks from partial drought when the leaves are perspiring freely. From this time forward the trees may be forced in the ordinary way, or they may be treated as first-class wall trees to meet the period when the fruit is most likely to be wanted; always, be it understood, that a high dry temperature and plenty of fresh air are essential to colour and good flavour. When the main crop is gathered, rub off all half-swelled fruits at once, cleanse the trees of spider by syringing, of scale by the use of a hard stumpy paint-brush, and give a little dry fire heat in dull weather to ripen up the young wood. Continue this treatment until the foliage shows signs of ripening, and when the leaves begin to fall naturally, not by hand-picking, withhold water and check the roots by digging a narrow trench a given distance away from the stems. Shorten all thong-like roots, refill the trench, ramming it firmly with poor calcareous soil, and mulch well for the winter.

STANDARD PEARS FOR BRITAIN.

UNDER this heading a list of Pears most suitable for Britain has several times appeared in THE GARDEN. While fully admitting the high quality of most of them, the order in which they are named is objectionable, as it is not that of their order of ripening after No. 4 is reached, as then comes Josephine de Malines, which is one of the very latest; and then follows Emile d'Heyst, an October Pear; after which Glou Morceau is mentioned; then Thompson's, Bergamotte d'Esperen, Alexandre Lambre, Nouvelle Fulvie, Olivier de Serres, and last, Comte de Lamy, which is an early autumn kind. To be of real use to buyers and planters of trees, the sorts should, I think, be classed, as their growers in a small way, who do not want, or cannot find room for all, would be able to pick such as will give a supply through a long season. The list referred to, as it stands, contains too many varieties that come in during October, and one of them, Emile d'Heyst, may well be dispensed with, as, good though it is, it is too quickly in and over by going wrong at the core. But Marie Louise and Doyenné du Comice are quite indispensable, and when they are ripe there are none others that will bear any comparison with them for flavour. Not only is this so with regard to these two Pears, but both have size and fine appearance to recommend them; and Doyenné du Comice remains sound and right for five or six weeks, till Glou Morceau and Winter Nelis follow and carry on the supply. Alexandre Lambre is, I consider, poor at its best, and as Glou Morceau beats it out and out, why have it, as the two are in season together?

What is wanted are Pears equal to Doyenné du Comice to come in during February, March, and

April, but till we get them we must be satisfied with Josephine de Malines and Bergamot d'Esperen, unless we can give south walls to such as Easter Beurré and Beurré Rance, as without some very warm sunny aspect to favour the fruit, neither they nor Olivier de Serres, Ne Plus Meuris, nor any of the latest kinds can be had fit for dessert.

If I may presume to give a short amended list, it would stand as follows, if the very earliest are left out: 1, Beurré Superfin; 2, Marie Louise; 3, Doyenné du Comice; 4, Glou Morceau; 5, Winter Nelis; 6, Josephine de Malines; 7, Bergamot d'Esperen; 8, Beurré Rance; and those who go in for these will have the cream of all that are cultivated.

J. SHEPPARD.

** As we have said before, the list was never arranged in the order of ripening of the fruit, our aim being to get the names of the most suitable varieties.—ED.

SOME NOTABLE APPLES.

I COMMENCE with the new dessert variety, Beauty of Bath, distributed a few years ago by Messrs. George Cooling and Son, of Bath. It is a very early variety, ready in July and August. It was raised from a pip of the Juneating more than twenty years ago, and so some time has elapsed before its merits have been recognised. In August it always takes the leading prizes offered for dessert Apples at West of England shows. It is an excellent cropper, and the fruit is very handsome. Chatley's Kernel is, I think, a Worcestershire Apple not known, or only slightly known, in the south. It is a cooking Apple of good quality, said to keep as well as the French Crab, and is in use from Christmas to June. The fruit is of medium size, the skin green, with patches of red on the sunny side. I cannot say whether it is new or not, but it is evidently scarce, as a good price is being charged for maiden trees. I cannot find it under this name, but if a distinct variety, as I have every reason to believe it is, I think it is worth looking after as a late market variety. I saw a dish of it at the Derby Chrysanthemum Show, and it had all the appearance of a good keeper. I notice Duchess Favourite, or Duchess of Gloucester, for the purpose of stating it is a variety that appears to be coming to the fore. It cannot be very new, because in 1886 I saw in a Lincolnshire orchard some large trees of it, the branches of which were laden with small brilliant-coloured fruits. As the tree has a handsome pendent growth, probably caused by being a constant heavy cropper, I thought what a charming variety it would make for planting in shrubberies or on lawns, for it would be a delightful tree when in flower and again when in fruit. It is a dessert variety of small size, and said to be a "free bearer of upright growth, ripe during August and September." The rich colour of the fruit is something remarkable. Gascogne's Scarlet Seedling, or Glory of England, is a variety that appears to be making way in public estimation. It appears to have originated in East Kent. It is very handsome and was admired at the Edinburgh Conference in 1886. Mr. G. Bunyard states that it is worthy of garden culture on account of its agreeable flavour; it is a great bearer, useful for dessert or cooking, and is in season from October till January. A well-known American variety, King of Tomkins County, is being put forward in catalogues on account of its large size, handsome appearance, and fine flavour, but it should be planted only in warm situations. It somewhat resembles Beauty of Kent in appearance. One of the coming Apples is undoubtedly Lady Sudeley, which is said to have been found among some unnamed Apple trees bought from a nurseryman by Mr. Jacobs, of Petworth, Sussex, and originally named Jacobs' Strawberry. The name was changed to Lady Sudeley. It is a second early variety, coming into use in August and lasting until October. It is a dessert Apple of the highest quality, and as a market fruit it promises to take a very high place. It is recommended that it be kept on the tree as long as possible, gathering the ripest first, as if stored, it is apt to become mealy, which is the case with some

early varieties. I close these notes with a brief reference to The Sandringham, a large and handsome fruit adapted for dessert or cooking; in use from November until January, of good flavour, hardy, and a free bearer.

Some new Apples are announced from the north of England as being suited to the severe climate of Cumberland and that district. They are: John Peel, a good-sized fruit adapted for kitchen and dessert purposes; Brayton Hall; Lowther Castle, said to have the fine quality of Ribston Pippin for dessert purposes, a sure bearer, and the tree blooms very late in the season; and Cumbrian, a fine dessert variety.

R. D.

LATE PEARS.

THE fruit room at the present time, at least that part of it which is devoted to Pears, presents a widely different appearance to what it did a month or six weeks back, both in the quantity and quality of the fruit, reminding us forcibly of the weak point in our Pear culture in this country. All are agreed that we have an abundance of autumn and early winter kinds possessing every essential of a first-class fruit; when, however, the new year arrives and we take stock of our supply, it is, compared with that of a short time previously, very meagre. Information touching upon any varieties likely to be of service for improving our supply during the three first months of the year, also cultural hints in reference to the best stocks for grafting upon, the best aspects and modes of training, will, I feel sure, prove valuable to cultivators of this fruit.

Many kinds, in fact almost all, have with us ripened earlier than usual this season, remaining but a short time in good condition after we commenced using from them. Long before Christmas the varieties we rely upon for giving a supply at that date, namely, Glou Morceau, Winter Nelis, and Passe Colmar, were over, and Josephine de Malines, which is not often fit for use before January, was the only kind ripe in any quantity to take their place. One or two new varieties possessing all the good qualities of this fine Pear would indeed be a great gain to our present list. No kind that I am acquainted with remains longer in good condition after becoming ripe than this does. I have in some seasons sent it to table during a period of nearly three months; of course not from the same tree, but from trees grown in different aspects, those from trees against a south wall commencing to ripen first. Generally about the beginning of January these are the finest and best flavoured fruits; the flesh is very fine, juicy, and melting, with an entire absence of grit and always delicious. Other gatherings from cordons and horizontal trained trees against west walls continue the supply through February. These fruits are smaller, but still retain their characteristic good flavour. Josephine de Malines succeeds equally well upon the Quince and Pear stock, bearing freely, but never making much growth. Bergamotte d'Esperen is generally ripe about the beginning of February, and is a very valuable late Pear. By placing the fruits in a warm room, a few at a time, their season is greatly prolonged and the flavour of the fruit improved. When well grown this Pear attains to a good size and becomes very sweet and juicy. The best position for it is against a south wall. It will also do well on a west aspect, except in very bad seasons, but is never so fine in this position. The Pear is the best stock for it, although it will grow and bear freely upon the Quince for several years, after which the branches begin to die from the points. This evil is most noticeable in cordon trained trees. Olivier de Serres much resembles Bergamotte d'Esperen in size and shape, but the colour is

quite different, the latter being green, while the former variety is russety brown. Although of somewhat recent introduction, this Pear has become widely distributed, owing to its good flavour and being late in ripening. The flesh is white, melting, and excellent. It ripens in February and March, succeeding well and bearing very freely upon the Quince. The above three Pears, if grown in sufficient quantity, may be relied upon to give a supply during the first three months of the year, when Pears are so much appreciated. They must, however, be well grown, by giving them the best positions in the garden, and attending to watering, mulching, &c.; if not, they will lack size and substance, and consequently fail to ripen properly in their season. Much space is often occupied upon walls with varieties which would grow well without such protection. I refer to those that ripen in the autumn, such as Doyenné du Comice, Marie Louise, Louise Bonne of Jersey, &c.; these, and many others ripening at the same season, can be successfully grown as bushes, pyramids, and cordons in many parts of the country. Whilst the walls should be occupied with late kinds, at least one half of the wall space at our disposal should be devoted to really late varieties if we wish to improve our supply; whereas now they are planted in the same proportion as others, that is, one or two trees of a sort. For instance, where one or two trees of Doyenné du Comice would yield an ample supply, four trees of Bergamot would not be too many, because other good kinds would be ripe with the former, when the latter variety perhaps would be the only one in use at the time. The advantage of following this manner of selection when planting would soon become evident in the increase of quantity and quality of our late Pears.

It is not so much the lack of late varieties which is at fault as their sparse representation in our gardens and comparative neglect in cultivation, for late kinds require better treatment than mid-season varieties do, and they will well repay for it when their season of ripening comes round. A liberal supply of water with the addition of manure, either in the form of mulchings or in a liquid state, will make all the difference between dry, hard fruit, which refuses to ripen and shrivels instead, and sound, properly developed examples which will not fail to come to perfection. True, they are not so large and handsome as many of the mid-season kinds, this, perhaps, having the effect of keeping them, to a certain extent, in the background. Too much importance, however, must not be attached to appearance by those whose object is to obtain a continuous supply for as long a season as possible.

The date of gathering has much to do with the future behaviour of late Pears; many a fine crop is injured, and often spoiled, by gathering it too soon. The end of October is quite early enough; frosts severe enough to injure the fruit whilst hanging upon the trees do not occur during this month, and if there are any signs of dropping or danger from rough winds, a thick layer of hay placed at the foot of the trees, or the net gathered up at the bottom will catch the fruit before it reaches the ground and preserve it from injury. The skin being thick and the Pears hard, they are not readily bruised if a soft substance is provided for them to fall upon, and they will ripen as well as those gathered from the tree, that is, if fully developed. When dropping commences, which is a characteristic of some varieties, it does not follow that all the fruit on a tree showing this tendency should be gathered forthwith. After a certain portion has dropped, the remainder will often stay upon the tree for some time,

and be improved by being left. Although the above three varieties may be considered the best, there are a few others worth growing where room can be found for them. *Easter Beurré* is generally represented in most collections; very seldom, however, is it worth eating when ripe, too frequently being dry and mealy; this is attributed to not catching it at the right time, but I have never yet been able to discover a time when it is juicy and melting; its period of ripening, however, makes it useful. *Doyenné d'Alençon*, sometimes confused with the above, I have found a more reliable kind; it is smaller and rounder, with a rough skin; the flesh is melting, juicy, and fairly good flavoured; it grows well upon the Quince. I have some horizontal cordons which generally produce a nice crop every year. *Victoria* (Huyshe's) in some seasons is good in January, but December seems to be its proper season; it is a Pear of great excellence. *Monarch* is a valuable late kind where it succeeds; but so frequently is its propensity for dropping its fruit developed, that many have discarded it after giving it a trial. *Marie Benoist* is a large Pear of good flavour, ripening in February and March. When more widely known, I think it will find a place in all late selections. It is a very distinct fruit, deserving a good position to bring out its good qualities. *Beurré Sterckmans* is a late Pear of more than ordinary merit; the flesh is very tender and melting; it is, moreover, a handsome fruit, and grows well upon both Pear and Quince. The above are the best late kinds I am acquainted with. All are not equally good every season, but they may be taken as reliable kinds where attention is paid to their cultivation.

A. BARKER.

FRUIT NOTES.

PINES.

PRIVATE growers who wish to keep up a continuous supply of fruit from a limited stock of plants will now be busily engaged in their preparations for a fresh start. Where bottom-heat is obtained from tan or leaves and the bed in the fruiting house is in good condition, say 80° to 85°, the addition of fresh material may be deferred until after the plants are plunged and the result of increased fire-heat and moisture becomes apparent. If, on the other hand, the bottom-heat does not touch 80°, why, then, some well-worked material must be added, and when the house has been thoroughly cleansed, a few of the most promising Queens may be selected and plunged without delay. A quick succession to winter fruiters being the main object, the young beginner must not be carried away by the idea that a mean of 85° may be exceeded with impunity or advantage, as a slight mistake in this respect may prove fatal to the delicate roots now close to the sides of the pots and thickly matted in the lower parts of the balls. Growers, on the other hand, who have bottom-heat pipes lying in rubble or chambers, with about 18 inches of plunging material above them, have nothing to fear, as the opening or shutting of a valve will regulate the temperature of the bed to a nicety, and by these means, which every man who is expected to have ripe Pines in June should demand, the labour, the anxiety, and the uncertainty attending the fluctuating bed may be avoided. From these remarks the inexperienced will gather that a brisk, steady bottom-heat is the pivot upon which success or failure turns. Now for the selection of the plants most likely to respond to the application of warmth and moisture at this dead season of the year. Pines, as a rule, make a growth before they throw up their fruit, but this small batch, if possible, must be prevented from doing this—first, by a good three months' rest; and secondly, by fixing upon those with the thickest stems or collars and the greatest number of small sharp-pointed leaves clustering in their centres. A few of these, it is probable, will start into growth, but the majority of them will throw up at once,

when those which miss will form a most acceptable succession in July and August. As each plant is drawn from the resting bed, it must be divested of a few of the bottom leaves and loose surface soil preparatory to top-dressing with good fresh loam, which cannot be pressed too firmly round the collar, for the twofold advantage of keeping it steady and preventing the stem roots from receiving too much water when overhead syringing becomes necessary. Plunge the plants deep or shallow, according to the condition of the bed, allowing not less than 2 feet from centre to centre. Keep those with stout, stubby leaves in the back row nearest the path, the tallest in the second row; then graduate to the smallest near the front, and run a string round to prevent leaf breakage where path space is limited. When plunging is finished, water them with guano water or clear diluted liquid 80° to 85°, giving sufficient to moisten the whole of the ball, but not to saturate the bed immediately beneath the pot. Let the temperature range from 65° at night to 70° by day when dull, and 80° when bright; give a little air at 76°, if only for half an hour, close at 80°, and maintain a moist-growing atmosphere by damping the paths and walls two or three times a day.

Succession houses.—The general stock from which the preceding have been drawn may now be regulated by partial re-plunging, but without the addition of fresh material, as they have yet another month for rest. The preparation, nevertheless, of fermenting material may be proceeded with, as it is hardly possible to overwork fresh tan and leaves. Compost, crocks, and clean pots, too, may be prepared and placed where they will become dry and warm by the time they are wanted for the general shift in February. No change as yet need be made in the night heats, but a rise of a few degrees on bright, sunny days after the middle of the month will do no harm, whilst plants in small pots immediately over the hot-water pipes must be watched and carefully supplied with water.

MELONS.

Where compact, efficiently-heated pits will soon be ready for the reception of plants, a few seeds of good early varieties may now be sown singly or in pairs in small pots or cubes of turf, and placed where they can have a bottom-heat of 80° with the fullest exposure to light. When the young plants have developed the seed-leaves pull up the weakest of the two, protect those retained from midnight marauders, and push forward preparations for their final destination. A good start with everything fresh, sweet and clean being more than half the battle, scald the pits, cleanse the glass and woodwork, get in a good body of well-worked fermenting leaves or tan for aiding in the production of a sharp bottom-heat and moist atmosphere. Make up the compost and place it where it will become thoroughly warm by the time it is wanted. If the plants are to be grown and fruited in 14-inch pots, plunge them where they are to remain, or, better still, set them on inverted pots to prevent sinking and strangling the vines when tied to the trellis, and place the fermenting material round them. Crock well; fill the lower half of each pot with the roughest of the compost, consisting of heavy loam, old lime rubble, and a dash of bone-dust; ram it firmly, and upon this foundation form small cones of finer soil with their crowns on a level with the rims. When thoroughly warmed through and the young plants require a shift, transfer them direct to the cones, slightly disentangling the roots to set them free; press the soil rather firmly, but carefully avoid bruising the stems; place a slight stick to each, and, unless the compost is very dry, defer watering for a day or two. Where very narrow pits or troughs are at command, and planting out is preferred, the same compost placed upon sods of turf, Grass side downwards and raised up in the form of a sharp longitudinal ridge, will answer equally well, but unless the hot-water pipes are equal to the maintenance of a bottom-heat of 80°, the pot plants will be the first to ripen their fruit. When thoroughly established, place a stouter stick to each plant, tie it to the trellis, train upwards, pinching out all laterals without injuring the main

leaves, and defer stopping the vine until two-thirds of the wires are covered. Keep a stock of compost on hand, use it little and often as the roots protrude until the pots or pits are full, when very firm ramming will be necessary. Maintain 66° to 70° through the night, 75° to 80° by day, allowing a run of 10° from sun heat, and secure a moist growing atmosphere by frequent sprinkling, but avoid wetting the foliage, and then only on bright days, until the plants commence covering the trellis.

FIGS.

As these heat-loving trees will stand and thrive under Muscat treatment, we always make the same code of temperature serve for the two houses. The Fig, moreover, being so subject to spider, fresh fermenting material plays a prominent part, not only in keeping up the heat, but also in maintaining a continuous stream of atmospheric moisture when the weather is unfavourable to copious syringing. The syringe, nevertheless, must be very freely used from the time the point buds burst into leaf, especially for damping the walls and washing out all dry, suspicious comers. If the trees are in pots and plunged in bottom-heat, a mean of 75° must be maintained by frequent turning and renovation from the reserve, and the roots must not feel the want of clear diluted liquid at a temperature of 80°. As growth proceeds, pinch the shoots at the fifth or sixth leaf for the benefit of the fruit and to secure a second crop for succession; remove all useless spray and tie out or down to the wires where absolutely necessary. Figs do not, however, rejoice in laboured training, neither do bush nor pyramid trees in pots require it. Trees started in November will now stand 60° to 65° on mild nights with a chink of fresh air, 70° to 75° by day, and 10° higher after closing with gleams of sun, say about 1 p.m., when the warm bath will prove most advantageous. If the second house containing trellis trained trees is still open, it may now be closed, the borders top-dressed and watered with water at 80° and regularly syringed. Keep late houses cool by abundant ventilation, unless the weather is very severe, and avoid the introduction of plants which necessitate the constant application of fire-heat when a few degrees of frost threaten danger. Introduce young pot plants to temperate warmth, shake out or reduce and repot when the buds commence swelling. Crock well, use light, rich loamy compost, and plunge in bottom-heat to secure a quick growth, which will be quite ripe by the end of August. Short stout pieces of wood with good point buds may now be put in as cuttings. Disbud the lower parts to prevent suckering, and plunge the pots in bottom-heat.

HARDY FRUITS.

APPLES.

I stated last week that a little delay in pruning was preferable to treading the ground into a pasty mass. A change for the better with a rising barometer now favours pushing on the work, and forthwith, so soon as the Peach trees are detached from the walls, all our garden Apple trees will be pruned, or, strictly speaking, thinned, as I do not believe in cutting away in winter the external shoots which have been made during the past summer. Where shoots are wanted, they are allowed to extend where they start, but where not wanted, they are checked by summer pinching, an operation which checks an exuberant flow of sap and at the same time exposes the fruit to the influence of sun-heat, light, and fresh air. When the trees are pruned, those touched by American or woolly aphid receive a good scrubbing with soapuds as a preliminary to painting with an emulsion of Gishurst compound and paraffin; whilst others, whose worst enemy is Moss or Lichen, are well syringed with soapuds and dusted with quicklime.

GOOSEBERRIES.

The old school gardener almost invariably deferred pruning his Gooseberries until the bullfinches had finished their dainty repast on the buds, and then, to his annoyance, found they had rewarded his liberality by taking those he most wished to preserve. Modern growers now prune

early, and trust to an occasional dash with thin limewash strained through a sieve and plied with an old syringe. The result is not, however, altogether satisfactory, as the finches seem to have discovered the fact that calcareous matter is not fatal to life. This wash, toned down with a little soot, answered well here for some years, but finding a thoroughly deterrent wash sometimes injurious to the buds, I now run a length of 3-foot aviary wire round the blocks of bushes and cover the whole of the quarter with square-meshed tanned netting. The side netting attached to stout stakes is a fixture, but the string netting, put on when the buds commence swelling, is removed as soon as the fruit is set and out of danger. Insect-eating birds then have full play, and caterpillar rarely puts in an appearance. In pruning Gooseberries, the centres of the trees should be made sufficiently thin to let in light and air and to admit the hand, first, by the removal of any old branches past their best; and, second, by spurring those best placed to two eyes. Another important matter is the retention of a few clean, straight, well-ripened young shoots where space admits, as these not only maintain the vigour of the bushes, but they also give very fine fruit. When all the trees are pruned, the loose soil near the stems should be drawn out with a rake and burned to ensure the destruction of lurking enemies; a dusting with quicklime will then settle the account with any larvæ left behind, and a good top-dressing with rotten manure or fresh soil will add greatly to the quality of the crop. Deep digging amongst bush fruits is neither necessary nor advantageous, but shallow forking between the rows, whilst burying weeds and preserving the richness of the manure, gives the final finish to a section of the fruit garden but too often proverbial for its untidy appearance. If cuttings have not been put in, suitable pieces of wood should be selected, disbudded from the base upwards to within four eyes of the top and dibbled firmly into light rich garden soil free from stagnant moisture.

THE ORCHARD.

If not already done, no time should be lost in giving all standard trees the annual thinning and cleansing, in grubbing up old stagers of which we have some thousands of useless examples in the country, and making preparations for spring planting. When the prunings have been cleared away and reduced to ashes for future use, advantage should be taken of the first frost for carting out the materials collected from various sources for top-dressing. Poverty, unfortunately, is the prevailing malady in this part of the country, and good rotten manure, it is hardly necessary to say, is the best remedy, but, lacking this, anything fresh and stimulating will tell in the future. Let young thriving trees be thinned and allowed to extend upwards and outwards, and on no account overlook the stakes and ligatures in recently planted orchards. Wind-waving is bad enough, but when faulty or useless ligatures favour the chafing of the stems, time and money in a short period are wasted. Suitable wood of the best sorts may now be selected for grafts, and trees intended for grafting must shortly be beheaded. W. C.

Wall tree branches too close.—I notice in a great many gardens that the branches of the wall trees are much too close; some of them are not more than 6 inches or 8 inches apart. When these are clothed with foliage hardly any of the wall can be seen. Much of the fruit is shaded under the leaves and it has no opportunity of gaining its characteristic size, colour, or flavour. It is only near the extremities of these branches that good fruits are secured, and if half or every other one of the branches were cut out altogether the trees would soon become more robust and the fruit of a very superior type. This applies in particular to Pears, Plums and Apricots, and in some cases to Peaches. The present is a good time to undertake the remedy suggested, and the advantages would be experienced before the end of another year.—J. MUIR, *Margam Park, S. Wales.*

Fruit growing.—The following paragraph relative to this subject we take from the *Times*: "In

your correspondence this morning (Jan. 3) it is stated that £120 (Mr. Bernard), £50 (Mr. S. Morgan), £90 (Mr. H. Clark), £65 (Mr. A. Fuller) can be secured per acre by fruit growing. Are not these figures somewhat misleading? Have any deductions been made on account of rent, rates, taxes, labour, replacement of trees, charges involved in sending to market, &c.? Would it not be more helpful to the general public for the advocates of fruit culture to give the actual profit realised on an average, say, of five years?—RICHARD MILNER, *Stock Gaylard Factory, Sherborne.*

TREES AND SHRUBS.

THE VARIETIES OF THE COMMON YEW.

THE varieties of the common Yew (*Taxus baccata*, Lin.) are numerous, and half a dozen of them at least are popular favourites, namely, *T. b. adpressa*, which was erroneously considered a species; *T. b. hibernica*, which has a majestic columnar habit; *T. b. Dovastoni*, which has its branches staged in pendent whorls; *T. b. variegata aurea*, which has the leaves variegated with yellow; *T. b. v. argentea*, leaves variegated with white; and *T. b. fructu-luteo*, of which the fruit is yellow. The other forms, many of which are handsome or interesting, are more rarely met with in cultivation; still a pretty considerable number of them might be enumerated. Loudon described six. M. Carrière reckons up twenty-six, of which he gives descriptions and synonyms. The catalogue of M. A. Lavallée mentioned eighteen, and in some collections several varieties are to be found which are not included in any of the works cited. Now the question arises, Can a selection be made from amongst the numerous ornamental varieties of the old Yew of our mountains? Undoubtedly it can;



The Irish Yew (*Taxus baccata hibernica*).

all of them have not an equal claim to our favour. In addition to those which I have just mentioned as being most generally planted, and which deserve a place in every garden, the following varieties may be recommended with confidence: *T. b. erecta* (pyramidalis or stricta), which has an elegant, fastigate, close-branched habit, slender, erect branches, and straight, slender, deep green, and short-pointed leaves. *T. b. cheshuntensis*, which originated at Cheshunt, has a close-branched habit, but the branches are not fastigate. The leaves are

dark green on the upper surface, glaucescent underneath, slightly curved and long-pointed.

Over and above their more or less elegant habit, these Yews possess another source of ornament in their fruit. Everyone knows the pretty red berries which adorn these trees in autumn, and which continue to do so until the frosts come on. Some particular trees are sometimes profusely laden with them; others seldom or never bear any, which is chiefly the case with the cultivated varieties, and this is not surprising when one remembers that the tree is dioecious, besides the fact that certain forms which have been established by means of grafting or budding are only capable of being produced with male plants.

Towards the end of last autumn I observed in several parts of France that the Yews were bearing an unusually great abundance of fruit. In the nurseries of M. Louis Leroy at Angers, this abundant fructification was observable even on the youngest plants, which were growing in beds, and most of these if they had been potted would have formed charming ornamental subjects for the drawing-room or the dinner-table. It occurred to me to gather a few branches and closely examine them. At first the forms and colours appeared identical, with the single ex-



The yellow-fruited Yew (*Taxus baccata fructu-luteo*).

ception of the pretty yellow-fruited variety; but I was soon struck with differences of characters which at first sight I had not noticed. These differences were not confined to the fleshy cup which forms the coloured and pulpy part of the fruit, but also extended in a remarkable manner to the nucule or seed itself. The fruit gathered from different plants exhibited fixed characters, and I thought it might be useful if I described them more minutely than anyone had previously done. In order to show these fixed diversities plainly I had the accompanying illustrations drawn, and they will give a very clear idea of the differences of characters, especially as regards the nucule or seeds, which are represented as of double the natural size. These illustrations and descriptions may prove useful to anyone who undertakes a monograph of the genus, and also may assist growers in identifying forms which are difficult to distinguish from others. I intend to continue them next year in the case of any other varieties that I may find bearing fruit.

TAXUS BACCATA (type).—Easily distinguished by its spreading habit, horizontal branches, linear sub-distichous leaves, which are more or less curved and terminate in a sharp or slightly blunted point.



The golden Yew (*Taxus baccata variegata aurea*).

Fruit cherry-red, cup pitcher-shaped, with a rounded orifice and enveloping the greater part of the seed, which is ovoid in shape, brown or russet-coloured on two-thirds of the upper part, reddish on the lower part, blunt at the apex, with slight ribs, and finely dotted on the surface.

T. B. VARIEGATA AUREA (see figure).—Habit and foliage similar to those of the type, sometimes more compact. Leaves more or less margined with yellow.



Dovaston's Yew (*Taxus baccata Dovastoni*).

low. Scales at the base of the cup imbricated, blunt, of a straw-yellow colour tinged with violet. Cup like that of the type. Nucule or seed oval roundish, slightly or not at all angular, pointed at the apex and with a triangular or quadrangular scar or hilum.

The silver-variegated variety (*T. b. v. argentea*),

which is very distinct, by its white markings, from the preceding variety, is easily mistaken for it in autumn, when the silvery variegation takes on a yellowish tint.

T. B. FRUCTU-LUTEO (see figure).—Habit erect; branches more or less divaricated; leaves short, linear, short-pointed, deep green on the upper surface, pale underneath, and slightly curved. Scales obtuse, lemon-yellow in colour, tinged with violet at the top. Cup oblong, of a fine golden-yellow colour, very much hollowed out in the interior, with an oval or slightly angular orifice and completely enveloping the seed, which is seated at the bottom of the cup. Seed oval, compressed, of an olive-green colour, and having a large oval hilum, the circumference of which is finely plaited; apex of the seed obscurely keeled, depressed, and with a blunt point. This variety is in some collections erroneously grown under the name of *T. cuspidata*, a Japanese variety which some authors consider a species.

T. B. DOVASTONI (see figure).—Habit pyramidal; branches sub-verticillate, spreading, reflexed at the extremities. Leaves large, distichous-scattered, very much curved, cuspidate, dark green on the upper surface, pale underneath. Scales obtuse, of a straw



The short-leaved Yew (*Taxus baccata adpressa*).

yellow colour, edged with violet. Cup oblong, rather short, of a lively cherry-red colour, and with a square orifice. Seed very deeply sunk in the cup, of an oval, compressed shape, and having an oval hilum with a plaited circumference; top of the seed bluntly square, scarcely pointed; surface of the seed rough.

T. B. ADPRESSA (see figure).—Habit spreading, sub-horizontal; branches short. Leaves distichous, short, linear-obtuse, very short-pointed, deep green on the upper surface, pale underneath. Scales obtuse, of a straw-yellow colour, tinged with violet at the top. Cup vermilion-red, very broadly shaped, not covering the seed, which is ovoid, depressed, terminating very abruptly in small points at the top, which is twice or thrice keeled, and has a depressed centre with a projecting point; hilum heart-shaped. This variety was considered a species by some authors, and had also been described as a *Cephalotaxus* (*C. tardiva*), but it has frequently been clearly proved that it is a sport from *T. baccata*. At the present time, in the park of Megadais (Mayenne), which belongs to Count G. de Crouy, a Yew may be seen, several large branches of which exhibit the characteristics both of the type and of *T. b. adpressa* very clearly together, and this is probably not the only existing case which might be instanced.

T. B. HIBERNICA (see figure).—This is the pyramidal Irish Yew, which bears the same relation to

the common Yew which the spiry Cypress of the South does to *Cupressus sempervirens*. Habit fastigiate; branches short, stout, close-growing, erect; leaves stout and long, linear, acuminate, more or less straight or curved, deep green on both sides. Scales obtuse or slightly acute, of a straw-yellow colour tinged with violet. Cup of a lively cherry-red colour, slightly oblong in shape, with an angular orifice and half-covering the seed. Seed oblong and ovoid; hilum sunken, triangular or quadrangular, margined with furrows and folds; apex of seed mucronate.

The variegated form of the same variety (T. b. h. variegata) has the same habit, with leaves more or less margined with yellow.—*Revue Horticole*.

** It is very well to possess these varieties and interesting to study them, but the common Yew is far more valuable than any of them.—Ed.

Cratægus affinis.—The most striking berry-bearing shrub that I have seen during the present winter is the one above-named. It occupies a prominent position on a sloping bank in Dr. Pryor's garden at Halse House, near Taunton. The plant in question is growing in the form of a bush, about 7 feet high, with a proportionate spread of branches, and a beautiful sight it was at the end of December, for every branch and twig was terminated with a large bunch of coral-red berries. From the appearance of this plant I should say it is quite hardy, but if it is not quite reliable in all places it is well worthy of a wall to protect it.—J. C. C.

Rhododendron Falconeri at Waterford.—I enclose a photograph of a *Rhododendron* which I have growing in my garden in the south of Ireland. It is a specimen of *Rhododendron Falconeri*, and it is planted out in the open ground, where it has been for the last twenty years or more. I do not know the exact age of the plant, but it was quite a large shrub when it was brought here, over twenty years ago. For the first few years it was protected by glass and did not bloom, but for the last four or five years all the glass has been removed, and it stands totally unprotected. It blooms splendidly every second year. This summer I counted over 130 blooms out on it at once, and now it is ripening seed. It measures 12 feet high, 44 feet round, and 13 feet through. I fancy this is an unusually good specimen.—J. M. P. M.

** Yes; certainly a very fine specimen of this *Rhododendron*.—Ed.

The sex of Skimmia.—In reply to "A. C." (p. 13), it may be said that a dioecious habit may be confined to particular species, and need not extend through a whole genus. *Skimmia japonica* is certainly monocious. *Skimmia oblata*, however, is dioecious, the plant sold by nurserymen under that name producing only female flowers. It is said that the male plant of it is the shrub known in nurseries as *Skimmia fragrans*, and that the so-called "hybrid" *Skimmia*, lately certificated by the Royal Horticultural Society, and said to be *S. oblata* × *S. fragrans*, is nothing but a seedling from a male and female of the same species. Bentham and Hooker, in "Genera Plantarum," limit the genus to four species, but in nursery catalogues we have about a dozen with specific botanical names. If "A. C." has *S. oblata*, he should buy a plant of *S. fragrans* to plant near it; he will then get berries on *oblata*.—C. WOLLEY DOD.

Picea Pinsapo unhealthy.—I enclose pieces of *Picea Pinsapo* in the hope that you may be able to explain the cause of decay which you will see is setting in. You will see from enclosed that the outer shoots are first attacked, the decay then spreading down the branches to the trunk. The tree in question looked perfectly healthy until a few months ago, when first one shoot and then another began to die off on the same side of the tree, which is about twenty years old, and planted on a bank with good drainage and in a light soil. I may add that I have already lost one *Pinsapo* in the same way, but have not found any other silver or other Fir attacked in the same way. If you can

tell me the cause of decay and suggest any remedy you will greatly oblige.—A. W. N., *Fort William*.

** In reply to the above, I have examined your shoots of *P. Pinsapo* very carefully under the microscope and cannot find any traces of insects inside or out, nor can I see any signs of fungus. Were the young shoots caught by any late frosts or very cold winds? It is quite possible that though there are no insects on them now, there may have been earlier in the year. Keep a sharp look-out in the spring and early summer, and see if there are any insects on the young shoots.—G. S. S.

STOVE AND GREENHOUSE.

HIPPEASTRUMS IN AMERICA.

THE article on p. 489 of THE GARDEN on autumn-flowering Amaryllids is very interesting. Mr. James Douglas is doubtless correct when he says that a race of autumn-flowering Amaryllids has been in existence for six or eight years. I had no opportunity to see Messrs. Veitch's hybrids of this race, but Mr. Williams' are very beautiful; so far as I am acquainted with them.

MRS. GARFIELD (not President Garfield) is the result of a cross between *Hippeastrum reticulatum* and the garden form, *A. Defiance*. The leaves are very finely variegated, with a white stripe, and are very robust, 12 inches to 18 inches long by 2 inches to 3 inches in breadth; flower-scape about 2 feet high; ground colour rosy pink, veined with darker red, white stripe through the centre of each petal; flowers 6 inches in diameter. This hybrid was figured beautifully in THE GARDEN, April 7, 1883.

MRS. WILLIAM LEE is similar in growth, but the flowers are larger and richer in colour.

COMTE DE GERMANY is a strong-growing, very beautiful kind. Although resembling in growth the two foregoing hybrids, the ground colour is a rich rosy carmine, shaded with crimson and veined darker, with a white band running through each petal.

G. FIRTH is a cross between Mrs. Lee and Crimson King. Flowers are 5 inches across; sepals cherry-red with a faint white stripe down the centre; petals dark crimson, suffused with brown at the base.

All these hybrids have very fine evergreen, strong leaves, striped with white, and are also very ornamental when not in flower. They usually flower in October and November.

There are other evergreen Amaryllids, especially *Hippeastrum aulicum* and its varieties, that flower profusely in autumn and early winter. The variety *A. aulicum robustum* (also known as *Amaryllis Tettani* and *A. Rougieri*) is indeed a gorgeous flower. The first bulbs were sent in 1848 to Berlin by Dr. Blumencnau, who found the plant growing wild in Santa Catharina, South Brazil. With me it flowers generally at Christmas, every bulb usually sending up two very strong flower-scapes, with two brilliant red flowers to each.

It will probably surprise Mr. J. Douglas when I say that many of my Amaryllids, such as *Empress of India*, *Southey*, *Enchantress*, *Sir Garnet Wolseley*, *Thomas Moore*, *Dr. Masters*, *Exquisite*, *Williamsi*, *Unique*, &c., usually flower with me in the spring and autumn. They all bloomed during March and April. On the 1st of June they were planted out in the garden, where they flourished almost like weeds. During the first days of October they were potted again. I did not water them, and the foliage soon died down. When I examined them a few weeks ago, the flower-scapes had grown a few inches high. They now occupy their old place in the bay window, where they will soon open their magnificent flowers. *Enchantress* and several others are throwing up two flower-scapes. The plants receive no special treatment, and the temperature of the room rises during the day to 75° and falls to 60°, and even

50°, in the night. When at rest the plants are placed on shelves in a very warm room, but they receive no water until they show signs of growth. Thrips and mealy bug never attack them; whereas *Fuchsias*, *Phyllocacti*, *Epiphyllums*, and several other plants are very difficult to keep clean. In the same window where the Amaryllids grow I have a fine specimen of *Hymenocallis speciosa*, *H. macrostephana*, and *Urceolina pendula* in flower. *Imantophyllum* (*Clivia*) *miniaturum*, *cyrtanthiflorum*, and *Lindeni* also flowered finely.

I find that the Amaryllids raised by Mr. Williams and Messrs. Veitch are the finest in existence. *Souchei*'s hybrids of *Hippeastrum vittatum*, such as *Perle*, *Aspasie*, *Baffin*, *Etoile*, *Phoebe*, *Atalante*, are not harder and not so beautiful as *Empress of India*, *Mrs. Burbidge*, *Dr. Masters*, *Mrs. Garfield*, *Triumphant*, and others.

All *Hippeastrums* are true tropical American plants, *H. vittatum* included. None of them are found in a wild state in any other tropical country. The true Amaryllis, of which *A. Belladonna* is the type, grows wild in South Africa. *Hippeastrum vittatum* is found in the Andes of Peru, where also grow *H. pardinum*, *Leopoldi*, *miniaturum*, &c. Others of the genus, for instance, *H. solandriflorum*, *aulicum* and vars., *organense*, *procerum*, *calyptratum*, *equestre*, *reticulatum*, *stylosum*, *rutulum* and vars., are more delicate, being found in abundance only in the more level regions of Brazil, Guiana, Venezuela, Columbia, &c.

The blue Amaryllis of which Mr. Douglas has recently heard and read is *H. procerum* (*A. Rayneri*), which was figured years ago in "Flore des Serres" (pl. 2077-8). It flowered for the first time in the Luxembourg Garden in 1863, and, I believe, in the same year at Rocquencourt, and since that time at many other places. The colour of the flower is lilac or dark lavender-blue and not showy. The bulb is large, ovoid, with a long neck. I think this species might be used with good results as a parent plant for a new race of Amaryllis. H. NEHRING.

Milwaukee, Wis., U.S.A.

Epacris at Gunnersbury Park.—A large house of these is an object of great interest at Gunnersbury Park just now, and so varied in colour are the flowers and so free-blooming the plants, that they are among the most useful of winter-flowering subjects. They are subjected to such severe cutting, for cut flowers are always in great demand, that little cutting back is really required, but what is necessary is done after flowering is over; in the autumn any that need it are potted, but it is not Mr. Roberts' practice to shift every year. For over three months the *Epacris* remain in flower, and more serviceable subjects can hardly be imagined. Among the best varieties are those found under the head of *E. hyacinthiflora*, viz., white, carmine, and pink; *Sunset*, deep reddish pink; *alba odorata*, white, late flowering; *Lady Panmure*, white, tinted with pink; *Vesta*, white; *delicata*, bluish, very pleasing; *Fireball*, glowing rosy red, very bright and showy; *Premier*, rosy pink, one of the short-tubed varieties; *tricolor*, *carminata*, *ardentissima*, *exoniensis*, with its long-tubed rosy red blossoms; *Diadem*, short-tubed, very fine; *Mrs. Storey*, *Princess Royal*, and *pictum*. Should it be thought some of the varieties are very old, it can yet be said they are very pretty and showy, and perhaps one of the charms of this house is the mixture of old and new sorts.—R. D.

Solandra grandiflora. This plant, which has been recently noted as flowering very finely in the succulent house at Kew, seems to bloom at different periods of the year, for a plant which was under my charge some half a dozen years since produced its large trumpet-shaped flowers during the month of May. Our plant had been grown for a number of years in a large pot, but no blooms had ever

been produced, when I resolved to try what could be done towards inducing it to flower. Early in the spring I planted it out in a small square space, where the roots would be as much confined as in a tub, and throughout the summer the plant was encouraged to grow as freely as possible. The result was the production of long vigorous shoots, which were trained to the roof of a warm greenhouse in a sunny position. In the autumn the supply of water was diminished, and throughout the winter the plant was kept almost dry, just enough water, in fact, being given to prevent the shoots from shrivelling, though the greater part of the leaves fell off. In the spring the water supply was increased, when the plant again started into growth, and about May produced a number of blossoms. Before another year circumstances occurred to prevent me experimenting with it any more, but from specimens which have since come under my notice, it appears to me too shy flowering to be of much value.—H. P.

NOTEWORTHY FOLIAGE PLANTS.

OF the various classes into which plants may be divided, none have of later years shown such a decline as the one containing fine-foliaged plants. Only a few years ago each successive season saw the appearance of new *Caladiums*, *Begonias*, *Aralias*, *Coleus*, *Dieffenbachias*, *Dracænas*, *Crotons*, &c. Now-a-days these charming plants appear to have decreased considerably in popularity, and this is to be deeply regretted, as, besides being of easy propagation and of comparatively rapid growth, all these kinds are exceedingly ornamental, being very interesting as long as their foliage remains fresh, while some of them have it in full beauty all the year round. The scarcity of new kinds of foliage plants of real merit has been particularly noticeable during the last year. The most beautiful and at the same time the most interesting novelty in that section is the striking *Nepenthes Dicksoniana*, the result of a cross between *N. Veitchi* and *N. Rafflesiana*. It partakes of the singular habit of growth peculiar to *N. Veitchi*, but possesses an additional vigour derived from the parentage of *N. Rafflesiana*. Its beautifully shaped pitchers, which attain very large dimensions, are intermediate between those of the two species above named. Through their bright crimson mottlings, as also through their broad flask-shaped orifice they show their affinity to *N. Rafflesiana*, but they are much more elongated, and in that respect they claim a sort of relationship to those of *N. Veitchi*, and, like those of that slow-growing species, are ornamented with a broad rim of a peculiarly bright colour. The plant is an excellent grower, and each one of its vigorous leaves is furnished with a pitcher, a character which is much more observable in *N. Rafflesiana* than in *N. Veitchi*. We have in *Caladium Comte de Germiny* a comparatively dwarf variety, and whose particularly compact habit is of itself a great recommendation; its large leaves, of a less sagittate form than those of most other varieties, have a dull red-coloured ground, upon which are disposed numerous veins of a very rich bright carmine-red and greyish white flakes of various sizes, the whole forming a most pleasing contrast. The new *Croton Aigburth Gem*, which belongs to the interruptum section, will prove a most valuable addition to the list of decorative plants, and especially where table subjects are in requisition. Its somewhat narrow, but gracefully drooping leaves, which average about 15 inches in length, are produced in great abundance and closely set, while the beautiful combination of yellow, red, and green observed in their colouring is most attractive.

Next to the above-named foliage plants, there are several very good novelties in Ferns, the most meritorious among them being undoubtedly *Gymnogramma Pearcei robusta*, a strong-growing form of the elegant, but very delicate *G. Pearcei*, introduced from Peru some twenty-five years ago. This beautiful species, on account of its delicate constitution, has remained very scarce, and very few, indeed, are the collections where it is to be found at the present day. The new-comer is decidedly a handsome acquisition to the genus, for, while it retains all the beauty of the original species, its

vigorous growth renders it more adapted for general cultivation. Like the original type, it has somewhat tall, most elegantly divided lace-like fronds with ultimate divisions linear and light green, forming a pleasing contrast with the dark stalks, the lower part of which, as well as the crown, is covered with white powder. Another advantage which it possesses over the species consists in the multiplicity of crowns, which are disposed in a tuft at the summit of a short caudex, from which numerous stalks are produced, thus giving the plant a more dense habit. Novelties in *Adiantums* consist this year of three forms of *A. cuneatum*, viz., *elegans*, *Wrighti*, and *Waltoni diffusum*. The first of these is evidently a very good decorative form, and already some of the market growers have taken it in hand, as the plant is of capital habit and its fronds more finely divided than those of the common *A. cuneatum*. *A. Waltoni diffusum* is a very elegant and particularly striking form, through its robust form and diffuse habit, as well as on account of the larger size of its fronds, while the pinnæ are much finer and apparently of a very lasting nature. We have in *Pteris tremula elegans* a variety very distinct, through its slender fronds bending gracefully and giving the whole plant a particularly elegant aspect. One of the most promising Ferns of this year is *Pteris cretica nobilis*, a crested form differing from all other known varieties by its bold habit, and by the particularly light green colour of its robust fronds, which are heavily crested, and disposed in the form of a shuttlecock. As a market plant, it is very likely to supersede other crested forms, especially if, as is to be hoped it will, reproduce itself true from spores, for the only other form of similar beauty—the Chiswick form of *P. serrulata cristata*—has until now been propagated only by division, which process is very slow in these days of rapid production of ornamental plants. *Notholaena Mulleri* is a very distinct species, belonging to a genus that ought to be grown more extensively than it is at present. Its pinnate fronds, from 6 inches to 8 inches long, are furnished throughout with pinnæ of a bright green colour, which, however, is not very noticeable at first sight, on account of the minute scales of a brownish colour with which both upper and under surfaces are partially clothed.

Although simply forms of British Ferns, and consequently hardy in most parts of the country, the new *Scolopendrium cristatum* and *Lastrea montana ramo-coronans* deserve to be included in the list of greenhouse foliage plants, for in order to retain and to derive all benefit from their beauty, it is advisable to give these plants greenhouse treatment. The *Scolopendrium* is one of the most densely crested forms of Hart's-tongue known, of a compact habit, and particularly striking, through its regular crestation. *Lastrea montana ramo-coronans* is all the more interesting from being a form of a species which has been very sparing in producing varieties, plentiful enough in other species. The elegant crestation of its fronds, which extends to the pinnæ, is very constant and remarkably unlike anything known in the genus. This list could not well be closed without reference to the charming *Polypodium Picoti*, figured in THE GARDEN, December 22, where all particulars as to its value as a decorative plant, its discovery and introduction, are given in full. S.

The Fuchsia.—It is rather odd that, amidst the prevalent rage for conferences, we should have omitted thus to honour that beautiful and favourite plant the Fuchsia. It is pleasant to be reminded that it has now been with us 100 years, but it is not so pleasant to find also that, but for the interesting paper on Fuchsias and their centenary, we might have absolutely forgotten all about so important a matter. But it is not too late yet to celebrate the centenary of the Fuchsia, nor will it be so for the next two or three years, as mathematical exactness to date is not of the greatest importance. We are to have a Rose conference at Chiswick during the ensuing summer, that will be a pleasant and an interesting gathering, no doubt. Chiswick has in Roses, however, few attractions.

Perhaps just now we may say the same in regard to Fuchsias. But the latter defect may soon be remedied if all possessing species or good varieties would send plants to Chiswick for cultivation, and then in 1890 a Fuchsia conference in celebration of the centenary of the plant's first introduction into this country could be held, and what with the stocks of all kinds of Fuchsias grown there, a fine exhibition of specimen plants, a display of illustrations of Fuchsias of all kinds, and some good papers read about them also, a most desirable gathering might be well and admirably furnished. A Fuchsia centenary conference offers a fine opportunity both to botanists and florists to do honour to a beautiful flower. If at the same time we could resuscitate for it some of its old popularity, there would be good cause to rejoice.—A. D.

WORK IN PLANT HOUSES.

STOVE.—At the present day when bottom-heat is seldom used, except for special kinds of plants, it often happens that no provision is made for fermenting materials. Yet no plant stove is complete unless it contains a pit that will hold a good body of tan or leaves. The vapour that is thrown off by the fermenting body charges the atmosphere of the house with elements that are more conducive to healthy growth than anything that can be done in this direction by other means. Though experience proves that bottom-heat is the reverse of a gain to far the greater number of heat-requiring plants, on the score of economy it is advisable to use fermenting matter, as when the body is large enough it effects a saving in fuel that more than counterbalances the cost of procuring it. The best time to renew the tan is at this season, as then it will be in a condition to give off the most heat during January and February, the two coldest months, though at the expiration of the latter month the heat in the bed will be only a little reduced if the pit that holds the materials is from 3½ feet to 4 feet deep. Tan can often be had at a nominal price, and it is best to clear out all the old and put new in its place, as the old material, whether of tan or leaves, will in most cases be full of worms, which it is better to get rid of, as even if the plants are not plunged they will get into the pots through the holes in the bottoms, unless more than ordinary care is taken to keep them out. When possible, the tan should not have been longer out of the vats than a week, as that will be time enough to allow the water it contains to drain off. Advantage should be taken of the old material being cleared out to limewash all the brickwork, and at the same time to scrub and clean all the wood as well as the glass, both inside and out.

EPIPHYLLUMS.—*E. truncatum* can be had in flower at any time during the winter, provided the plants have had their growth well matured and they are put in heat long enough before they are required to be in bloom. In most cases about the end of January or the beginning of February will be early enough to have them in, as flowers are then scarcer than at other times. Where there is a sufficient stock it will be well to start them at three or four different times, allowing about three weeks to intervene between each set of plants being put into heat. A portion may now be started. A cool stove temperature will be best. The flowers of *Epiphyllums* generally, including the truncatum varieties, are naturally short-lived, and when the plants are kept very warm whilst being brought into bloom, it makes them so soft in texture that they do not keep fresh long in a cut state. To correct as far as possible the fugacious nature of the flowers and to make them stand well in water, the plants should be stood well up to the light whilst the bloom is coming on. No more atmospheric moisture than necessary to keep the air in a genial condition should be used. Be careful not to make the soil too wet, especially before the roots have had time to move. Whether on their own roots or grafted on the *Pereskia*, *Epiphyllums* dislike the soil being too wet.

HYACINTHS.—More bulbs of the large-flowered varieties of Hyacinths should now be put in heat,

Where a regular succession of these flowers is wanted a large stock is required, and though the bulbs should be potted before this time, if enough have not been already provided, it is not too late to make the necessary addition. The bulbs that are potted after this time should consist of the latest flowering kinds. It often happens in selecting these bulbs that sufficient consideration is not given to the early or late habit of flowering of the varieties, through which there is a difficulty in getting them to bloom at the time they are wanted.

BUNCH-FLOWERED NARCISSUS.—The flowers of the different kinds of bunch-flowered Narcissus are better adapted for using in a cut state than are those of Hyacinths, and are little if anything inferior to them for greenhouse or conservatory decoration. In the case of these plants it is also necessary to use the earliest flowering sorts for the earliest supply.

NARCISSUS POETICUS.—Since it has become known that several of the varieties of this section will answer for forcing as well as the bunch-flowered sorts, so long used for the purpose, they have gradually come into favour. The purity of colour, fragrance, and effective character of their flowers are such as to entitle them to a first place amongst forced bulbs. The variety *ornatus* is not only one of the best, as far as the character of the individual flower is concerned, but, in addition, it naturally blooms early, so that there is no difficulty in having it in by the beginning of February if the bulbs have made enough roots to admit of their being put in heat now. If, as advised some time back, a sufficient quantity were put in shallow boxes, these will give less trouble than pots, as the boxes can more readily be stood well up to the light in the way that it is necessary to have them, and without which the flowers become weak and drawn.

TULIPS.—Though these flowers are less enduring than those of most other bulbs that are used for forcing, still the fact of their being cheap and showy requires to be taken into account. To make the most of them with a view to the endurance of the bloom the plants should be moved from the forcing house two or three days before the blooms open, as in this stage they are little less effective than when fully blown. The Van Thol varieties are the best for early work. A sufficient number to keep up the requisite supply should be put into heat at intervals of ten days.

GESNERAS.—*G. zebrina* and the allied kinds are not now so much grown as formerly, which, to some extent, may be accounted for by their not being so suitable for cutting as some things. But it is a mistake to discard plants that bear handsome flowers simply because they do not happen to be especially adapted for cutting. In addition to the handsomely marked velvety leaves of these Gesneras, their flowers are extremely brilliant, and last for a considerable time. Few things are so effective whilst in bloom when dispersed about a warm Orchid house, or associated with the Orchids that happen to be in flower, as the colour of the Gesneras acts as a foil to the more delicate tints of the Orchids. The plants should now be kept in a warm house, such, as is adapted to the warm section of Orchids.

BEGONIAS.—The newer sorts that have come into cultivation are a great improvement in the habit of growth on those which alone were known at a comparatively recent date. They also bear larger flowers, and more of them in proportion to the size the plants attain. The section of Begonias that is generally known as greenhouse kinds will do through the winter if kept in ordinary greenhouse warmth, say with a night temperature of about 35°, but to have the plants in the condition that admits of their giving the best return, in the shape of the full complement of flowers they can yield, the temperature should be 45° in the night, with a rise in the day in accordance with the state of the weather. A little over the warmth named will do no harm, provided the plants are in a light house and are kept sufficiently near the glass. Treated in this way they will make more growth than when they

only have enough heat to keep them healthy, and it is needless to say that the amount of bloom that is forthcoming will be proportionate to the growth that is made. When the plants are under-potted they should have manure water once a week, by which means the necessary vigour will be kept up through the winter and spring to enable them to give an uninterrupted succession of flowers.

ZONAL PELARGONIUMS.—These plants, like the Begonias, can be kept in a healthy condition in greenhouse warmth, but, so managed, the flowers are few and far between during the winter, as their rate of blooming is ruled by the growth that is made, and when the plants are kept cool the growth is too slow to admit of many flowers being produced. The latter also do not come up to the requisite size when the plants are kept too cold, and they are alike wanting in colour. In a temperature of 50° by night, with a few degrees more in the daytime with air given for a considerable portion of the day, the plants will flower almost as freely as they do out of doors in summer. If the pots are full of roots there will be no disposition for the shoots to become drawn. Manure water given once a week will keep up the necessary strength to ensure the plants keeping on blooming until spring, when their place will be filled by other things.

T. B.

GREENHOUSE RHODODENDRONS.

THESE have become very extensively cultivated during the last few years. They are so well adapted for greenhouse and conservatory decoration, that one cannot conceive of any well appointed garden being without them. Their rich and varied colours are more valued and attractive in the late autumn and winter season than at any other time. For horticultural purposes they may be arranged in two divisions: the small-flowered varieties, of which *R. javanicum* and *R. jasminiflorum* are the type, and the large-flowered section represented by the Himalayan group, of which *R. Dalhousiae* and *R. Edgworthi* are distinct types. Both sections have been taken in hand by the hybridist, and many beautiful garden varieties have been raised, but it is with the Java and Malacca species that the most important work, taken in its horticultural aspect, has been accomplished. The Javanese Rhododendron (*R. javanicum*) is now in flower in our gardens, where it has been cultivated for upwards of forty years. Blume and Dr. Horsfield both found it before Mr. Thomas Lobb sent it to Messrs. Veitch and Sons. It was found at an elevation of 4000 feet above the sea, on a volcanic range of mountains. It is well figured in the *Botanical Magazine*, t. 4336, and is there described as "one of the finest things ever introduced into our gardens." The handsome orange-coloured flowers are very distinct in character, and the plant itself is of vigorous growth, flowering freely nearly all the year round.

Two or three years later *R. jasminiflorum* appeared in cultivation, having been sent to Messrs. Veitch by Lobb, who found it on Mount Ophir. The flowers themselves, were the foliage absent, might at first sight be mistaken for those of some species of Jasmine. It is also figured in the *Botanical Magazine*, t. 4524, where it is stated that it was exhibited for the first time. "At the first and truly splendid exhibition of flowers at the Chiswick Gardens of the present year (1850), few plants excited greater attention among the visitors most distinguished for taste and judgment." No one could at that time have dreamt of the revolution presently to be carried out in this genus of plants by the introduction of these two remarkable and distinct species. They were found to be of easy culture from the first, and well adapted for warm greenhouse culture. Messrs. Veitch also introduced another distinct species through Mr. Lobb. It was named *R. Lobbi*, the flowers being of a brilliant crimson colour. It was more tropical in character than the others, and seems to have gone out of cultivation, as it is not mentioned in Messrs. Veitch's catalogue for the present year. I fancy it never was a very vigorous growing species, but it was the parent of several garden varieties

much more vigorous in constitution than itself. The work of hybridising these fine plants was begun by Mr. Taylor, one of the foremen in Messrs. Veitch's nursery, and the first garden hybrids were placed in commerce by the firm in 1877, and it may be worth while to record the fact that the species used by Mr. Taylor were *R. javanicum*, *R. Lobbi*, *R. Brookianum*, and *R. Princess Royal*, the last-named itself a hybrid. The varieties sent out in that year were *Duchess of Edinburgh* and *Taylori*. The first-named, in its brilliant crimson-scarlet flowers, shows unmistakably its descent from *R. Lobbi*. It must not be supposed that all the yellow varieties are from *R. javanicum*, because, amongst other plants introduced from Borneo, *R. Brookianum flavum* had clear yellow flowers paler than those of *R. javanicum*; but, like the other Bornean species, it succeeds best in a hothouse temperature. I have found that in practice all of them make the most satisfactory growth in a warm house, and they may be placed in the greenhouse while they are in flower, and under such conditions the flowers last a long time in beauty.

In 1879 *R. Duchess of Teck* and *R. Prince Leopold* were sent out, and it was then stated that *R. jasminiflorum* was used as a species to hybridise with. *Duchess of Teck* is a very beautiful variety, light buff, shaded with orange-scarlet. *Prince Leopold* is buff-yellow, faintly tinged with rose. In 1883 *Duchess of Connaught* was introduced, and it is of the same type as *Duchess of Edinburgh*, the flowers being of a rich deep vermilion colour. *Queen Victoria* was sent out in 1884; the flowers are pale yellow, tinged with a soft rose colour, and the stamens purple. With it were also sent out *Maiden's Blush* and *Princess Frederica*. In 1886 two handsome varieties were introduced, viz., *Favourite*, pleasing rose, tube white; and *Lord Wolseley*, pale buff-yellow, the flowers forming a large handsome truss. In 1887 two of the handsome double-flowering varieties were sent out, viz., *R. balsaminæflorum* var. *album* and *aureum*. The rose-coloured form, *carneum*, was sent out in the spring of the present year. *President*, a very fine variety with buff-coloured flowers, was sent out in 1887. In 1888, *R. jasminiflorum carminatum*, *R. La Belle*, and *R. Princess Christian* were sent out. The above selection comprises all that have been introduced up to the present time. In looking over the large collection in Messrs. Veitch's nursery the other day I noticed in flower, besides the above, *Ophelia*, rosy salmon, flowers of good form and large handsome truss; *Thetis*, yellow, reddish centre, very fine variety; *Empress*, salmon-red and rose; *Gloria Mundi*, reddish salmon, produced twenty flowers on a truss; *Aphrodite*, pinkish blush, deeper coloured stamens; *Excelsior*, salmon-buff, large flowers of good form; *Indian Yellow*, a very fine variety with beautiful cup-shaped flowers; *Brilliant*, rich scarlet; *R. Teysmanni*, yellow reflexed petals; and *R. Curtisi*, small crimson-scarlet flowers, distinct habit. The last-mentioned two species are those that have been recently introduced. As the name of Mr. Taylor has been mentioned as having begun the hybridising of these Rhododendrons, it is only fair to add that all the recent introductions have been raised by the present foreman, Mr. John Heal, who has had charge of this department for many years. The more recently introduced varieties are quite as vigorous as the varieties of the common ponticum. They seem to grow best during winter in a temperature of 55° to 60°, and they are also so easily propagated from cuttings, that small branches inserted in pots of sandy peat form roots freely plunged in the Cocoa fibre refuse over which the plants are placed. Their after culture is simple enough; I find they like a little fibrous yellow loam in the turfy peat, about a fourth part of peat to one of loam. They grow very freely indeed in this compost and need no manure, as the decaying organic matter affords sufficient nutriment for the plants.

The best time to repot them is when they are about to start into growth. Most of these plants when they have been exhibited in London for the first time have had tall naked stems with few or no lateral growths, but this is not really the natural habit of the plants, nor that which they assume

under good cultivation; the tall habit has been induced by crowding the plants together in their seedling state and not stopping the leading growth, so that they might come into flower as soon as possible.

It is only right to add that the species grown as *R. Curtisi* has been figured in the *Botanical Magazine* as *R. multicolor*, and has been found of two colours, yellow and bright deep red (*Botanical Magazine*, tab. 6769).

R. Teyssmani is also figured in the *Botanical Magazine*, tab. 6850, as *R. javanicum* var. *tubiflora*; both of them were introduced by Messrs. Veitch, through their collector, Mr. Curtis; they are natives of Sumatra. A most distinct *Rhododendron* with deep rose-coloured flowers is figured in the *Botanical Magazine*, tab. 6972. It is Japanese and seems to be as much like an *Azalea* as a *Rhododendron*. The large-flowered type, of which the old well-known *R. Dalhousianum* is the best representative species, has been greatly improved by Mr. Davis, of Ormskirk. Some very pretty varieties were sent out about ten years ago, but the work does not seem to have been followed up—at least, if it has, they have not been brought into very prominent notice. They are all excellent plants for a conservatory border, some of the Himalayan species having more of the tree than the shrub character. *Edgeworthi* is a very distinct and handsome species that flowers freely in pots, but one must go to Kew and inspect the Himalayan *Rhododendrons* in the temperate house before it is possible to realise their noble appearance even when they are not in flower; the ample leafage is ornamental in itself without the aid of the large handsome flowers, some of them brilliant rosy-red, others delicately tinted creamy white and intermediate paler tints.

J. DOUGLAS.

SOCIETIES AND EXHIBITIONS.

CHRYSANthemum SHOW IN JANUARY.

A FEW years ago it would have been thought as absurd to have a show of Chrysanthemums in January as in September, but we now have them in both these extreme seasons, the flowers in some varieties approaching closely the quality of those seen in November, when the Chrysanthemum is in its fullest splendour. The exhibition of the present season naturally shows a falling off from that of last year, not through any lack of energy on the part of cultivators or those who have the management of the exhibition, but simply through the weather, which has this season tried plants of all kinds. They have had to fight against a peculiarly changeable temperature and dense fogs, which to the growers around the metropolis have worked untold mischief, not only in the destruction of the flowers themselves, but in many cases of the plants also. With such disadvantages that no human power can prevent, it would have been beyond reason to have expected a good display, but there were sufficient exhibits to give the Royal Aquarium the appearance of a flower show. There was great sameness in the stands. *Gloriosum* was often repeated, so was the violet-scented *Progne*, *Meg Merrillies*, *Mme. Cabrol*, and *W. & G. Drover*. What beauty, growers can detect in the Japanese variety *W. & G. Drover*, or Mrs. F. Thompson, as is the proper name, it is hard to conceive. It is as coarse in January as it is in November, varies considerably in character, and is seldom in the least attractive. A yellowish centre, weak colour, rough outline, and total want of symmetry or beauty are the characters of the majority of flowers. In the stand of twenty-four Japanese blooms from Mr. J. Kipling, The Gardens, Knebworth, Stevenage (who was first), it showed a phase we have never seen it in before. It had there the aspect of *Comte de Germiny*, medium in size, with the broad petals rosy pink on the upper surface, silvery beneath. In this class Mr. Sullivan, gardener to Mr. D. B. Chapman, Downshire House, Roehampton, was second.

There were several entries for a collection of cut flowers, any varieties, and a good show was made by Mr. J. Brown, gardener to Mrs. Waterlow, Great Doods, Reigate. The flowers were fresh,

in good variety, and of fair colour. There were such kinds as Mrs. J. H. Jones, Fulton, *Beauté de Jardin*, *Golden Gem*, *Martha Harding* (orange occasionally splashed with red), *Fanny Bouchardet*, and *Rêve d'Or*. There was also an interesting collection put up by Mr. F. Taylor, gardener to Sir John Lubbock, Bart., The Gardens, High Elms, Farnborough, who was second. Mr. Kipling was again first in the class for twenty-four blooms, and the flowers were fairly good, especially those of *Belle Paule*, *Meg Merrillies*, *Comtesse de Beauregard*, *Progne*, *Boule de Neige*, *Golden Gem*, *Roseum superbum*, and *Mme. Cabrol*. The flowers of Mr. R. Falconer Jameson, Hesse, Hull, who was second, deserve a note for their freshness and good quality, also those of Mr. Sullivan; in truth, this was the best class in the show, and contained a few fine flowers. Mr. J. Kipling headed the list in the class for twelve blooms, and also for twelve flowers of any Japanese varieties, Mr. R. Phillips, The Deodars, coming second, and Messrs. H. Cannell & Sons, of Swanley, third. Mr. Phillips gained the first prize for six blooms, showing *Gloriosum*, *Meg Merrillies*, *Mme. C. Audiguier*, *Ralph Brocklebank*, *Thunberg*, and *Belle Paule*. Extra prizes went to Messrs. J. Brown and R. Miller, Shoreham.

In a mid-winter exhibition like this, as much aid is sought from Chinese *Primulas* and *Cyclamens* as from *Chrysanthemums*. The bank of Chinese *Primulas* from Messrs. Cannell and Sons, of Swanley, was sufficient evidence, if any were necessary, that this gay winter flower has undergone marvellous changes since the type was introduced from China. We have every shade of colour almost, and especially in the pinks is there a delightful range of hues; the whites are purer than ever, and the crimsons are richer. *Pigmy*, deep maroon-crimson; *Beauty of Kent*, white, with a few crimson flakes; *The Queen*, lovely blush tint; *Princess Beatrice*, pale rose; *Duchess of Albany*, white; *Swanley White*, *Swanley Blue*, and *Cannell's Pink* are amongst the best of this superb strain. Three certificated kinds are described below. The plants are of strong growth, which is of as much importance as purity or brilliancy of colour in the flowers themselves.

Cyclamens were well shown by Mr. John May, St. Margaret's, Twickenham, who was first in the class for a collection, Mr. John Odell, Gould's Green, Hillingdon, second. Both strains were of great excellence, but it seems unnecessary to name varieties in the way that is now becoming common. Many of the named white *Cyclamens* are almost identical. If a flower shows some marked difference, then it is proper to give it a name, but not otherwise. Mr. Phillips showed twelve good plants in the class for these; also Mr. David White, Redlees Gardens, Isleworth, who was second. The Chinese *Primulas* of Mr. A. Carter, gardener to Alderman Evans, Ewell, and of Mr. Newell, gardener to Sir E. Saunders, Wimbledon Common, were a mass of flowers, both of single and double varieties. Blooms of *Primulas* and *Cinerarias* came from Mr. James, Farnham Royal, Slough.

In the miscellaneous department, besides the *Primulas* of Messrs. Cannell, foliage plants were exhibited by Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, Mr. Wm. Holmes, Frampton Park Nurseries, Hackney, and Messrs. J. Laing and Sons, Forest Hill.

Floral committee.—There were very few plants or flowers before this committee, which was held on the first day of the show. *Chrysanthemum Jersey Nugget* came from Mr. H. Elliott, Jersey, and was commended. Messrs. Cannell and Sons received a first-class certificate for each of the following Chinese *Primulas*:—

ECLIPSE.—A single variety of great beauty, the colour of the well-shaped flowers being of a rich crimson shade; the eye greenish. It is a variety that deserves to be recommended for its self colour.

EMPEROR IMPROVED.—The finest coloured variety amongst the single Chinese *Primulas*. It is of a striking carmine-salmon shade difficult to describe

with any accuracy; the bold flowers are borne in a large truss, and the plant is a sturdy grower.

BEAUTY.—The perfection of a pink-coloured single variety, the flowers resembling those of *The Queen* and of a soft shade.

A general committee meeting of this society took place at Anderton's Hotel, Fleet Street, on Monday evening, when, owing to the absence of the president, Mr. E. C. Jukes occupied the chair.

After reading the minutes of the former meeting, Mr. Holmes, the hon. sec., announced that he had received a letter from Mr. Sanderson, in which he intimated his desire to resign the presidency of the society. The letter, after referring to the length of time—more than forty years—that he had been connected with the society, his increasing years, for he had now long passed the age of seventy, and his need for ceasing to take an active part in the affairs of the society, was received with the profoundest regret by every member present. Much discussion ensued as to the probability of the venerable chairman being induced to alter his decision, but it was thought that there was little likelihood of his so doing. Upon the motion of Mr. R. Dean, the hon. sec. was empowered to write to Mr. Sanderson in the following terms: "That the committee had received with great regret the letter announcing his desire to retire from office, and most earnestly press him to reconsider his decision." It was resolved that a special committee meeting be held on Monday next to receive his reply, and in the event of an unfavourable one, to make some arrangements to appoint his successor on the occasion of the January meeting of the members of the society.

A vote of thanks was passed to Mr. Beavan for the admirable display of fruit and flowers that he had got together to decorate the tables with at the annual dinner. Mr. Beavan replied in suitable terms, and stated he was much indebted to those to whom he had applied for help in the matter.

The election of new members and Fellows was then proceeded with, the number now being 641. The Street (Somerset) Society was readmitted in affiliation. A list of special prizes for vegetables, offered by Mr. Deverill for competition at the next November show, was read.

The provincial show for 1889 had given rise to much correspondence with the local societies at Brighton, Hull, and York. It was considered important that the question should not be delayed longer than necessary, as societies were anxious to proceed with the compilation of their schedules, and a sub-committee, consisting of Messrs. Beavan, Castle, Dean and Geo. Gordon, with the officers, and having the same powers as the sub-committee had last year, was elected to carry through all details and report in due course. The settlement in connection with the provincial show at Sheffield was announced as being almost concluded, and it was expected that the result would prove to be a small financial advantage to the National Chrysanthemum Society.

Mr. Holmes next moved that, owing to applications from local societies to know the date of the national show in November, the meeting should decide when it was to be held, instead of deferring it, as is usual, to a later period of the year. It was resolved that it be fixed for Tuesday and Wednesday, the 12th and 13th of November.

Olearia Gunni.—The plant that goes by this name is *O. stellulata*. The true *O. Gunni* is a silvery-leaved plant with a more cupped flower. It is not so hardy.—W. E. G.

Names of plants.—*G. C. R. L.*—*Pyrola rotundifolia*. *J. Wilson*. 1, *Cypripedium macrocarpa*; 3, *Thujia occidentalis*.—*J. Fothergill*.—*Lycaste grandis*.—*H. H.*—It has the appearance of a *Dichaea*, but it is difficult to tell without flowers.—*G. B. W.* 1, *Ornithidium coccineum*; 2, *Calanthe vestita luteo-oculata*; 3, *Vanda lamellata Boxallii*.—*T. M.* 1, *Coleogyne pandurata*, quite out of season; 2, a very pale form of *Laelia anceps*; 3, *Dendrobium bigibbum*; 4, *Miltonia Russelliana*.—*Loane*.—1, *Odontoglossum Halli*; 2, *O. Ruckersianum*; 3, *O. Ernesti m-jus*; 4, *O. Coradinci*; 5, *O. asperum*.—*G. B. (Shenbrot)*.—Your flower is the true *Cypripedium Maulei*, and all your arguing will not make it anything else.—*Erskine*. 1, *Cypripedium Leucum*, a nice form, but we know of plenty better; 2, *C. nitidum*; your seedling appears to be *C. cardinale*; 3, *C. Boxallii*.

WOODS & FORESTS.

THE PLANE TREE.

(PLATANUS ORIENTALIS.)

In many parts of the country this fine tree is confounded with the common Sycamore, but the resemblance is so unlike in many important points, that it is not easy to understand how the two could be mistaken. The genus contains two species, namely, the Eastern and Western Plane, both of which are cultivated in this country, principally as ornamental trees. The Eastern species, *P. orientalis*, is indigenous to the east of Europe and other parts, where it is said to attain a large size, and is found in the greatest perfection on deep alluvial soil on the banks of rivers and small streams. Although it has been cultivated in this country for many years, yet it has never been planted to any great extent as a timber tree for profit, and this arises in a great measure from the fact that in many parts of the country, more especially on high exposed elevations, it is found to be deficient in hardiness. When planted, however, in deep rich soil and under favourable conditions, it makes rapid progress, attains a large size, and occupies a high standard as an ornamental tree. When fully developed the branches are wide-spreading and well clothed with large five-lobed leaves of a glossy light green colour. Under favourable conditions the tree occasionally matures its seeds in this country. The seeds are contained in small globular balls which hang from the branches or twigs like ornamental tassels, and as they are enveloped in a soft cottony substance they should be extracted and sown broadcast on well worked sandy soil.

After the seed is committed to the soil, should a spell of dry weather set in, I have found it to be an advantage to moisten the surface of the seed-bed. In good soil and under favourable conditions the plants should be removed from the seed-bed when one year old and planted into nursery lines, about 24 inches asunder and about 8 inches from each other in the rows. In early life the tree is of rapid growth, and in cases where strong specimens are wanted the plants had better be moved a second time, or even oftener as circumstances may direct. When the tree is cut down it produces suckers from the root left in the ground, and as these are capable of being used as layers it is also a speedy and successful way of propagating the tree. The timber of the Plane being of a hard firm texture when fully matured, is used for similar purposes to that of the Sycamore, and when clean grown and of average size brings equally as good a price as that species. Few trees are better adapted for planting as specimens upon the lawn or elsewhere when the site is moderately sheltered. It delights in a deep rich soil, moderately damp, but free from stagnant water. When planted under such conditions the Plane soon establishes itself, and from the large size of its foliage and wide-spreading habit it forms a very attractive and highly ornamental specimen. It is a capital subject for planting in smoky districts about large towns, and from its spreading habit of growth affords an agreeable amount of shade and shelter along the sides of streets and public roads. When planting it in such places particular care should be taken to have the ground properly prepared by removing any stiff plastic clay or poor, hard, inorganic matter where it occurs and substituting good rich loamy soil in its place. Trees intended for standards should always be prepared and trained as such during their nursery career by frequent transplanting, removing the side

branches to a distance of about one-third the height of the tree, cutting off rival leaders at the top, and pruning back any rambling branches.

The Western Plane (*P. occidentalis*) is indigenous to North America, and is said to have been introduced into Britain about the year 1630. The contour and general appearance of the tree are very similar to those of the eastern species. In its native country it grows in deep rich alluvial soil on the banks of rivers and lakes, where it attains the size of a first-class timber tree. In this country it is not so hardy as the Eastern Plane, yet some fine specimens are to be found here and there throughout the country, and in Ireland it appears to be quite at home and attains a large size. When fully established the outer bark gets gradually detached from the stem, thus imparting rather a rustic appearance to the tree. In this country it is generally propagated by cuttings and layers; the former should be inserted in autumn in sharp sandy soil, the general nursery treatment being similar to that recommended for the former species. Although this species is liable to be occasionally seared by late spring frosts, yet in places where it succeeds I have found it to be of a more rapid growth than the eastern species, and planters who are fond of variety should give it a trial. J. B. WEBSTER.

FORESTRY IN SCOTLAND.

At a recent meeting of the Royal Horticultural Society of Aberdeen, the chairman, Mr. James Murray Garden, made some interesting remarks, from which we extract the following: "Regarding arboriculture, he said it had not been so profitable as market gardening, and consequently during the last twenty years the area in nurseries had scarcely increased at all, and at the present moment there were only 12,000 acres in cultivation. The cultivation of trees was one of the most delightful occupations they could possibly indulge in, and this was a question also that ought to occupy their attention as one of national importance. In Germany they had 30 per cent. of the area of that great empire in wood; they had a forestry department of the State; they had trees cultivated in rotation as if they were crops; they had a vast army of scientific men trained in efficient colleges devoted to that purpose alone. If they went to France they would find the same thing on a smaller scale. He should also have mentioned Austria, where 30 per cent. of the country was under wood. In this country we had not 4 per cent. under wood; and he was perfectly satisfied that if Government were to take the question up—if instead of quarrying, as they always did, down to the foundations of the Constitution to see what like they were, if in place of constantly amending the Legislative machine, they were to take the machine they had, and set to work to adorn and beautify the face of the earth, they would do a great deal more good than by constantly talking of more men and more votes. Scotland at one time was not so far back, and Parliament in former times did pay some attention to this question—the forestry of the country. So long ago as 1457 the landowners were ordered to plant trees and to sow Broom. Sixty years later Parliament had to record, in 1503, that the wood of Scotland was entirely destroyed, and a fine of £5 was imposed on anyone who dared to cut a tree. Thirty years later, apparently, this deterrent or coercive measure had not the desired effect, and a more specific order was issued to landowners who possessed a certain size of estate to plant no less than 3 acres yearly, while the penalty for the third offence of cutting a tree was death. In 1661 the last legislation on the subject took place. A larger area was required to be planted by landowners, and, as an inducement for them to do so, the land so planted was free from taxation for nineteen years. From that day to this there was not another Act of Parliament on the subject. Our own colonies had got before us in this matter. The destruction

of forests in Victoria and New Zealand had awakened the attention of the Colonial Legislature, and Acts for the encouragement of planting were passed, bonuses being given; schools of forestry were established; the further cutting of timber had been stopped; and in place of cutting, planting went on. He did not see why our Legislature should not take up this subject again, and why they should not spend money in establishing schools of forestry, and in promoting the planting of waste lands. Another aspect of this question was this, that if they could create a profitable industry they would provide healthy employment to an enormous number of working men going at that moment in the towns with their hands in their pockets. Our social system had come to this, that unless new outlets were found for the labour of the country, there would be serious danger to the Commonwealth.

It appears from a recent issue of the *Southern Lumberman*, published in Nashville, that the soft, spongy wood of the knees, peculiar growths upon the roots of the Southern Cypress (*Taxodium distichum*), is sometimes manufactured into razor strops, which are pronounced more effective than the leather-covered, stiff strops in general use. It is necessary, however, to keep them protected from dust, which adheres readily to the soft wood, and soon becomes embedded in the grain, ruining it for this purpose.

MR. C. S. BURT, president of the Bourbon Lumber Company, of Baton Rouge, La., lately informed a correspondent of the *St. Louis Lumberman* that his company are at present dragging, from a swamp to one of their mills, a number of Cypress logs felled by General Jackson's army in 1812, and used at the time for closing the Manchac River. Mr. Burt says the bark and sap have rotted off from the logs, but that the heart wood is as good as ever, and the finest quality of lumber is obtained from these logs. The *St. Louis Lumberman* has on exhibition at its office a Cypress picket top from Baton Rouge, La., which was exposed to the weather sixty-three years without showing marked signs of decay.

Lectures on forestry.—We understand that during the Lent term Professor Boulger, F.L.S., F.G.S., will deliver at the City of London College, White Street, Moorfields, E.C., a course of ten lectures on forestry on Friday evenings, commencing January 11, at 8 o'clock. Practical demonstrations in the country will be given during the spring.

Text books recommended: Hough's "Elements of Forestry," Crosby, Lockwood & Brown's "Forester," Blackwood and Son; Bagnier's "Elements of Sylviculture" (Translated by Fernandez and Smythies), W. Rider and Sons. *Syllabus: Climate and Trees, Land Suitable for Arboriculture, The Draining and other Preparation of the Land, Nurseries and their Management, Planting Operations, Thinning and Maintenance, Felling and Barking, Timber Measurement, Management of Coppice, The Distinctive Characters of the various British Timber Trees.*

Roadside trees.—In answer to J. L. Mansell in THE GARDEN, Dec. 22 (p. 592), should there be a prospect of the trees attaining anything like a fair size, 15 feet apart, I think, would be rather close. The trees should be planted at a distance apart of 18 feet, which will allow a space of 9 feet for each tree to develop its side branches, and thus form fine well-furnished specimens for ornament, shelter, and utility. I have sometimes planted such trees at a distance apart of 20 feet, and in cases where the soil was of a rich texture the results in every way proved highly satisfactory.—J. B. WEBSTER.

"The Garden" Monthly Parts.—This journal is published in monthly bound Monthly Parts. In this form the enhanced plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d., post free, 1s. 9d.

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London: 37, Southampton Street, Strand, W.C.

No. 896. SATURDAY, Jan. 19, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NEW, RARE, AND DESIRABLE FRUITS.

THE above is the heading of a new catalogue now before me, but, considering that a great number of practical horticulturists at the present time are endeavouring to reduce the size of fat lists by weeding out the inferior and making prominent superior species and varieties, it is just questionable as to whether we should recant or pray for protection from kind friends ready and willing to speed our way to fortune. Our new catalogue starts with an outdoor black Hamburg Grape, hardy enough to produce hundreds of tons of luscious fruit even in the north, whilst in the south, planted and trained upon the French system, it will form splendid vineyards which will throw our miserable cider orchards into the shade and convert our barrels into wine-pipes. Where raised or when certificated the vendors do not say, but this is a small matter, and should not check for one moment the jubilant time which Grape consumers have before them.

Passing over Pomegranates, the Date shrub or Jujube—whatever that may be—and the Grape fruit, a fruit much larger than an Orange and smaller than a Shaddock, we come to a dead stand at the crimson Orange, a seedling from the Moragne Tangerine, which produces fruit of a deep red colour and about the diameter of a cup; it has leaves nearly the size and shape of those of the sweet Orange, but is easily distinguished from the Mandarin. The stock being limited, would-be purchasers having half a guinea or a guinea to spare should lose no time in ordering plants, if only for comparison with the old-fashioned Mandarin. Hardy Grapes having thrown a cider Crab Apple and *Eriobotrya japonica* out of the running, they may be left to their fate; not so the black Gooseberry, a cross between a Gooseberry and a Black Currant, and so productive that a three-year-old plant will produce 30 lb. of fruit the size of small Cherries. I should like to say more about this sable mule, but having so many grand things ahead, I must rush forward to a new novel Orange having a transparent green skin when ripe, and pink pulp that can be seen through the skin. Independently of the fact that it is so delightful to be able to see through a green transparency, cultivators must be informed that this Orange at one time was held in such high esteem, that anyone found growing it without permission from his chief was liable to decapitation. How grateful the present generation of horticulturists should feel when they learn that this cruel chief and his Orange may be shunted to Jericho, for have we not a black Apricot, somewhat resembling a Plum, neither an Apricot nor a Plum, but principally the former, hardy, early, first class, and a novel addition to our English dessert fruits. Still moving amongst novelties, a black Raspberry, a white Black Currant, and a coreless Blackberry must have a line, especially as the latter persists in bearing heavy crops every year, no matter whether the season be hot, cold, wet, or dry. Pioneer and Perpetual Beauty, two perpetual bearing Strawberries, first in and last out, meet a long-felt want, but stock of the latter being extremely scarce, it is to be feared that some time will elapse before the supply equals the demand for an article calculated to

throw Beach into convulsions, whilst giving to the good housewife a joy that shall last for ever. This small list of novelties should satisfy the collector of soft fruits, but as yet nothing has been done for the orchardist, always ready and willing to invest in an Apple that will beat an Orange Pippin or a Pear superior to a Josephine. Well, here they are: a Sultana sort of Apple which very wisely does not trouble about having a core, simply because it has no seeds to put in it; but what a treasure to the housekeeper who has to prepare Apple jelly or is tied to time when manufacturing Apple dumplings. This seedless Apple, we are assured, should be in every collection, for not only is the sub-acid flavour first class, but it keeps good until late in the season. Last, but not least, comes that grand Pear, Christmas Number, fortunately not too late to enable the editor to convert his list of twelve sorts into a baker's dozen. Each fruit is 6 inches long and about 4 inches in diameter; flesh melting, sugary, with no acidity; skin green, with a lovely red check; tree vigorous and prolific. All who like a superior eating Pear at the Christmas festivities will find this more enjoyable than the general run about this time. Specimens of the preceding will be sent to Chiswick when Mr. Barron has put the gardens in working order. W. C.

ROSE GARDEN.

T. W. GIRDLESTONE.

NEW ROSES OF 1888-9.

THE new Roses for the coming season have once more been announced. The list does not differ much in point of length from its predecessors, and appears likely to prove of average interest. Several raisers whose seedlings are now generally purchased, as a matter of course, are represented, and some of our native growers are sending out new Roses which, as far as they have been seen at present, will not fail to maintain the well-deserved reputations of their respective raisers.

The following list of Tea and Noisette varieties is a tolerably complete one, and includes the productions of nearly all the well-known raisers. The varieties are all described as vigorous growers with large, full, and well formed flowers, except where otherwise specified:—

TEAS.

ABBÉ THOMASSON (Veuve J. Schwartz).—A climbing Tea; flowers of moderate size, in clusters, salmon colour, paler at the edges, coppery centre.

ADELE DE BELLABRE (Ducher fils).—A variety of erect habit; flowers peach colour, shaded with deeper red and with yellow base to the petals, reverse of petals pale rose, veined with bright rose. Certificated at Lyons.

BARONNE HENRIETTE DE LÉW (Nabonnand).—Flowers of moderate size, in clusters, of a delicate rose colour, shaded with golden yellow towards the centre, reverse of petals brighter rose.

BURNERT FRIDOLIN (Bernaix).—A climbing Tea with fresh carmine flowers, shaded with brighter red, the petals having a pale yellow base.

CAPITAINE LEFORT (Bonnaire).—A plant of erect habit; flowers extremely large, in colour purple, reverse of petals China rose.

CARMEN (Dubreuil).—A Dijon Tea with flesh-coloured flowers passing to straw colour, the petals being crumpled or wavy at the margins.

CHARLES DE THEZILLAT (Nabonnand).—A variety of erect habit, the large-petalled flowers being of a creamy yellow colour, shaded with chamois-yellow towards the centre.

CLIMBING NIPHETOS (Keynes, Williams and Co.).—A vigorous climbing sport from Niphetos, but

with flowers identical with those of the type. First-class certificate of the Royal Horticultural Society.

COMTESSE JULIE HUNYADI (Soupert and Notting).—Flower Naples yellow, shaded canary; petals margined with rose-lake.

EDMOND SABLAYROLLES (Bonnaire).—Habit very erect; flowers of medium size, peach-yellow in the centre with orange shades, bordered with bright rose, the whole flower becoming suffused with rose colour when fully expanded.

EMILIE VLEBERGHS (Soupert and Notting).—Flowers of medium size, straw-yellow, shaded with rose-madder.

ERNEST METZ (Guillot).—Flower solitary, carried erect, stiff-stemmed, opens well; colour tender carnation-rose, brighter in the centre, deeper on the reverse side of the petals.

FRANCISCA PRIES (Pries).—Flower rosy white, centre coppery, outer petals washed with rose; of fair size, cup-shaped, very fragrant and free.

FRANCISQUE MOREL (Liabaud).—A Dijon Tea, seedling from Mme. Berard; flowers of fair size, cupped, white, with yellow centre.

G. NABONNAND (Nabonnand).—Tender rose, shaded with yellow, very large petals.

JOSEPH METRAL (Bernaix).—Petals wavy and recurved at the margins, crumpled and crimped in the centre, of a dark magenta colour, passing to cherry-red, shaded with purple.

LOUIS GUILLAUD (Nabonnand).—A climbing Tea; flowers imbricated, pale rose with yellowish base.

MME. JULES CAMBON (Bernaix).—Of moderate growth; flowers fresh carnation-rose colour, margined with variable shades of carmine.

MME. MAGONETTE (Soupert and Notting).—Flowers of medium size, chrome-yellow, tinted with red.

MME. PIERRE GUILLLOT (Guillot).—Flowers generally solitary, erect, opening well; colour coppery orange at the base, becoming paler towards the margins of the petals, which are bordered with rose, the reverse yellowish white, very fragrant.

MARIE PAVIC (Nabonnand).—A globular rose-coloured Tea, the reverse of the petals shaded white.

MARIE ROUSSIN (Nabonnand).—A Dijon Tea with erect, clear chrome-yellow flowers, said to be as free as the parent.

MONSIEUR DESIR (Pernet père).—A Dijon Tea, with crimson flowers, nearly full, often shaded with dark violet.

MRS. JAMES WILSON (Alex. Dickson).—A very beautiful Tea, with deep lemon-yellow flowers margined with rose, and highly fragrant. The habit is vigorous and branching, the flowers being carried erect on stiff stems, and lasting well owing to the great substance of the petals.

NARDY (Nabonnand).—A Dijon Tea, with globular salmon-yellow flowers, apparently much in the way of the parent.

P. RIFFAUT (Nabonnand).—Flower bright rose, imbricated; a climbing Tea.

ROSE ROMARIN (Nabonnand).—An immensely vigorous climber, in habit resembling Cloth of Gold, from which it is said to be a seedling; flowers large, semi-double, erect, colour bright red with coppery base.

SAPPHO (Wm. Paul).—A vigorous and hardy Tea that produces a profusion of fawn-coloured flowers of great substance and of good form; the petals are of a deeper yellow at the base, and sometimes suffused externally with a rosy tint. This handsome Tea was finely exhibited at the Temple show of the Royal Horticultural Society. Two first-class certificates.

SECRETAIRE POË (Nabonnand).—A climbing Tea with solitary, erect, globular flowers; colour bright red, with yellow base.

SOUVENIR D'ESPAGNE (Pries).—Flowers reddish-orange, on an orange-yellow ground, margined with rose, of medium size, cupped, very fragrant, and fairly vigorous.

SOUVENIR DE SARAH PRINCE (George Prince).—A pure white sport from Souvenir d'un Ami, retaining all the good qualities of vigour and freedom of the type, but appearing, as exhibited in June, 1888, even finer in form and finish, and likely to take rank as one of the most beautiful white Tea-scented Roses. Several first-class certificates.

THERESE DESCHAMPS (Nabonnand).—A red Tea, sometimes margined or lined with white, the flowers large, semi-double, and produced in clusters.

NOISETTES.

HERODIADE (Brassac).—Flowers of good size, colour chamois, darker in the centre, and sometimes lighted with shades of bright rose; very free.

PRINCE CRETWERTINSKY (Nabonnand).—A climber producing freely large, well-formed flowers of a clear straw-yellow colour, deeper in the centre.

PRINCESSE MARIE DE LUSIGNAN (Perny).—Of dwarf habit, producing flowers of medium size, but well formed, colour straw-yellow; a pretty bud Tea.

HYBRID TEAS.

COMTE HENRI RIGNON (Pernet fils, Ducher).—Of vigorous, erect, though not tall, habit, flowers solitary, stiff-stemmed, of good size, in colour coppery-yellow, centre salmon-rose, with a golden shade passing to flesh-white; very free and perpetual. (Said to be raised from Baroness Rothschild and Ma Capucine, and, judging from a good coloured plate in the *Journal des Roses* and from the description, the novelty seems likely to prove a variety of much the character of Gloire Lyonnaise, but of a different colour.)

ESMERALDA (Geschwind).—Flower flesh-white, with a lilac shade, cup-shaped, erect; moderate grower.

KOBOLD (Geschwind).—Flower bright crimson, shaded purple, medium size, cup-shaped; growth moderate.

Tea Rose Madame Hoste.—This is a Rose of great promise, and, judging from our own experience, it will take rank with the most valuable of its class. It possesses a good constitution, is strong, but not coarse in growth, and has abundant dark green foliage. The bud is larger than that of *Perle des Jardins*, and of rounder, yet finely pointed form, while its beautiful lemon tint is most pleasing. Not the least of its charm is its beauty when fully open. Within the past few days flowers have developed here which rival the largest and most perfect *Maréchal Niels*. There is little doubt that it will prove a valuable bedding variety; and as to its suitability for forcing under glass there can no longer be a question. M. Guillot, to whom we are indebted for this magnificent variety, has once more placed the lovers of fine Roses under grateful obligation to him.—*Garden and Forest*.

Egyptian Roses.—At the meeting of the Royal Society of Belgium, on Nov. 10, 1888, a paper on the remains of Roses discovered in the cemetery of Arsinoe, Fayoum, Egypt, was read by M. Crépin. Nine flowers were examined by M. Crépin, all more or less imperfect, but all belonging to one species. So far as the imperfect nature of the material permitted M. Crépin to form an opinion, these fragments were most nearly allied to a Rose cultivated in Abyssinia in the vicinity of religious buildings, and described by Achille Richard under the name of *Rosa sancta*. *Rosa sancta*, it appears, is very similar to *R. centifolia* or *R. gallica*. M. Crépin considers that *Rosa sancta* was not an aboriginal native of Abyssinia, but a cultivated form introduced at a very remote period. So far as M. Crépin knows, there is no form of *R. gallica* now known which corresponds exactly with the *Rosa sancta*. As to the Roses found in the Egyptian tombs, M. Crépin thinks they may have been derived from plants cultivated in Lower Egypt, perhaps near the place where their remains were discovered. The Egyptians are known to have grown Roses, and even to have supplied them to Rome. No Rose grows wild in Egypt, and the Rose found in the tombs was, in M. Crépin's opinion, no more wild than the Abyssinian *Rosa sancta*, but was probably

derived from Italy, Greece, or Asia Minor, where *R. gallica* grows wild. The only native Rose in this part of Africa is one that grows on the mountains of Abyssinia, *R. abyssinica*, and which is held to be a variety of *Rosa moschata*. Dr. Schweinfurth adds, in a note to M. Crépin, that the tombs from which the Roses were obtained are referable to dates between the second and the fifth century after Christ. They are the same tombs in which were found the encaustic portraits which have lately been the object of so much attention. The Roses were threaded on wire as in a garland, and were discovered by Mr. Flinders Petrie.

THE ROYAL HORTICULTURAL SOCIETY.

HAVING recently retired from official connection with the Royal Horticultural Society and taking an interest in its welfare, I give you my views of its position and prospects. There is a good deal of truth in the recent comments you have published, but I believe it will require more decided action than any yet suggested to put the society into a permanently sound financial position, if such a consummation be possible. If ever a corporation or society required management on the one-man principle, the Royal Horticultural requires it. King Solomon's maxim, that "in the multitude of counsellors there is safety," certainly does not apply in the case of the Royal Horticultural Society. If the Royal Horticultural Society were under the firm guidance of one able man who would insist on having a free hand and no trifling, and who could upset the present régime of "red tape," there would be great hope for its future, especially at the present moment, and in view of the past year's successful financial result—a result mainly obtained by the accession of nearly 700 new Fellows, whereby an equilibrium for the first time for many years has been established on the year's working.

I should think that in the halcyon days of the society when the Prince Consort was president, the present *de facto* managers of the Royal Horticultural Society and those who most loudly assert themselves in connection with it would have played a very small part in its affairs. The Fellows of the society have hitherto been much too supine; they have allowed their affairs to be mismanaged. It may possibly be difficult to obtain gentlemen interested in horticulture to take a practical interest in the society and serve on its committees, but more endeavour should be made to obtain them and more encouragement given to them. The present disproportion on their committees between nurserymen and gardeners as distinct from gentlemen, properly so called, is very marked. At present the meetings of the Royal Horticultural Society's committees are more used as mediums for big advertising than for any other purpose; it is quite certain that this was not the original aim or *raison d'être* of these meetings, but as there is hardly any inducement for any persons but nurserymen to send their flowers, &c., amateurs have practically ceased doing so, the notable exceptions being Orchid growers.

Some people are now endeavouring to get up a spurious excitement about the society's greatest incubus—Chiswick, and to indulge to the fullest extent this hobby, they would deprive the London Fellows of any advantages in the way of floral meetings unless they were prepared forsooth to go to Chiswick—a most inconvenient and melancholy locality—where it is proposed to concentrate all the society's work! A meeting of the Fellows was specially called for the consideration of the Chiswick question and gave no uncertain decision. The move-

ment in consequence has been for the present "scotched," not killed, the party interested being a noisy and persistent, if not an influential, one. If the point be eventually carried, it will inevitably result in a large secession of Fellows. There is no doubt that Chiswick requires to be treated, and promptly, in a much more liberal manner, otherwise the sooner it is handed over to the tender mercies of Kew the better. At present it is in a pitiable state, decay and dilapidation being on all sides too visible, not by any fault of its well-known superintendent, who does his utmost with the limited means placed at his disposal, which means, however, as they already represent an annual dead loss to the society of about £1000 per annum, cannot well be much increased, the society being still in too precarious a position to indulge in much beyond actual necessities.

In regard to this question of expense, an important decision was arrived at by the Fellows this year which may be of serious import in the future. It was decided to admit Fellows to most of the privileges on payment of one guinea, and this reduction, although it has so far brought an accession of new members, will also be the cause of future loss, as many of the existing Fellows have illiberally taken advantage of the new bye-laws to reduce their subscriptions. Now, bearing in mind that it is proposed again to incur the expense of issuing the Journal, and that other proposals, all of which mean expense, are in view, it may be found that this payment of one guinea will barely cover the expense per head of all these schemes and additional advantages, so that there will in all probability be no surplus from guinea Fellows to meet other outgoings, which are considerable, and the consequent result must be a gradual return to the financial position of 1887. What will have to be done then? Chiswick will have to be dropped, as it is the "privilege" of the society which gives the least satisfaction to the general body of Fellows for the heavy expenses associated with it.

Finally, what the society at present is most urgently in need of is a spirit of enterprise in its management. It requires to be judiciously advertised. Splendid meetings, such as that held last year, and which, probably, will be held annually in the future at the Inner Temple Gardens, are of more value in keeping the Royal Horticultural Society before the world than dozens of meetings at the Drill Hall, where the greatest uncertainty at all times exists as to whether there will be any display of flowers worth a visit. More practical men, and of high business as well as social standing, should be on the council—men whose constant aim would be the advancement of the society and the interests of horticulture, not the ventilation of pet hobbies. The question to be solved is not "what can we save?" as that is neither the end nor aim of either life or of the Royal Horticultural Society, but, "How can we attract attention to our society, and thereby, getting a large accession of Fellows, make money, and thus be enabled to benefit horticultural interests?" These questions would be more easily, rapidly, and satisfactorily answered and results accomplished by one man in control as at Manchester, where Mr. Bruce Findlay has shown the Royal Horticultural Society an excellent example—than by a system of management such as the present and past has been; and this the Fellows and council will probably discover in time, but possibly too late to be of any practical use.—C. J. GRAHAME.

— There is no doubt whatever that this society has of late years been a failure, and its only chance

of success is for us to go back to first principles, and, while welcoming the trader and the botanist, the management must be vested in the hands of gentlemen and their gardeners, as was originally the case. The idea of granting medals and other awards to nurserymen for attending to their own business is a wrong one altogether. The very modern practice of allowing tradesmen to solicit orders and to annoy visitors with their lists and catalogues at our floral exhibitions is a disgrace to any horticultural society, and should not be for a moment tolerated by the Royal Horticultural Society of England. If the Horticultural Society cannot hold its own as representative of the gentlemen of England and their gardeners, it can do nothing. If it cannot lift up and refine the gardener, its functions are past. Its true mission is with garden owners and gardeners first and always, and if it can do these any true service, the traders may safely be left to take care of themselves.—A GARDENER.

The Scientific Committee.—Kindly allow me to say, in response to Mr. Henslow, that my former note had no reference to science generally, but only to the "scientific" committee of South Kensington, although it is not a bad move on Mr. Henslow's part to attempt to identify his committee with the achievements of science and then defend it from that point. The committee clearly did not know the common fact that under certain circumstances of age and situation Oak timber gets disintegrated, as it were, in its tissues, and becomes unfit for purposes where strength and elasticity are wanted, and Professor Ward was in the same fix, although he was getting near it, but the "granular" appearance so common in sawn-up old Oak and other timber appeared to be new, even to him.—SAWMILL MAN.

"Scientists" and others.—It is all very well for Mr. Henslow to claim the art of hybridising on the part of the scientists (Grew, 1628—1711), but the Arabs knew it centuries before, and it was their usual practice to cut the male spadices of the Date Palm and carry them long distances to their groves of fruit-bearing (female) trees. The "scientific" botanists actually opposed hybridising, and even in our own time, too, an Exeter surgeon, Mr. Harris, put Dominy up to the method only thirty or forty years ago. Even then many botanists threw cold water on the practice, affecting to be afraid of the confusion that would ensue. Scientists, as a class, oppose all truth and light unless they come through windows of their own contriving. No science, no philosophy, no human understanding can have any real aim beyond the one great question of what is right and what is wrong, *i.e.*, between truth and untruth.—CURATOR.

NOTES OF THE WEEK.

A pretty arrangement is pink Hyacinths and Lilies of the Valley. Such an effect may be seen in the greenhouse at Kew.

Lachenalia Nelsoni.—Flowers of this beautiful Lachenalia come from Mr. Allan, of Gunton. The colour is a clear golden yellow. It is the finest of its class.

Irish King Daffodil comes from Mr. Hartland, of Cork. He has it flowering both under glass and out of doors. It is a trumpet variety with a rich yellow chalice, paler segments, and sweet fragrance.

Dendrobium crassinode Barberianum is a well-marked form of the type, over which it has great advantages. Its flowers are larger, more massive, and the stems stouter. The colour is also richer. We have few more beautiful Dendrobium crassinode and its progeny. The type and Barberianum are in bloom at Kew.

Freesias at Kew.—Visitors to Kew should not miss seeing the group of *F. refracta alba* and *F. Leichtlini* in the greenhouse at Kew. The plants are well grown, and produce a mass of flowers that scent the house. We should like to see more of the easily grown Freesias in private gardens. A coloured plate of them was given in THE GARDEN for July 29, 1882.

Orchids and the fog.—A curious effect of the recent fogs is seen on a large spike of *Phalaenopsis Schil-*

leriana at Kew. The fog came when the flowers were in bud, and just caught the sepals. These are all pale brownish in colour, and have a singular appearance against the unharmed petals and lip. The damage to Orchids by fogs this season has been enormous.

Daffodils in pots.—We are reminded of the beauty of Daffodils when grown in pots by a small collection now flowering in the alpine house at Kew. The varieties comprise the early pallidus *præcox*, *incomparabilis*, *aurantius plenus*, double Golden Phoenix, *obvallaris* (Tenby Daffodil), Leedsi, Campnerelle Jonquil, *N. gloriosus*, and the lovely white Hoop-petticoat *Narcissus* (*N. corbularia monophyllus*).

Platyclinus uncata is one of the finest of its genus. *Dendrobium uncatum* is perhaps the name under which gardeners will know it best. It reminds one of *P. filiformis*, and has a decided grace, especially when the plant is well furnished with the numerous slender, greenish yellow pendent racemes. It is in bloom at Kew, and is one of the introductions of the Messrs. Low, who found it in the Malayan Archipelago and Philippine Islands.

Iris reticulata from Gunton Park.—Mr. Allan, of Gunton Park Gardens, Norfolk, sends a few blooms of the Violet-scented *I. reticulata*, gathered from plants grown in pots with little or no forcing. The colour was far richer and the fragrance more powerful than in those flowers from the open. At Gunton the netted Iris is also planted largely in the grounds, and found proof against rabbits. Why do not more use it in the wild garden? It is the most beautiful of all early Irises.

Lycaste Barringtoniæ is a species introduced from Jamaica as far back as 1790, and figured in the B. R., 1206, under the name of *Maxillaria ciliata*. It resembles *L. lanipes*, and is one of those handsome Orchids that have become as rare as if only recently introduced. A plant now in bloom at Kew has large deep green pseudo-bulbs, at the base of which rise the flowers on a single stem. They are about as large as those of *lanipes*, greenish yellow in colour, with broad sepals and less conspicuous petals and lip. It is worth growing, and is stated in some books to flower in spring.

The Vanilla is fruiting well at Syon House, Brentford. In a house devoted largely to Bananas there is a specimen that has covered the glass partition between the compartments. One plant that is less shaded than the others fruits most freely, although the Vanilla does not as a rule bear well, and it is essential to artificially fertilise the flowers. Several bunches of the long Bean-like pods have been recently gathered for flavouring. This Orchid reminds us of the late Mr. John Woodbridge, who knew well how to manage it. This cannot be said of everyone who has attempted its cultivation.

Chrysanthemums at the National Chrysanthemum Society's mid-winter exhibition on Wednesday and Thursday week were not, as may be seen from our report, of much account; but nobody expected any other results, as the fogs and cold have done their work of destruction. There was a marked absence of incurved flowers, and this was surprising, as Princess Teck is exceptionally late, nor were there many flowers of such varieties as Fulton and others we know. There was a preponderance of *Gloriosum* and the ugly *W.* and *G. Drover*. Considering what the plants have had to undergo the last few weeks, it is astonishing that an exhibition of so large an extent could have been got together. The coming year promises to be as interesting to the Chrysanthemum grower as the past has been, and the centenary of the flower to be celebrated in 1890 ought to be a great event in the history of horticulture.

Hybrid Phalaenopsids are now five in number, and not the least beautiful is *P. Rothschildiana* that was shown last Tuesday at Westminster. We have to thank Mr. Seden, of the firm of Messrs. J. Veitch and Sons, Chelsea, for this and the remaining four. It is a hybrid between *P. Schilleriana* and *P. aphrodite* (*amabilis*, Lindl.), and shows the character of its first-named parent in the lip, and the *amabilis* type in the white sepals and petals.

The first to appear was *P. Harrietae*, then *Rothschildiana*, *intermedia*, *F. L. Ames*, *John Seden*, and, lastly, *Leda*. One of the most beautiful of all is *Harrietae*, a cross between *grandiflora* and *violacea*, two distinct parents, more so than in the case of *Rothschildiana*. The flowers of *P. Harrietae*, though small, have retained the exceptional beauty of *violacea*, and we hope to have similar crosses that will produce distinct results. Hybrid *Phalaenopsids* so far are few in number, but we prize what there are, and anticipate still richer treasures from the Chelsea nursery now that the early crosses are commencing to bloom.

Rock Cress (*Arabis procurrens*).—Both the green and variegated forms of this are extremely useful winter plants for the rockery. I find them quite indispensable, the green one for flowers, and the other for the bright little patches of colour. The common green-leaved form is certainly a remarkable plant. I never remember seeing it without flowers, and though these may be rather insignificant, still they are produced in such quantities as to attract attention. The other we grow chiefly for its foliage, which is very handsome. We never allow it to flower, as this seems to affect the variegation, and the plants sometimes become green altogether. It creeps over the stones, &c., making fine silvery drapery, which is always welcome in dull weather.—K.

The Venice Mallow (*Hibiscus Trionum*).—This very beautiful plant seems widely distributed or naturalised everywhere in tropical and subtropical lands. I saw it in great beauty growing on the hot shingly reaches and on old river beds in Borneo some years ago, and its beauty, as seen under a blazing sun, could not well be described. *Celosia argentea* now and then bore it company, and I have no doubt but that the seeds of both were washed about by the floods which occur during the rainy season, especially in the vicinity of the great mountains. I also saw it growing with a species of *Datura* on rubbish heaps near the Dusan villages, and with it *Rubus roseifolius* fruiting luxuriantly—the single-flowered type, not the double form now often met with in greenhouses, and even in the open air in Ireland near the sea.—F. W. BURBIDGE.

Lilium polyphyllum.—In July, 1887, you printed a note from me on this Lily then blooming in our Wisley garden with thirteen flowers and buds on a stem 5 feet 5 inches high. I asked for information from any reader who had seen the Lily flowering at home in India. Several of your readers were good enough to give their experience. I have just received some additional information on a card from Mr. Griffith, of Kotagiri, Nilgiris, who says: "You mention having thirteen blossoms of *L. polyphyllum* on one stem. I have never here had more than three, but another correspondent to whom I sent bulbs tells me he has had nine fine blooms on a stem. *L. polyphyllum* likes to be covered with snow for two or three months in the year, and here it only blooms, as it were, under protest, though it grows well if protected from sun. Mr. Huftelen, of New York, tells me also one of my *L. polyphyllum* bulbs gave him nine blooms on a stem."—GEORGE F. WILSON.

Primula obconica and floribunda.—When these plants were first introduced, it was thought that they might prove hardy in the open air, with or even without a glass covering. After two years' trial, however, it is a waste of labour and a certain method of getting rid of the plants to try them at least within the area of the London fogs. *P. obconica* is much harder than *floribunda*, and were the atmosphere in winter not so damp and stagnant it might survive, but, so far, it has been quite a failure. The very least of their requirements is a dry house, such as suits Cape plants, with just sufficient heat to keep frost at bay. We also tried them in a cold frame, and these were, if anything, in a worse condition than those in the open, owing, doubtless, to the closer atmosphere; the flowers, as well as the leaves, get covered with mould, and damp off in great numbers.—K.

Hyacinthus azureus.—This fine bulb, though of only recent introduction, has got fairly well spread through gardens, but will probably hardly

be appreciated as it truly deserves until it can be had in quantity. It is just now beginning to throw up its lovely spikes of azure flowers—a welcome sight out of doors just now when most things seem dormant. It forms a connecting link between the Hyacinth proper and the Grape Hyacinth, and is known in some few gardens still under the name of *Muscari lingulatum*. The flower-stem is about the same length as the broad, strap-shaped, reflexed leaves; the head dense and conical, the individual flowers large, and of a very pleasing tint. Bulbs of this plant were first introduced by Kotschy to the Vienna Botanic Garden about 1856, and from thence found their way to our own gardens. It increases quickly, and as it seeds freely, there can be no reason why this charming addition to our early spring flowers should not be as common as the Squills.

Hardy Lycopodiums.—In summer these plants are usually overlooked, so common-place do they appear among their gaily dressed neighbours, but just now they are not only full of interest, but are really beautiful as they carpet the ground with their snake-like branches. These Mosses are easily grown on peat beds amongst the dwarfed Rhododendrons, Kalmias, &c., and in such positions one finds them wild, nestling close up to stems of low bushes, and in the case of *L. alpinum*, *L. clavatum*, and others, we have found the strongest always in the very hearts of dense Heather bushes. These plants are both beautiful and interesting now, and are very much enhanced at flowering and fruiting time by their cones of golden pollen.

The cardinal Willow.—One of the brightest bits of colour we have ever seen during winter was lately observed in the nursery of Mr. Slocock at Woking. In a low-lying and wet portion of the nursery a large breadth of the cardinal Willow is grown for the supply of shoots for tying. The bark of this Willow exceeds in brightness that of our native Dogwood, and the effect of a mass is very telling. From all parts of the nursery, and from the hills above, quite half a mile away, the cardinal Willow was conspicuous. Apart from its use, this Willow should certainly be largely planted for ornament. It should be planted wherever there is a lake, and for fringing a small stream it would be equally as useful. Probably it would not be so effective in a large state, but even if planted for ornament the shoots could be cut annually, as they would prove very useful for tying.

Crocus lævigatus.—A pretty species near to *C. Tourneforti*, but abundantly distinct in the flowers, which vary from white to lilac, variously and distinctly feathered with purple markings. It usually flowers with us from about the end of October to near Christmas, but just now, with the present open weather, it is as gay as ever, and will last some time yet. This is a very hardy species, and well worth planting in quantity, as with every spell of open weather the fresh blooms shoot up like Mushrooms, and give no end of pleasure even in midwinter. Near to this is the rare *C. Cambessedesii*, a smaller plant, but so free-flowering as to warrant its being grown in quantity if corms can be had. It flowers usually from October to November, but these plants play all kinds of freaks under cultivation, and we are now just having the first of the *Cambessedesii* flowers. *C. Korolkowi* has also made a mistake. It usually flowers about the middle of February, but this year the flowers opened about Christmas, and are now in full beauty.—K.

Gardeners' Royal Benevolent Institution.—The fiftieth annual general meeting was held on Wednesday last at Simpson's, Strand, for the election of officers for the present year and to receive the report of the committee. The report and balance sheet were read by Mr. Cutler, the secretary, and both show that this institution is in a healthy condition. Fourteen pensioners more will now benefit by the funds, five being placed on by reason of their having subscribed from seventeen to forty years. They were Mr. John Allen, of Compton Bassett; Mrs. E. R. Anos, of Widmore, Bromley; Mr. W. Binder, of Rugeley; Mr. J. Harris, of Lichfield; and Mr. J. Mitchinson, of Truro. The elected candidates were John Slowe, W. Holah, Helen W. Lessells, Margaret Malcolm, George Read, C. Robin-

son, Elizabeth Kember, Sarah Naylor, and Charlotte Newell.

Winter Heliotrope.—This fragrant flower is almost the only thing in the garden that one can gather for the house, if we except a few straggling Christmas Roses or a bloom or two of the blue winter Windflower that the mild weather of the last two or three days has tempted out. *Petasites fragrans* is an excellent plant for naturalising in the wild garden, as it is too coarse for the border and increases rapidly to the injury of other subjects of a less vigorous constitution. The purplish white flowers are delightfully fragrant, more so than those of the plant from which it takes its popular name. It is the best plant now in the Royal Horticultural Gardens at Chiswick, where it has been established for many years.

CHRYSANTHEMUMS.

E. MOLYNEUX.

CHRYSANTHEMUM NOTES.

CUTTINGS that were inserted during last month and are intended to be grown for the production of large blooms or otherwise will now, for the most part, be struck. Attention should now be given them to prevent them becoming drawn up weakly, as this is most injurious to their future welfare. Weakly grown, attenuated plants cannot make such strong specimens as those well attended to in the earlier stages of growth. The results, if caused by inattention at this stage of the plant's growth, cannot afterwards possibly be satisfactory. It is at this time that careful attention reaps its own reward. Cuttings have not struck so readily this season as in the past one, owing to their weak state in many instances when severance from the plant took place. In many instances they present a sickly appearance far from healthy; the dull, sunless weather, too, is all against their rapid recovery. Therefore any attention that can be given them now will be time well spent. The cuttings where inserted singly in small pots and placed under hand-lights or a propagating case in a cool house should be turned carefully out of the pot, and if the roots are visible around the side of the ball of soil they should be stood in a light by themselves to receive more air. Those in which the roots are not visible should be placed by themselves, that they may be kept close for a few days longer until roots are more freely formed. The lights should be taken off these latter every morning for an hour to dispel condensed moisture, again wiping the glass dry in the evening; this treatment preserves a sweet atmosphere and prevents to a great extent damping of the points of the shoots and leaves. Those cuttings placed together in a separate light to receive air daily should be watered carefully, sufficient only being given to keep the soil moist. The frame should be tilted a little, increasing the air daily if the leaves of the plants do not flag until the lights can be removed altogether. Allow sufficient space between each plant that the leaves of one do not overlap those of the other. Some growers strike the cuttings in a cold frame pricked out in sandy soil over a layer of decomposed leaves, first filling the frame nearly full of leaves to bring the cuttings near to the glass. This is a capital plan where provision can be made to exclude frost and when a suitable place in a cool house is not available or hand-lights are otherwise engaged. This method of striking the cuttings may be practised more largely in the south of England than in the northern parts, as usually the frosts at this season of the year are neither so keen nor so long continued. As the cuttings show signs of growth air should be gradually given them until the lights can be entirely removed for a short time in the middle of a fine day.

Where the cuttings are struck three or four together in a pot—this practice, however, I do not recommend—they, as soon as well rooted, should be separated and potted singly into small pots and kept close for a few days until the roots commence to run into the new soil. I notice that a goodly number of cuttings this season look as if they would soon develop a flower-bud, and where this

occurs the point of the cutting should be removed at once, giving an opportunity for new growth to spring from the eyes below. When the cuttings develop this early bud formation it is much better to discard such if others of the same sorts are available, as there is a likelihood of such forming better plants than those which form buds so early. This early bud formation is often caused by taking the cuttings direct from the stem of the old plants. Provision will shortly be needed for the plants near to the glass directly they will stand the lights being taken off entirely without flagging. No better place can be found for them than on a shelf suspended from the rafters of the house from which the frost is excluded. In this way, the plants being nearer the top of the house, more air is able to play about them than if they were standing on the stages, and consequently some distance from the glass. In such a house as that described they are much better than in one where much heat is employed, growth being more steady and solid. If the house is not provided with shelves, temporary ones can easily be put up by suspending them from the rafters by means of stout galvanised wire and screws or nails. The shelves may be about 9 inches wide, according to circumstances, and on each side there should be a groove to run the water off to one end. Any plants standing underneath the Chrysanthemums are not then splashed by the water given to those overhead. On the shelves the plants should not be crowded, as it is far better, instead of growing so many that overcrowding has to be resorted to, to confine the number to a reasonable limit. A daily examination of each pot should be made to ascertain if water is needed; the pots being small and the plants receiving more air, they become dry sooner than when standing in the handlights; therefore extra attention is needed to supply them with water as required.

Chrysanthemum gloriosum has proved the best late variety this season, and occurred more often at the recent National Chrysanthemum Society's show at Westminster than any other. It was first shown by Messrs. J. Veitch and Sons, Chelsea, at the meeting of the Royal Horticultural Society, Nov. 9, 1886, and certificated. It is a flower of true Japanese character, average size, and with long, slightly twisted florets of a clear yellow colour. Everyone who grows late Chrysanthemums should have a few plants of *gloriosum*.

Chrysanthemum Moonlight.—I am afraid "H. Sandwich" (p. 10), is by no means alone in his experience with this variety. At one time I fully expected it would prove to be a very serviceable late variety, lasting, say, for another month or two. At Christmas we cut several fine blooms fit for exhibition, and these were much admired, both in wreaths and on the dinner-table, but all the late buds are either "abortive or deformed," and the plants will be cut down accordingly. It is very doubtful if *Moonlight* will ever be much grown either for exhibition or for conservatory decoration, and certainly not for marketing purposes.—I.

Chrysanthemum Jersey Nugget.—An idea seems to have gained currency that *Jersey Nugget* and *Temple of Solomon* are one and the same variety. Such, however, is not the case, as they are distinct both in colour and also in the form of the flowers. *Jersey Nugget* is a fine, full, regularly recurved Japanese variety, but *Temple of Solomon*, as I have always seen it and also grown it, is an ordinary reflexed variety, with the petals in the centre of the bloom, and very erect when the flower is fully grown. Another distinction, and one that makes *Jersey Nugget* a decided gain, is that it is a grand late variety, for when subjected to similar treatment it is quite five weeks later than *Temple of Solomon* and keeps in good condition well into the new year. HERBERT PARKER, *La Hougue Boëté, St. John's, Jersey*.

Chrysanthemum M. A. Le Mout.—I am not in a position to say if this variety named on p. 531 (Vol. XXXIV.) is the same as that sent here in 1885. Possibly it may be. The present is the first season that it has come under notice in a manner worthy to be classed amongst the new varieties.—E. M.

FRUIT GARDEN.

PEAR JARGONELLE.

We give an illustration of a Pear that is universally admitted to be one of the most agreeably flavoured of all the early varieties. It is included in our list of "Early Pears," and ample evidence of its value will be found in *THE GARDEN* of 1888, Vol. XXXIII., where growers from Scotland, Ireland, and England write of its merits. Mr. Barker, Hindlip Gardens, Worcester, says: "No other variety can be compared with Jargonelle in its season. Some take exception to it on account of its tendency to decay at the core before ripening. No early Pear is exempt from this fault, and the Jargonelle is not a greater delinquent in this respect than many other August and September varieties. We have a large tree of Jargonelle on a south wall, and in some seasons I have noticed this disposition to decay before ripening. The Jargonelle succeeds best when trained to the side of a house, or on the gable end of a building where there is ample room

1600, and without doubt before, it bore this name at Orleans, as may be seen from the catalogue that was published in 1628 by the Procureur du Roi, Le Lectier, of the trees of its remarkable orchard, established towards the end of the sixteenth century at Orleans. At page 4 of this small treatise may be found, classed among the fruits ripening during July or at the beginning of August, the Pear "d'Espargne." But even before 1600 one can prove the existence of this Pear in another part of France, at the port of Dieppe. The following passage taken from an article, inserted in 1842 in the second volume of the *Bulletin de la Société d'Horticulture de Rouen*, shows that it had been already propagated there in 1580:—

"There exists in the garden of M. Mengnot, at Pollet, outside the town of Dieppe (Seine-Inferieure), an espalier Pear tree, the oldest and largest that probably can be found in Europe. This is a tree of the Pear Cueillette or Epargne, grafted on the free stock; it is planted against a wall 8 mètres high and in a clayey soil. The stem is 1 mètre in thickness; each lateral branch is 70 centimètres in diameter; it is 30 mètres in width, and is in a southern exposure. Its growth is vigorous, and the tree bears each year from 3000 to 4000 Pears. Its date of planting, written on a stone placed in the

corruption of Poire d'Espagne (vol. xi., p. 142). This opinion has recently influenced one of our pomologists, who, adopting it, has supposed that this Pear came originally from the north of Spain. To us these two opinions are inadmissible. The Pear that since 1628 Le Lectier called 'Espargne'—a word then synonymous with treasure—must be of French origin, and have come either from Orleans or Normandy, its common name in the last mentioned province being Cueillette. Our idea is also that of M. Jahn, one of the most competent German authors on the same subject (see 'Illustrirtes Handbuch der Obstkunde,' 1860, vol. xi., p. 195, No. 86). No Pear tree better deserved than this such flattering names which in our day it still fully justifies, since in 1858 M. Decaisne wrote in the first volume of his 'Jardin Fruiter du Muséum,' 'L'Epargne is very abundant in the Paris markets, where choice fruits of it are generally sold at 25 francs the hundred;' and in 1866 M. Mas, publisher of the 'Orchard,' said, in describing it, 'I have known a tree of this variety the crop of which often realised as much as 120 francs.'"

Let us add, in conclusion, that among the other names of this Pear, Grosse Cuisse-Madame is one of them. We have described the name Grosse Cuisse-Madame among the synonyms of Epargne, this



Pear Jargonelle. Engraved for *THE GARDEN*, from fruit sent by Mr. Barker, Hindlip Gardens.

for extension, for, being a strong grower, it is impatient of the knife, and not until the tree has covered considerable space and the spurs have become old will good crops result. By far the finest samples of this variety which I have seen were from two very old trees in a Suffolk garden. I have assisted in gathering bushels of fine Pears from these grand old trees. This kind when grown in different aspects will produce a good succession. Only once have I seen it growing as a standard, and in this instance the tree was carrying a good crop. We have two bush trees here which bear freely, but the fruit is smaller than from those grown against the walls. Our trees are all on the Pear stock. Judging from the number of dishes of Jargonelle exhibited at the horticultural shows in this locality, it is deservedly popular." The following particulars from Leroy's "Dictionnaire de Pomologie" may be interesting to many:—

This Pear has good right to be considered one of the oldest in the French pomology. Our gardeners have cultivated it for about four centuries. Its first name appears to be that under which it is still known in France to-day—Poire d'Epargne. Since

wall, was 1580, in the reign of Henry III. The property where it was found planted was formerly a hospital. This venerable tree is taken care of by the owners, so that even now a long life is assured it."

Evidently we have here the origin of the Pear Epargne, and also probably one of the first fruit trees that has been grown as an espalier. At the same time it is believed that if it was really planted in 1580 on the wall on which it now grows, it was only towards 1600 that it was trained in the form of a true espalier, of which the origin in our country goes back only to the beginning of the seventeenth century; thus it appears in the lists given in our first volume, p. 57, of the history of the Pear. This tree was found exactly in the province where the espalier was well known, since the Abbé le Gendre, Curé of Henonville, near Rouen, was, as we have stated elsewhere (vol. i., pp. 57, 58), the oldest and most celebrated advocate of this method of tree culture.

Poiteau, who died in 1854, said in his "Cours d'Horticulture," edition of 1853:—

"After having looked for a long time for a reasonable meaning for the word Epargne in the 'Poire d'Epargne,' I have thought that this word was a

Pear having borne it for a long time and in different countries; but here we ought to inform the reader that in 1600 there was cultivated at Orleans, according to Le Lectier (catalogue of 1628, p. 17), a Pear tree originally of Moulins, and called Certeau-Madame, or Grosse Cuisse-Madame. Nevertheless, as its fruits ripen in December, said this author, it was proved that it was entirely different from Epargne; our efforts to find it again have been futile. Let us also remember that for a number of years L'Epargne has been grown in Anjou as La Cuisse-Madame, and we refer those who wish for more detailed explanations on this subject to pp. 606, 608 of vol. i., where this last-mentioned variety is described.

Pear Josephine de Malines.—I do not think there is any late keeping Pear that is more deserving of extended cultivation than this, for it is one of the hardiest trees that we have, and grows, if anything, too freely in poor soil, where many other sorts make but little progress. Although it grows freely it does not make coarse wood, but of the right size for making fruit buds, and what is of the utmost importance is that it succeeds just as well as an open bush or pyramid as on a wall,

which is more than can be said of many other late kinds. In fact, we get the best flavoured fruit from our bush trees. There is yet another reason why we prize the kind highly, as the fruits hang so tightly on the trees, that even our October gales do not dislodge them, and as they must be left on the tree as late as possible, this is a great advantage. If the frosts keep off we leave this kind out until November, and a slight frost will not harm the fruits, as the trees are remarkable for their full leafage, and on bushes they are well covered. In pruning we leave a good many of the small twig-like shoots, for they form bunches of flowers at the ends, and generally set clusters of fruits that need thinning to allow them to swell up to a full size. It is not a large Pear, but of fair medium size, and when fully ripe is of delicious flavour. The great point is to get them fully ripe, as they turn yellow and look ripe weeks before they are fit for the table. If the fruit room is very cold at this time of year, put a few in a box and set them in a warm house to finish off.—J. G. H.

STANDARD PEARS FOR BRITAIN.

1. BEURRE SUPERFIN.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.
6. EMILE D'HEYST.
7. GLOU MORCEAU.
8. THOMPSON'S.
9. BERGAMOTTE D'ESPEREN.
10. ALEXANDRE LAMBRE.
11. NOUVELLE FULVIE.
12. OLIVIER DE SERRES.
13. COMTE DE LAMY.

Early Pears.—Citron des Carmes, Doyenné d'Ete, Williams' Bon Chrétien, Beurré Giffard, Jargonelle, Seckel.

Cooking Pears.—Catillac, Uvedale's St. Germain, Gilgill, Bellissime d'Hiver.

Perry Pears.—Taynton Squash, Thorn Pear, Barland, Yellow Huffcap, Moorcroft, Longlands, Chaseley Green, Aylton Red, Red Pear, Rock Pear, Dymock Red, Oldfield Butt, Holmer, Red Pear, Rock, Bosberry Scarlet, Lumber-skulls Marden.

PROTECTING FRUIT TREE STEMS.

WHEREVER hares and rabbits abound and have access to orchards or plantations of young fruit trees, it is necessary to in some way protect their stems from the injury which is almost sure to be inflicted upon them by these animals as soon as severe or wintry weather sets in. Although hares and rabbits are now much less numerous in most localities than was formerly the case, still one hare gaining access to an orchard of young Apple and Pear trees will in a single night manage to remove the bark from the stems of a large portion of the trees. It is not an unusual practice to paint or smear the stems of such trees with some noxious mixture of various ingredients which may for a time afford the necessary protection to the bark of the stems, but this in the course of time wears or gets washed off by the rain, and the stems are consequently left exposed. The stems of the trees are also often smeared with gas tar, but this, as may be supposed, inflicts serious injury upon the trees, and may be regarded as a cure little, if at all, better than the disease.

A plan I have found to be very effective, and which will last for several years, is that of surrounding the stems with a thin covering of reeds or carefully drawn wheat or rye straw, this being secured to the stems to the necessary height and fastened in several places by strong string, which together with the reeds or straw should be well smeared with tar, taking care that this does not in any instance come in contact with the bark, nor should the application of this to the straw be such as to entirely cover the surface, and thus exclude the air from the stems. As has been said, this protection will last for several seasons, but in order to

keep it perfectly effective, it is advisable to annually re-smear the straw or reeds, and the best time to do this is towards the commencement of winter. Another plan is that of wrapping hay-bands around the stems to the necessary height, and to daub or smear them with tar. P. G.

VINE ROOTS, CONFINED OR UNCONFINED.

In an article upon Grape culture (p. 593, last volume), "J. C. B." speaks of the simple way in which this fruit is now cultivated as a "distinguishing mark," and goes on to say that "the drainage, &c., of Vine borders may still be practised in some private gardens, but that the modern method of culture does away with such cumbrous devices." Now, does "J. C. B." mean to say that the necessity for draining and preparing Vine borders has ceased to exist in the majority of private gardens, and that the Grape can be cultivated as well, and brought to as great a state of perfection, without such expedients? I for one wish that it were so, but from experience and observation, I must differ considerably from such a view of the case. There is, I admit, a wide difference between the market gardener and the gentleman's gardener, that is, in the conditions under which he cultivates his crops. Before embarking his capital in such a venture as Grape growing on a large scale, the grower for market, as "J. C. B." truly observes, looks about for a suitable locality, where the soil and subsoil are of the right nature, and likewise the position one of the best. If he be fortunate enough to obtain what he desires, his system of culture is, no doubt, simple enough. If, on the other hand, he is unable to secure a soil and situation in every respect adapted to the requirements of the roots of the Vine, he will do well to provide a staple of the right character, and efficiently drained, for their reception. If not, the chances are that his crop will prove a failure, in which case he can then replace the Vines with Roses, Tomatoes, and other remunerative crops, and probably fare none the worse in the end.

The private grower, however, is handicapped by various adverse circumstances over which he has no control. In the first place, he takes charge of a garden, very rarely of his own designing or making, very often situated in one of the worst positions for fruit growing, and badly supplied with water and other necessities. Nevertheless, here he is expected to produce all kinds of fruit in perfection, the most important generally being Grapes, and if one method of culture fails he must adopt another until he succeeds. Fortunate, indeed, is he if placed in a locality where Vine borders need no draining and concreting, as his labour will then be greatly diminished. Unlike the market grower, he cannot substitute another crop, as Grapes are all-important.

I am fully alive to the fact that Grapes of the highest quality are produced by Vines whose roots are rambling at their own sweet will, but these instances occur more by chance than design, and against them must be set down numerous failures, for the roots of the Vine are of such a rambling character, that there is no limit to their extension. A large portion can, no doubt, be induced to remain at home and near to the surface by paying strict attention to their requirements in the matter of watering, manuring, &c. The main roots, however, will still strike outwards and downwards, and in nineteen cases out of twenty in time disastrous results will follow. I have known many instances of Vines being planted without any artificial bottom to the borders. All went

well with them for a time until the irresistible subsoil is well tapped, when signs of mildew, shanking, yellow and thin foliage and other evils have manifested themselves. The cause having been searched for and discovered, the roots have either to be lifted and the operations of draining, &c., which ought to have preceded planting taken in hand, or else the old Vines have to be uprooted and new ones planted in their stead, proper precautions being taken against a repetition of the same evil consequences. The oft recurrence of such cases should compel intending planters to hesitate before committing the roots of their Vines to unconfining borders unless the soil and situation are above suspicion. From experience I am convinced that better results are obtained when the roots are confined and under the full control of the cultivator. I should certainly prefer having them growing in 50 yards or 60 yards of soil than rambling over an area of half an acre. The feeders will always be at the extremities of the roots; therefore, they will be as numerous in a small, well-managed border as they will when growing without restriction.

Coming to the details of concreting and draining a space of ground sufficient for the base of a Vine border, the operations are of the simplest character, although involving considerable labour in some places in the beginning. A handy man can make excellent concrete for the purpose with fresh lime, broken bricks, or stones, which should be broken into pieces about an inch square, and mixed with the lime when newly slaked and rendered of the consistency of paste. This mixture should be evenly spread to a thickness of 3 inches or 4 inches upon the bottom of the border immediately it is well mixed together. When this has firmly set, a layer of rough material, consisting of broken bricks, clinkers, or stone, should be placed upon it for drainage, the whole then forming an effective barrier to the descent of the roots. In regard to the sides of the border, it matters little whether they are formed of bricks or turves. I prefer the latter, as they are easily taken down and re-made. The roots can then at all times be examined and their whereabouts determined. Such borders also offer facilities for renewing a part of them as occasion requires. The cultivator then never loses touch of the roots, the whereabouts of which, I contend, to be fairly successful in the production of good Grapes in the majority of gardens in this country should be as well known to the grower as the tops. A. BARKER.

Striking Apples from cuttings.—Although not generally practised, there are a good many varieties of Apples that strike root freely if good-sized branches are cut off at this season of the year and planted rather deeply in the soil, choosing a rather shaded place for inserting them. When we are winter-pruning our trees, we frequently cut off good-sized shoots that, from the upper ones crowding down upon them, have no longer any chance of bringing fruit to perfection. These are just the sort of shoots to insert for making fruiting trees in a short time; in fact, they have the necessary buds already on them, and only need the roots to make a start as fruiting trees at once. We dig out a trench from 1 foot to 2 feet deep, according to the size of branches that we have got to insert, and set the base right on the hard soil at the bottom of the trench, then return the soil, treading it very firmly. The tops are left full length if not very long and straggling, and if they strike they can be planted out at wider intervals the next autumn, but if not, they are pulled up and used for firewood, so that there is little loss by the transaction. Some varieties, especially those of the Codlin type, soon strike root, and generally those with a rough bark are more suitable than those with a clear, shiny

skin. I have a good many varieties on their own roots, and hope to get a good many more. If Roses have become so common on their own roots, why not try to get the king of fruits on its own roots too?—J. G. H.

APPLE STOCKS AND COLOUR.

IN suggesting that there may be on the part of certain stocks some intimate connection with the production of colour in Apples, Mr. Crump opens up a very interesting question—one in reference to which some of our trade growers might probably have something to say. But it is certain that we have almost a wealth of Apples which show high colour on any stock and under any form of growth or of culture. All such kinds are naturally outside the subject of the discussion. What we want to learn is, under what conditions of culture, as well as kind of stock, can colour be best obtained in sorts not habitually given to colour freely. It will be remembered that I referred to the remarkably high colour found in Mr. Crump's samples at the Apple congress of Cox's Orange and Ribston Pippins—sorts not accustomed to colour; hence these Madresfield Court examples proved to be so noteworthy. Now, if Mr. Crump's theory be the correct one, viz., that seedling Crab stocks from high-coloured sorts produce the richest colour in the fruits borne on them after grafting, we ought to find even better colour produced were we to use Duchess Favourite or Worcester Pearmain as an intermediary stock, working those on to the high-coloured seedling Crabs first, and then our Cox's, Ribstons, Kings, &c., on to those deep-coloured sorts again. But perhaps that kind of experiment has already been tried, and if so, will those acquainted with the results give it? It is not worth while travelling over beaten paths experimentally in gardening, but it does seem doubtful whether we have utilised the method of double grafting in relation to Apples, especially as regards the production of colour. But Mr. Crump gives some details as to culture in relation to practical root-pruning which lead to the inference that the checking of deep rooting on the part of the stocks and the development of surface roots has very much to do with the production of that rich colour found in his Apples. But in the west, myriads of cider Apples are very rich in colour, and many of these kinds doubtless have been beheaded and re-grafted with superior varieties not remarkable for colour production. In all these cases unintentionally experimental, ample evidence should be found, if sought for, as to the merits or otherwise of double grafting for the securing of certain desired results. It may be that the influence of the stock, whether primary or secondary or both, is seen more fully on young trees than on old ones. That is a matter upon which information would be of value. But we need still a lot of proof that colour is not as freely produced on Paradise and Doucin stocks as upon Crab stocks, even if these be seedlings from high-coloured sorts.

When at Mr. Bunyard's nursery last autumn, the most noticeable feature amongst young breadths of Apples was found in the new Bismarck, the fruits of which, thickly studded on the two-year-old dwarfs, were full of colour and glowing like a rich sunset. That sort is naturally a good one to colour, but it was hardly possible to conceive its being more richly hued on any other stock. Generally, I think the trade regard the dwarfing stock as being the best colouring medium, and if it be so, it does but bear out Mr. Crump's own experience, that shallow rooting helps in the production of colour. After all, it is evident that warmth, both in earth and air, is essential to colour production. Roots which have struck deep are out of the reach of sun-heat, but if by the nature of the soil or by artificial aid they are kept near the surface, then the sun-heat becomes an important factor in colour production. We should like to learn from the North American Apple growers, whose fruits are so superbly coloured, whether they have so much of heat atmospherically that they can afford to permit of deep rooting, or whether they cultivate to secure shallow rooting also. Perhaps their soils are better heat-absorbers than our stiff soils are;

perhaps the roots may go to a considerable depth and still find abundance of virgin loam, for which we here may look in vain. In any case, the American growers do beat us in the production of colour, which may be wholly due to climate or only partly so, the rest being due to methods of cultivation. We may not ignore the market value of colour—indeed, it is the colour which sells inferior Newtown Pippins, Wealthy, and other American Apples. There is open before raisers of new Apples, as well as of growers of Apples generally, an interesting field of inquiry and of experiment in relation to the production of colour, but not necessarily of colour in common colouring kinds. The colour needed should be found in choice or high class sorts, in which the richest hues and the finest of quality should be equally blended. A. D.

FRUIT GROWING.

As this subject is at the present time engaging attention, the following letter (which appeared in the *Times*, Jan. 5) from one engaged in the cultivation and sale of market garden produce will, no doubt, be interesting: "During the past ten days I have noticed considerable correspondence in your columns on fruit growing, more particularly a letter of Mr. T. B. Potter's, dated Penzance. As Mr. Potter has alluded to the produce grown in that neighbourhood (about which, I believe, I have more actual knowledge than that gentleman), and being the largest receiver of English and foreign fruit and produce in this country, perhaps some remarks of mine of positive experience will be more acceptable to your readers than the theories of many who have contributed to your columns.

"I have been in business in Covent Garden Market for twenty years, but have been connected with the market gardens in Cornwall all my life, and at the present time I carry on an estate there of which the growth of early vegetables forms an important item. Now, what are the actual facts concerning the growth of vegetables in Cornwall this season? That at present there is simply no outlet for the produce; that in many cases it does not realise the cost of carriage, which is now most reasonable—35s. per ton for a distance of 320 miles; that to my knowledge scores of acres of Broccoli in Cornwall this season could not be marketed for the simple reason that the public would not buy the produce; in some cases it had to be given to the cattle, in other cases it was sold to the pickle makers at whatever price they chose to give—3s. to 4s. per cwt. Taking the net weight of the Cauliflower as grown in Cornwall at from 2 tons to 2½ tons to the acre, this leaves the 'fine' sum of about £8 per acre, when the actual labour and manure expended on that acre of Cauliflower amount to more than the gross result, leaving a loss of rent, rates, and taxes. I am in a position to state that vegetable growing during the last four or five years has not proved remunerative to anyone concerned in it. And, as regards the 'higher cultivation under glass,' had there been ten such vineries as Mr. Boddy's in the neighbourhood of Land's End, I question whether they would not have met with the same fate as the Cornish Broccoli this year. The supply would be greater than the demand, and the proprietors in endeavouring to clear out would be underselling one another; there would not be a sufficient number of tourists (who are the principal customers at Mr. Boddy's vineries) to consume the extra growth; and to send those Grapes to this market from that district would prove a poor speculation. Time was when thousands of baskets of the Dutch Hamburg Grapes came into this port by each steamer, and were sold wholesale to the trade at from 6d. to 1s. per lb.

At this price it paid the producer to grow the Grapes; but, owing to the increased supply from the Channel Islands and elsewhere, prices have fallen to from 1½d. to 4d. per lb., and that industry in Holland is now becoming extinct. A few years ago Channel Island Grapes were sold here at from 10d. to 2s. 6d. per lb., but, owing to the increased supplies, prices have this season fallen to 4d. and 9d. per lb., except for very choice sorts that have realised 10d. to 1s. 3d. per lb. Even this price does not pay the grower.

"Many of your correspondents who have had no actual practical experience fancy it is easy to cultivate all kinds of produce, and that they have only to put the seed, or the tree, or the plant in the ground, and bountiful Nature supplies the rest; and that they have only to send the fruit to market to obtain high prices and good results. I am afraid, in the first place, if they started in practice with these theories, they would find their crop a poor one. In the second place, they would discover they cannot command a market nor compel the public to purchase. They forget that markets are governed by the supply and the demand, and that when the supply once exceeds the demand, prices immediately fall. They would then be in the same position as the Cornish market gardener is in at present—they would not realise sufficient to pay the labour. Much has been said about foreign fruit, and comparisons have been made between that and English fruit. Some people fancy they have only to send English fruit to market and a ready sale at high prices follows as a natural consequence; but what are the actual facts? I have at the present time in my warehouse Apples from Herefordshire which cannot be sold at 1s. per bushel; I have also Apples from Berkshire and Oxfordshire which cannot be sold at 2s. 6d. per bushel; and yet a fortnight ago I sold American Apples as high as 18s. per bushel, though I think it only fair to say that plenty of American Apples are being sold at 3s. per bushel, and that during the past month of December I have received no less than 16,500 barrels, representing 50,000 bushels of Apples from America. Some of your correspondents will say that this proves their contention that these can be grown in England. Permit me to inform them that they could not be grown in England, and that the worst Apple I am at present receiving from America is superior to the best of any I am getting from the home country.

"Your correspondents in this morning's issue do not seem to be of the same opinion. Mr. H. Clark, of The Cedars, Denmark Hill, says, 'that as a fruit grower his average rarely falls below £90 per acre.' I am curious to know how many acres he grows, and where his orchards are situated. Mr. Clark states that he utilises the space between the trees for Strawberries and Tomatoes. Does Mr. Clark know that the actual result of the out-door crop of Tomatoes in England last season was an entire failure?—many places not gathering more than 1 cwt. per acre; and this has been, more or less, the experience for several seasons whenever there has been wet in July. And as regards Strawberries, I am also curious to know the kind Mr. Clark grows, the quantity, and to what market he sends them.

"Your correspondent Mr. A. Fuller does not mention his address, but according to his statement of his two-acre orchard giving a fair crop for the past nine years at an average of £65 per acre, I can only remark that I am surprised Mr. Fuller has not increased his acreage from 2 acres to 20 acres or even to 200 acres, when such splendid results accrue. Mr. W. Paul, of Waltham

Cross, seems to have hit the mark when he says: 'There is no greater fallacy than to suppose that anyone can make a fruit farm pay;' and further on, 'Special knowledge is as necessary in the one case as the other;' and I think he is also on the right track when he says "that our landowners should be our fruit growers." It is a well-known saying among fruit growers that 'the man who plants Pears plants for his heirs.' To plant Plums or Apples and to expect a fair return before the orchard is fifteen years old is an expectation that is quite beyond the mark. Any planter of fruit is aware of this, and to plant fruit trees indiscriminately in land, whatever it may be, would be suicidal. I could take your correspondents to many parts of England and show them districts where the Plum will not grow. Even in the far famed west of England and the neighbourhood of Penzance they will not grow; only in one district throughout the whole of that county is the cultivation of Plums profitable.

"Mr. Sampson Morgan, with a hardiness worthy of a better cause, in writing about his small fruit farms, alludes to the *petits cultivateurs* of Meaux, Seine-et-Marne, and says: 'Not only do I speak from personal experience, but I refer to M. E. Bueler, late of Meaux, Seine-et-Marne, one of these *petits cultivateurs*,' &c. Passing over Mr. S. Morgan's personal experience for whatever it may be worth, I would point out that the early vegetables, the *primeurs*, not only on the London market, but throughout the whole of the continent of Europe, are all grown by these *petits cultivateurs*, and they are forced expressly to come into the markets at a period when no other country is able to supply them at that particular time. These *petits cultivateurs* have a system of their own, in which they are greatly favoured by the method adopted in Paris of dealing with the sewage as compared with the means in use in London. No doubt many of your readers in passing through Paris have noticed how the manure is collected and taken away to the various suburbs where this *primeur* cultivation is carried on; whereas the London sewage is directed into Davy Jones's locker. Such cultivation could not take place in this country—(1) because we have not the manure available which this particular cultivation requires; (2) we have not the same climate. I have tried to grow these salads in Cornwall on as near the same principle as possible, but it proved a decided failure. If we had the same climate and similar means for cultivating the produce of this country as they have in other countries, we could do without foreign importations; but until this climate alters, the theories as set forth by these faddists will never be successful.' No doubt Mr. Morgan almost believes in the statement he has made, and I should imagine him to be a very sanguine man. I can quite understand him to be capable of biasing even his own mind; but up to the present I fear his success has not been equal to, nor has it anywhere nearly approached, his expectations."

W. N. WHITE.

Covent Garden Market.

The Bullace.—This is a very valuable Plum—at least in the south of England. "The Fruit Manual" states that "the Bullace is *Prunus insititia* of botanists, and is found wild in many parts of Great Britain. It and the Damson originated from the same source, and the difference between these two fruits is little more than in the name, the round ones being called Bullaces and the oval ones Damsons." The author must allude to the black Bullace, but this is not grown in gardens, at least so far as I know. The small white Bullace is worth growing, as it bears most abundantly, but is far inferior

to the new large or Essex Bullace, as it is termed. I do not know why it is termed "new" now, as it has been cultivated in Essex gardens for half a century at least. It was quite new to me when I entered the service of the late Mr. Whitbourn at Loxford Hall. There were about forty fine bearing trees in the large kitchen garden. I ordered some trees of it for our new garden, but the ordinary small-fruited variety was sent. We have now trees of the old stock propagated by suckers from the roots of the old trees. They grow very rapidly and soon come into bearing. The fruit lasts on the trees well into November and after the leaves have dropped off. The fruit is not nearly so acid as that of the common variety, and the tree bears quite freely. There is also a variety named the Royal Bullace, which also bears freely. It is a free-stone of good flavour.—J. DOUGLAS.

PRUNING.

DENSE fog allied to thick hoar-frost on the trees are elements not conducive to comfort when engaged in pruning. Still, it is a time when little else can be done amongst hardy fruits, except getting some form of dressing on to the soil. But amidst bushes and where trees are thickly planted, the work of pruning and thinning must be done before the dressing can be applied, much less digging be carried out. Therefore, fog or hoar-frost, the pruning and thinning must go on. But whilst such elements soon pass away, a good deal of sharp dry frost remains, and as frost is usually of an exhilarating nature, there is much that is very enjoyable in pruning and thinning, especially amongst thick orchard trees. Of course, were this thinning done with regularity, dense growth would never be found on trees, but few forms of labour in orchards seem to be more often shirked than do regular prunings of old trees. In the case of young trees or of dwarfs which are convenient of access the work is generally regularly done, but in the case of large standard trees there is much shirking. On starting to thin a dense standard head it seems as if it were impossible to do so with any benefit. The thinning must be limited to those branches which seem to be undesirably placed and are the weakest or show least evidences of fruit-production. But after some few branches have been removed a path seems to be opened for the free use of the saw, and a way out of the difficulty discovered. As branch after branch is removed the work takes shape, the tree assumes a duly thinned and properly fruitful appearance, and when the thinning of the head is completed, even though a cartload of branches encumbers the ground, it is wondered why so much was made at the first of the difficulty. Most standard trees throw out on the main stems some neat straight shoots. These should be removed first with a small saw, the edges of the wounds being pared smooth by means of a sharp knife. These shoots should be collected and bundled separately; then when a wet day comes they furnish profitable occupation in sizing and pointing them, placing them in bundles of sizes ready for use in the summer. Some few hundreds of such neat sticks as these shoots give are most useful amongst pot plants and in the flower garden during the ensuing summer. A light ladder and a small sharp saw set into a handle some 4 feet in length are most useful aids in a heavy job of pruning. A big iron hook made with a piece of stout iron wire is an admirable aid in the tree, as by fixing one of the turns on to a bough, the other can be used to hold one saw, large or small, whilst the other is being employed. A good pruner keeps a watchful eye upon the extremities of the boughs which surround him, to note whether they are well furnished with fruit buds, or to see whether they cannot profitably be spared; also the pruner will be careful not to thin too severely lest the strong rush of sap into the greatly reduced boughs should demoralise the bloom and develop shoots that are soft and coarse. A moderate thinning of a dense head one winter, with a further thinning the following winter to make the pruning complete, is the wisest course to follow. Great rebounds in fruit trees should ever be avoided. After the thinning

has been completed, a scrubbing of the main stems of the tree with a hard dandy brush is at once good exertion and good for the tree. If after that the stems also be roughly painted with a dressing of soft-soap, clay and paraffin, a moderately thin mixture, no doubt insects and confervæ will alike be destroyed. Considerable thinning of trees renders needful much bundling or fagoting of the loppings. Apple and Pear trees seldom give branches suitable for Pea sticking, but where branch-wood is scarce the best of Apple and Pear branches should not be despised. Then all the refuse should be cut into lengths of about 4 feet and tied into bundles to be carried away to the refuse ground and stacked, so as to render good fire-wood a few months later; with that duly accomplished the work of pruning may be said to be over. Then comes the opportunity to assist the roots in their work, and enable them to make a fresh start in life with the renovated tree heads. Usually with old standard trees, the soil can be forked about them to a depth of 10 inches without injuring the roots. A dressing of decayed manure or decayed vegetable refuse well forked in is most advantageous in bringing the younger roots to the surface. A dressing of crushed bones, bone-dust, or soot or salt, or of any form of guano also serves to stimulate the sluggish roots into activity. The greater the activity of the roots near the surface the better for the tree, as the sap so produced will create the best ripened wood, the stoutest of fruit-buds, and eventually the finest of fruit.

A. D.

FRUIT NOTES.

CUCUMBERS.

THE mild weather which prevailed down to the end of the past year having been highly favourable to progress without the aid of excessive fire-heat, autumn plants are now looking extremely well, and will, no doubt, give a plentiful supply of fruit when Cucumbers are most valuable. A profusion of fruit throughout December is easily secured, but a fair continuance through February and March even from the best appointed houses greatly depends upon the way in which the vigour of the plants has been husbanded and the foliage has been preserved from insects. The worst of these, no doubt, is red spider, as it spreads rapidly at a time when the syringe is laid aside, and the only antidote is an insecticide of some kind, which not unfrequently aids and abets that destructive element—dry fire-heat. This being so, and prevention better than cure, I must again draw attention to a continuous and liberal use of sweet, well-worked fermenting leaves, not only as an economiser of fuel, but also as a health-maintaining insecticide, and the best of all substitutes for moisture from the syringe. Those who would get the most out of Oak leaves must keep a good supply in a state of fermentation constantly on hand, and the more they are turned to set free injurious gases, the better will they answer when added little and often to the bottom-heat bed. The syringe, of course, may be used for damping the walls, avoiding the pipes when highly heated, and scrupulous cleanliness, by the removal of all decaying matter, limewashing the walls, top-dressing with fresh, sweet maiden loam, and scrubbing the floors will tell in the right direction. The plants as yet should not be pinched, unless it be at a joint in front of a fruit intended to swell, but young vines may be laid in thinly and divested of superfluous female and all male flowers. By daily attention to these trifling matters of detail, by good feeding with warm diluted liquid and sound top-dressing as often as the roots appear on the surface, insects and mildew will be placed at a discount, and growth, though weak for some little time to come, will be fresh, sound, and healthy. Last, but not least important, the heat from the pipes and bed combined should range 80° about the roots, 66° to 70° by night, 75° to 80° through the day, and the highest figure that can be touched when the sun is shining.

Spring Cucumbers.—Where winter plants have gone wrong or are not grown, an early start with stout young plants is of great importance. The experienced grower, whose practice extends back

to the time when fermenting material formed the sheet anchor, about Christmas-time makes up a good hotbed, a yard or so square, in a snug corner of his hot-water pit. When raised to within a foot of the glass he covers it with old tan or leaf-mould, introduces a few large bell-glasses, a dozen or two of small pots or cubes of turf, a little light rich compost, and when the heat has permeated one and all he goes to work by sowing a few seeds of his favourite varieties. When up in full seed-leaf he takes the glasses off by day, but returns them at night, especially where crickets and cockroaches abound, and in this way and most likely upon this small bed he raises a good stock of Cucumber and Melon plants, pending the cleansing of the house and the preparation of the fruiting pots, ridges or hills.

The Cucumber delights in a compost of rich turfy loam, a little leaf-mould and rough lime rubble, good drainage, as it must have an abundance of water, and a bottom-heat of 80°. It does well in pots plunged in a fermenting bed, but, heat being satisfactory, it gives the best return and lasts longest when turned out upon ridges of good compost somewhat heavier than that recommended for use through the winter. I never use manure in the compost or for mulching, as it only encourages worms and does not maintain the steady growth secured from constant supplies of warm diluted liquid, soot and guano water. If the different preliminary operations are well timed, the fruiting pots or hills will be warmed through by the day on which the first rough leaves become perceptible; therefore, as root-bound seedlings are of little use, planting should not be delayed by a single hour. Treating of young Melons, I stated that the cones or ridges should be on a level with the rims of the pots, as these plants resent earthing, but Cucumbers, on the contrary, may be earthed to any height up the stems. Therefore, in the preparation of fruiting pots the latter need not be made more than half full, whilst hills at the outset may be of the smallest dimensions. If the pots are deep and the fermenting material is likely to sink, the pots or hills should be placed on a solid foundation of inverted pots, drain-pipes on end, or bricks; otherwise when secured to the trellis, dragging and strangling are sure to follow. Having placed a straight stout leading stick from the compost to the trellis, and seen that the tiny balls are thoroughly moist, turn them out, liberate the roots, avoid the slightest pressure on the stems, cover lightly with fine warm soil, and at once water home.

THE VINERIES.

As early Vines will now be found in various stages, from bursting their buds to elongating their bunches, the multifarious operations, next to being performed well, must be carried out at the proper time. If confined to well-drained inside borders, another good watering, in the case of very old Vines with warm diluted liquid, and in that of young ones with pure water, will help the development of the bunches, and most likely carry them on until the Grapes are set. Syringing, too, when all the buds have started may be discontinued, but the walls, floors, and borders must be moistened two or three times a day, and some portion of the fermenting material must be turned over every morning. As growth proceeds, disbudding and tying down will require daily attention, and in due course each shoot must be pinched at the second or third joint beyond the bunch. In tying down the young shoots, the afternoon when they are slightly limp will be found the best time, and then, being so liable to snap, the pressure should not extend beyond keeping the points clear of the glass. As the bunches become prominent, all save one, and that the most compact, even in the Muscat house, should be pinched out, and then enough and to spare will be left for the crop. When in free growth, the temperature may range from 56° to 60° at night, or a little higher when mild, 70° to 75° by day, and 80° after shutting off the chink of air from sun and fire-heat combined.

Succession and early Muscat houses, started together about the end of the year, must be well syringed twice a day, when the temperature from

the hot leaves and a gentle circulation on the pipes may range 60° to 65°, according to the state of the weather, and during a continuance of fog and frost quite 10° lower through the night. If any of the young canes have been pruned extra long and an even break is doubtful, the points should be drawn down until they form an arch immediately over the fermenting material, where the warm, but invisible vapour constantly rising will prove more effectual than the most careful syringing. If grafting or inarching any of the Vines in the succession or mixed house is contemplated, the scions or young pot Vines should now be placed in a temperate house to set the sap in motion. Bottle grafts are often attached when in a dormant state, but slight excitement facilitates the union, which, by the way, may be made at any convenient place near the base of the Vine or upon a strong side shoot which does not start from a spur. The best time to attach bottle grafts is when the Vine is in full leaf and numerous channels are open to the first flush of sap, which otherwise might flood and choke the scion. When the scions have started into growth and made a few leaves, the stock Vines should be kept closely pinched and eventually cut down, not bodily, but piecemeal as the young canes progress and are able to take the extra sap thus diverted into the new channels. Those who have not been very successful in bottle-grafting and are afraid of failure may succeed by adopting Mr. Barker's plan, namely, that of cutting down dormant Vines and inarching the green wood of a pot Vine upon that of the stock when the latter has started into free growth in the spring.

Late houses.—If all the Grapes have not been cut no time should be lost in getting them transferred to the store room, otherwise there will be some danger of the Vines bleeding; indeed, under any circumstances all Vines pruned in January should be carefully dressed with styptic, if not at once, certainly before the inside roots receive their first supply of water. When pruned and cleansed, the house may be kept dry and cold until the first week in March, and outside borders protected by a good layer of fresh stable litter may have full exposure to the elements. As few Vines, not even the early forced ones, work so hard as those from which the Grapes are cut in December or January, two months' perfect rest is of paramount importance; hence the advantage of throwing open all ventilators and setting one's face rigidly against the introduction of a single plant that will not stand this bracing treatment. Bedding plants for many years were the forcing gardener's bane, but, fortunately, improved taste now prevails, as many of our most pleasing flower gardens are now furnished with hardy subjects.

The Grape room.—If each bunch of Grapes was carefully relieved of every faulty berry as it was cut from the Vine, and the room, previously heated to expel stagnant moisture, has been judiciously ventilated, the scissors as yet will hardly be wanted. Each bottle, on the other hand, must be carefully examined and filled up with soft water, as the quantity of this element taken up by the wood and bunches within the first fortnight is really astonishing. Once their thirst is slaked and all the cells are filled up, bunches borne upon rather long pieces of wood will take care of themselves for many weeks, but those attached to shorter lengths should be examined and filled up at short intervals. To facilitate this work and to avoid mishaps it is a good plan to place all bunches attached to extra short pieces of wood close together, say in the lowest tier, where drip from the most careful hand when filling up will not disfigure or affect those above them. These short-stemmed bunches, it is hardly necessary for me to say, no matter how plump and promising they look, should be first taken for consumption. The Grape room in damp, foggy, or frosty weather, of which already we have had a taste even in the salubrious country, should be kept close, dark and dry enough to prevent mould, and the less fire-heat to maintain 40° to 45° the better for clusters intended to hang till April. There prevails an opinion that Muscats require a somewhat higher figure, but mine this year, never

above 40°, are quite as fresh, sound and plump as when cut from the Vines early in December. White Gros Colman and Mrs. Pearson are keeping to my entire satisfaction. The latter should have a place in every late vinery.

CHERRIES.

These precocious trees down to the end of the past year had a most jubilant time for swelling their buds, and we began to fear that the dark, but unseasonably mild weather might have a prejudicial effect upon the flowers. These forebodings have been summarily dismissed by sharp frosts and dense fogs which have so completely shut out the sun and lowered the external temperature, that fire-heat to maintain a mean of 40° has become absolutely necessary. How long this is to last it is quite impossible to surmise, but one thing is certain: the Cherry forcer who wishes to have ripe fruit early in May must exercise patience for the present and push forward when solar heat favours steady forcing. When the buds begin to swell the mean temperature may range 40° to 45° at night and 50° to 55° by day, always with a little fresh air and atmospheric moisture in proportion to external conditions. As days increase in length and, let us hope, in brightness, more air, top and front, must be given, especially when the pipes are warm, but the heat for the present must be shut off at night unless the mercury falls below 40°. By working upon the give-and-take principle and making hay when the sun shines, the very early sorts will make good progress, and so most likely will insects to which these trees are subject. Green and black fly, no matter how carefully the trees are cleansed, generally put in an appearance, but these easily succumb to two or three mild smokings with tobacco paper, the last of which should always precede the opening of the first flower.

As Cherries do so well when planted out in narrow inside borders, the majority of growers confine themselves to two or three of the best sorts which ripen in succession, but this catering for a sure supply does not prevent the amateur who delights in a selection from growing a dozen or a score varieties, when pot culture, or planting out and lifting annually, will best answer his purpose. Well-managed pot trees on the Mahaleb stock last a great number of years, increasing slowly in size, but improving in fertility as they grow, that is, provided they are not allowed to exhaust themselves by overcropping. To prevent this self-destruction it is a good plan to thin the spurs and blossoms pretty freely every year, and, considering that the Cherry is impatient of fire heat, a body of mild fermenting leaves placed amongst the pots, whilst forming the main factor in forcing through the early stages, will render direct syringing a secondary consideration. When the trees come into flower, dry steady fire heat, with plenty of air to raise the temperature to 65° or 75° with the aid of the sun, will not only ensure a good set of fruit, but the most fragrant and enchanting mass of inflorescence seldom met with in any garden.

PLUMS.

Although forced Plums lag behind Cherries at the finish, the two start kindly together and run abreast until some time after the fruit is set and swelling. This being the case, their treatment as regards fresh air, a low temperature, and great patience, is in every way identical. In the selection of Plums for forcing, none but the very best dessert sorts should be chosen, and these, for my own use, I prefer having in pots, as they can be turned out of doors as soon as the crop is gathered. When the house can be used for other purposes, the plants can be moved to a cool fruit room when the crop is approaching ripeness, but one thing they cannot be coaxed or coerced into, and that is the double quick march at the finish. In this respect they are very stubborn, but, like all other stone fruits, they respond cheerfully and satisfactorily when started early and carried quickly through the different stages of their growth. W. C.

Plums from layers.—I have long been under the impression that stone fruits were difficult to root from cuttings or layers, but on visiting a cottager's garden a few days ago I was shown some excellent young plants of Victoria Plums

which the owner had raised by bringing down the points of the lowest shoots of a wall tree and layering them like Carnations. It was not a new pastime with the owner, for he had got trees up to full fruiting size by this means.—J. G. Hants.

FLOWER GARDEN.

IMPROVEMENT IN FLORISTS' FLOWERS.

It is interesting to observe the vast improvement which has taken place in various families of plants during the last half century, and this improvement is due to the careful perseverance of cultivators, as well as to the energy of plant collectors. It is said to be now one hundred years since the first Fuchsia was introduced into this country, when botanists of that period named the plant *Fuchsia coccinea*, and this was doubtless regarded as a valuable addition to the somewhat limited list of ornamental species of plants at that time cultivated in this country. Few other species appear to have been introduced until about the years 1823 and 1824, when numerous species were introduced from the mountain regions of tropical America and elsewhere. But it was not until cultivators began to hybridise, and so raise plants from seed, that great improvement became apparent, and as few species of plants submit more readily to fertilisation than the Fuchsia, the advance became somewhat rapid, and many greatly improved varieties were secured. Some growers of these plants may yet remember the raising of varieties possessing the pure white corolla, double as well as single; these flowers created great enthusiasm at that period. The varieties of this beautiful plant are now very numerous, and most, if not all, of them may justly be considered as improvements upon the early introduced species.

The well-known Dahlia is another plant which was introduced to this country from Mexico, about the same time as the Fuchsia. The early introduced varieties were of tall and straggling growth, while the flowers were single, or, at the most, only showing a slight tendency to become double, but they were of very little merit. Attempts were, however, made to improve the character of the flowers, and these attempts were ultimately rewarded with success, and large flowers of nearly all shades of colour, blue excepted, and of the most perfect form, were the result. Not content with this, however, cultivators from time to time induced further departures, such as that of the Bouquet or Pompon section, and these proved a very valuable class of plants, distinguished by a profusion of miniature flowers of various shades, form and size. Another type or section of these plants is known as the Cactus varieties, from the blooms bearing a striking resemblance to the flowers of some species of Cactus, while a greatly improved strain of varieties producing single flowers has also more recently been secured. The plants of this section are more dwarf and compact in habit of growth, and produce flowers in great abundance.

THE CHRYSANTHEMUM was introduced to this country from China as early as the year 1764, and according to Loudon's "Hortus Britannicus" (2nd edition), published in 1832, there were at that time upwards of forty distinct varieties grown in the gardens and greenhouses of this country. Chrysanthemum societies now exist all over the country, and the plants are grown in almost every garden. These beautiful plants are divided into various sections, and the different varieties in each section have been brought to a high degree of perfection by skilful cross-breeding and selection. The Pompon section consists of plants of ample leafage and small, but beautifully formed blooms, which usually appear earlier than on those plants forming the larger-flowered sections.

THE PELARGONIUM is another family of plants which has of late years been vastly improved. It is divided into various sections, but nearly all are indigenous to the Cape of Good Hope, and have been introduced to this country at various periods. They are allied to the Geraniums, and are frequently confounded with them, but are, nevertheless, perfectly distinct. The Geraniums are mostly indi-

genous to Europe and are hardy, while the Pelargoniums are all more or less tender. Many improved varieties have originated in this country, but the most marked advance has been made of late years in what is known as the zonal section, and among the Ivy-leaved varieties. Pelargonium zonale and P. inquinans were introduced about the year 1710, and it is from a blending of these, with possibly other species, all of little or no merit as decorative plants, that the modern zonals are supposed to have descended, and which are now an extensive family of highly ornamental plants, presenting finely formed flowers of nearly all shades of colour, from pure white to the most intense scarlet and the richest purple, with flowers double as well as single; the plants can also be induced to bloom during winter as well as in summer. Varieties have also been originated that have foliage of a highly ornamental character, and these are known as the gold and silver tricolors. From Pelargonium lateripes, or the Ivy-leaved Stork's-bill, which was introduced about 100 years ago, a race of exquisitely beautiful plants has of late years been produced, many of which have double, others single flowers, and all this has been accomplished by judicious hybridising.

BEGONIA TUBEROSA, a plant of but little merit, appears to have been introduced from one of the East Indian Islands about the year 1810, and from this plant, and possibly other species of the Begonia, within the last few years a highly decorative race of plants known as tuberous Begonias has been developed, and every year these plants continue to improve, so that it is hard to say where this development may cease. Even at the present time the flowers of many of the varieties are of immense size, and in addition to numerous varieties producing finely formed and highly coloured single flowers of great size, others produce exquisitely formed double blooms of nearly all shades of colour, while all are most useful for the decoration of the greenhouse and conservatory throughout the spring, summer, and autumn months, while many of them are found to be well adapted for bedding plants in the flower garden.

The culture of these plants is exceedingly simple. The tubers should be kept during the winter in a dry shed, or where frost can be excluded, and may be potted up early in February in light soil, with their crowns just above the surface of the soil. They should be placed in a warm pit or other structure, where the temperature will not fall much below 60°, while those plants intended for flowering under glass should be shifted into larger pots, as may be required. Those intended for beds should be put in the flower garden early in June, where in favourable seasons they will be found to produce a very remarkable and pleasing effect throughout the summer and autumn months. Many other races of decorative plants, too numerous to specify, have also of late years been vastly improved. P. G.

SHORT NOTES.—FLOWER.

London Pride (*Saxifraga umbrosa*).—Few gardens are without a corner where this old-fashioned flower could not be used with advantage; it is a capital plant to form an edging round partly shaded borders, or to plant in masses in dark corners, or in the neighbourhood of trees. It is always a tidy-looking plant, and for six or eight weeks in spring will be covered with flowers which, if not highly coloured, are light, elegant and beautiful.—E. B. L.

Carnation Paul Engleheart. Last year, owing to the glowing accounts given of this Carnation, I ordered half a dozen plants; some of the advantages claimed for it over the old crimson Clove were size of flower, brightness of colour, and dwarfness. The last characteristic it certainly has, otherwise it does not differ from the old crimson Clove. The two were planted out together for comparison. The price charged (16s. half a dozen), with carriage, packing, &c., go to make up quite a fancy price for a border Carnation.—E. B. L.

Yellow self Carnations.—In Pride of Penhurst and its improved forms—Will Threlfall and Germania—we undoubtedly get three very fine self Carnations. The last two are so strong in constitution that they promise to do as well in the open ground as anyone can desire. Of newer and

less known varieties of great promise mention may be made of Ernest Bull, citron-yellow, and Mme. Benary, both likely to be of value, the latter especially being of good constitution. Edith can be added, and there is thus a half-dozen of yellow selfs. Yellow grounds edged and flaked with various colours are now very numerous, and I think we shall see some very pretty things during the coming season.—R. D.

PRIMROSES.

STRICTLY speaking, of course, there is only one Primrose, for no species (except *Primula vulgaris*) of the group of plants to which botanists have given the generic name *Primula* is entitled to this designation any more than the Auricula, the Cowslip, or the Polyanthus is, all of which are species of *Primula*. Nevertheless, it is permissible and even convenient to employ the word Primrose generically, because very few out of the large number of species of *Primula* have trivial names, and such denominations as Chinese Primrose and Abyssinian Primrose are in common use. The Evening Primrose is an altogether different plant, belonging to a totally different Natural Order, and doubtless received its name in consequence of the colour of its flowers.

The Primrose of Primroses is so generally dispersed over the United Kingdom, from Sussex to the northern islands, except in the neighbourhood of large towns, where like most Ferns, it has been extirpated, that every person knows it, and, one might add, every person loves it. This unusually mild season it is already anticipating spring, and putting forth its flowers on sunny banks in the south. But the Primrose has a wider range than the British Islands, and is equally familiar in nearly all the countries of Europe, from Scandinavia to Spain and Portugal, Greece and Southern Russia; and it also occurs in North Africa, though in the southern part of its area it is essentially a mountain plant. The Primrose gives a name to its peculiar shade of yellow, yet it affords a proof that there is nothing absolutely constant in organic nature by occasionally sporting into some tinge of red or even into white, and, by selection under cultivation, it has yielded multitudinous varieties, both in colour and fulness.

Besides the Primrose, there are four species of *Primula* in Britain, namely, the Cowslip, the Oxlip, the Bird's-eye Primrose, and the Scotch Primrose, though the two latter are book names rather than popular names. As for the "Scotch Primrose," it is equally at home in Norway, Sweden, and Lapland; while the Bird's-eye Primrose has an exceedingly wide area of distribution, belting the northern hemisphere in cool and cold regions, and reappearing in the southern hemisphere in abundance on the shores of Magellan's Straits and in the Falkland Islands, being separated from the home of its nearest congener in New Mexico by 90° of latitude. This is the only representative of the genus *Primula* in the southern hemisphere, but the genus is spread all round the northern hemisphere, and numbers about 150 described species, recently monographed by Dr. Pax in "Engler's Jahrbücher" (vol. x.). They mostly inhabit mountainous regions, and there are three principal centres of development, viz., the Alps of Europe, the Himalaya Mountains, and the mountains of Central and Western China. Perhaps the two last might be regarded as extensions of one. Five or six are found within the arctic circle. They are least numerous in North America, where there are only eight or nine species, six of which extend to some part of the Old World, and they are confined to northern regions, except in the Rocky Mountain range and the Sierra Nevada of California. One of the peculiar species, *Primula Parryi*, a native of the Rocky Mountains, is one of the handsomest of a beautiful genus, and has been in cultivation in this country ever since 1875, though it was first discovered no longer ago than 1860.

Until within a comparatively recent period the number of species of *Primula* in cultivation was small, though these were rich in variety. Turner, Gerard and Parkinson, the fathers of botany and

flower gardening in England, give us a record of what was known of them in their time. Turner includes in his "Libellus" (1538) only the "Prymerose," but at that date flower gardening had hardly commenced. Gerard's catalogue of plants cultivated in his garden at Holborn in 1596 contains "Primroses, Birdseies, Paigles, Cowslips, and Beares Eares." The last, the Auriculas of the present day, had increased to an indefinite number of varieties by the middle of the seventeenth century, as we learn from Parkinson's "Paridisi in Sole, Paradisus Terrestris." Paigle, or some modification of the word, is another name for the Oxlip, and in some parts of the country it is applied to the Cowslip. In a history of the cultivated Auriculas, Shirley Hibberd states that many artisans, driven from the Netherlands, settled in this country in 1570, and brought with them their favourite flowers, among them the best of their Auriculas. The parentage of the cultivated Auriculas has been variously explained, but, whether two or more wild species have been concerned therein, their common home is in the Alps, to which region the section of the genus *Primula*, to which they belong, is almost exclusively restricted. Persons wishing for full particulars on this subject, and concerning Primroses generally, may be referred to the report of the great *Primula* conference held at Kensington in 1886, which forms a part of the seventh volume of the new series of the Journal of the Royal Horticultural Society. Auriculas are quite alpine plants, and the cultivation of the finer varieties requires skill and constant attention; consequently they are comparatively little grown except by specialists.

In 1819 the Horticultural Society obtained, through Mr. John Reeves, a resident in China, a drawing of the beautiful Chinese Primrose (*Primula sinensis*). He also forwarded a living plant and a quantity of seeds, but the former perished on the voyage, and the latter failed to germinate. A Captain Rawes was more fortunate, and succeeded in bringing home a living plant in 1820, which he presented to Mr. T. Palmer, of Bromley, Kent. It soon grew apace, and produced flowers in profusion in the spring of 1821. A drawing was made and published in Lindley's "Collectanea Botanica." About the same date it was figured in the "Botanical Register" (plate 539) under another name, and it speedily became a great favourite. Being easily propagated, it was soon spread over the country; new varieties were raised from seed or imported, and now probably no greenhouse plant is raised in such large numbers. Like so many other Chinese plants in our gardens, it had long been cultivated in China before it was introduced into England, and the native country was unknown to Europeans till two or three years ago, when the Abbé Delavay, who has enormously enriched the Paris herbarium with dried plants from Western China, discovered it growing on calcareous rocks in ravines near Ichang. Since then Dr. A. Henry, who has almost equally enriched the Kew herbarium, has sent excellent wild specimens from the same province. In a note accompanying them, he states that it grows on the ledges of limestone rocky cliffs, where there is no "soil and practically no moisture."

Among hundreds of other novelties, the Abbé Delavay discovered some thirty new species of *Primula*, chiefly in the lofty mountains of Yunnan, and Dr. Henry has also sent two or three new ones, and about a dozen new species of the allied genus *Lysimachia*. Among the Yunnan Primroses are some of the finest and most curious of the genus, yet there are none so small as some of the Himalayan species, which grow in tufts like Mosses, and are, when in flower, not more than an inch high. Remarkable among the Chinese species are two or three having their flowers scattered along the stalk instead of rising singly from between the leaves, or being borne in a cluster at the top of the stalk. Some are identical with Himalayan species, or so closely resemble them that they must rank as varieties, whilst others have no counterparts in the Indian region. None of these Chinese species of recent discovery are yet, so far as I am aware, in cultivation, but it will probably not be long before they are, as well as some of the numerous new *Rhododendrons* of the same region.

Curiously enough, one species of Primrose (*Primula verticillata*) inhabits South-western Asia, reaching the vicinity of Aden, where the climate is anything but favourable to herbaceous vegetation, or vegetation of any kind that is pleasant to the eye. The same species is also found in Abyssinia, which is the southern limit of the genus in Africa. Similarly in the east, the genus is not known to be represented south of Java. A Himalayan species recurs on the mountains of Java, and hitherto no intermediate station for it has been discovered. These widely-separated localities of the same species afford a striking illustration of the great changes vegetation must have undergone at different periods.

At the *Primula* conference and exhibition alluded to above, held at South Kensington, there were some very fine collections of living plants, notably one from Kew, comprising about fifty species, besides many hybrids and seminal varieties, and since then much attention has been bestowed upon this very ornamental genus. Perhaps it may not be out of place to mention a small selection of the most beautiful among the free-growing species.—*P. sikkimensis* (*Botanical Magazine*, pl. 4597), a yellow-flowered species of the Oxlip type, with flower-scapes as much as 2 feet high. This inhabits wet, boggy places on the mountains of Sikkim, at elevations of 12,000 feet to 17,000 feet, covering large areas, and presenting a very beautiful sight. *P. rosea* (*Bot. Mag.*, pl. 6437), a lovely species, of the stature of a small Auricula, with very bright rosy-red flowers, produced in great profusion in spring; a native of the mountains of Western India and Afghanistan. *P. mollis* (*Bot. Mag.*, pl. 4798), having soft hairy leaves on distinct stalks, and clustered flowers of various shades of red; from the mountains of Bhotan. *P. cortusoides* (*Bot. Mag.*, pl. 5528), a native of China and Japan, similar to the last, but having longer Fern-like leaves, and a broader, flatter inflorescence of pink, purple, or white flowers. *P. japonica* (*Bot. Mag.*, pl. 5916), the Japanese Primrose, and one of the most stately of the genus, having large leaves similar to those of a *Polyanthus*, and a tall scape of flowers arranged tier above tier, and offering a great variety of colour. Finally, *P. prolifera* (*Bot. Mag.*, pl. 6732), the one mentioned above as inhabiting the mountains of Northern India and Java. I have seen dried specimens of this upwards of 3 feet high, and it is certainly a most striking plant, upon which the Dutch botanists bestowed the name *imperialis*. It is similar in habit to *P. japonica*, but the flowers are yellow.—W. BOTTING HEMSLEY, in *Field*.

Rootwork.—It appears to me that none of the recent writers upon this subject have fully grasped it. I have seen many "rooteries," but never one that was at all satisfactory. Tree roots turned upside down are not natural, and tree roots piled one upon another, no matter how artistically done, are not natural either. Given a suitable position and abundant material of the proper kind, I see no reason why a rootery should not be made beautiful. The best position would be either a sloping piece of ground or an irregular valley with sloping sides, and the tree roots should be so arranged as to appear as though the trees had all been blown down by the same gale, all in one direction, here and there. The whole or part of the head or stem might be left, and upon this various climbers could be trained. The soil in every case should be left amongst the roots. I have in my mind sundry prostrate trees, the upturned mass of whose soil and roots measures 5 feet or 6 feet high. Upon such a mass a whole alpine garden could be made. Of course to transport and arrange such huge masses is quite out of the question. I just mention them to illustrate what I mean, but tree roots and soil attached would afford very congenial homes indeed for many charming plants, and Sedums, Saxifrages, Phloxes, and many similar things would not only quickly clothe every exposed part, but would find all their sustenance. Not only upon the parts above ground would homes for plants be found, but there would be every aspect of light and shade around the bases, and there appears to me

to be no limit to the accommodation that could be provided in a well-arranged rootery, and if made with substantial materials it would last a good many years.—T. SMITH.

FLOWER GARDEN NOTES.

VARIETY IN GARDENS.—I fear that I may find it difficult to express all I mean by this term, because of the many directions my thoughts take when I begin to study the subject. Everyone knows that for continued interest to be maintained with regard to gardens and gardening generally, there must be something fresh, something new to look at. In my case, such desire grows keener every year, and one phase of it (and the origin of this note) was forcibly brought to my mind whilst superintending the clearing out of Brambles and coarse Grass from a large plot of Heather that covers a bank in a semi-wild part of the pleasure grounds—the planting of the bank having had its origin in the desire to practice what previously had only been a theory, namely, that in every part of a large garden there ought to be some distinctive phase of gardening, or, in other words, in no two parts of the same pleasure grounds should there be the same manner of grouping the plants, nor yet even a repetition of the same kinds of plants whenever it is possible to avoid it. This bank of Heather, consisting of several varieties, was formed by digging out the roots of Bracken, which of itself was very beautiful, especially in winter, but which, what remains of it now, is still more beautiful by contrast with the dark green of the Heather, not to mention the additional interest created by the two sections of plants and colour over that of Bracken only. A short distance away from this plot of Heather, the soil being of the same peaty nature, a group of Irish Heaths (*Menziesia*) was formed, and as these grow taller, are a much brighter green, and have larger foliage, the two plots, in colour and habit, are as different as any grouping could well be with plants requiring the same description of soil. With reference to *Menziesias*, they cannot surely be well known, as it is very seldom that one meets with them. It may be that their fondness for peaty soil hinders their general culture, but this should not be a drawback in all places, because, though peat is their natural soil, they do very well in a dry or well-drained loam; in fact, in any soil except clay, chalk, and lime. But going back to the question of variety in gardens, I may instance that of the grouping together of a large number and variety of Japanese shrubs, principally *Retinosporas*, which have now grown into fair-sized trees, and which, when seen for the first time by strangers, call forth great admiration. One friend was so pleased with the way in which they had been arranged, or, as he called it, the "careless way in which they were thrown about," and yet made a distinctive garden, that he suggested we should call the spot the Japanese garden, and this would be by no means an inappropriate name. At present, however, it goes by the more pretentious name of "sub-tropical garden," and the grouping of the shrubs was done with a view to winter furnishing the spot, which they effectually do, the bare sub-tropical beds being but little noticed because the shrubs attract attention far more so than they do in the summer, as then the surrounding deciduous trees are in full leaf. I hope I have now made clear from the foregoing instances what I mean by variety in gardens. It really consists in grouping together various sections of plants. Of course, I do not mean to the exclusion of a mixed manner of planting, as that must continue to be the way of arranging shrubs and trees in gardens of small extent, for the obvious reason that there is no room for the formation of groups of distinctive kinds of plants, but where unlimited space is at command. Then, in addition to mixed planting, there also should be the forming of groups—distinct gardens, in fact, of the same species or genera of shrubs. Azaleas, Hollies, *Rhododendrons*, *Pernettyas*, &c., all make grand groups of themselves. Nor need the practice be confined to shrubs and trees. It is, in a more or less degree, equally well suited to other plants, as, for instance, what looks more beautiful than large masses of Snowdrops, Daffodils, wood Anemones,

mones, Primroses, or wild Hyacinths? and just now we have a grand colony of the winter Aconite, and another of Christmas Roses that will illustrate how, in a smaller degree than that of shrubs, we can have distinctive features of any given species of plants in various parts of pleasure grounds and gardens.

HARDY FLOWERS.—If the question be asked, What constitutes hardiness in a plant? I answer, any flower that at the end of the first eight days of this new year, with the mercury almost continuously at freezing point, and on several nights as low as 18° or 14° of frost, is unharmed. Such flowers and plants must assuredly be entitled to be classed as hardy. Of these, now that the thaw is complete, Wallflowers must be given the first place, their blossoms being as bright as if there had been no frost. Winter Aconites and Christmas Roses are almost as fresh; of the latter, some had the protection of hand-lights, but the flowers of those that were unprotected are just as good. *Limnanthes Douglasi* is flowering as freely as if there had been no frost, and on some large plants of Snapdragons that are sheltered by overhanging branches of fruit trees are flowers as good as they usually are in September. Violets and Violas, or tufted Pansies, are always more or less in flower, but the first make such a poor show in the open border, and the latter at this season only throw up a few flowers here and there, that I must not be understood as recommending them to be planted for winter flowering, and I only name them now to show how hardy the flowers are. That the plants are, is well known. Daisies, Polyantheses, Primroses, *Myosotis*, *Silene*, *Nemophila*, in fact, all autumn-planted hardy, spring-flowering plants would be the better for being well pressed down; Hyacinths, Tulips and Narcissi, too, for I note, which is rather unusual, that the late frosts have heaved them up as well as the preceding, this, I expect, being due to the unusually advanced state of growth of the bulbs, by reason of the wet and mild weather that continued to the end of the old year.

SWEET PEAS being special favourites, we strive to have flowers as early and as late as possible. Our first sowing in the open was made to-day (Jan. 10), and a sowing in pots will follow, these to be planted out on a warm border when 8 inches or 9 inches high, and by affording good shelter, more especially from cold winds, we shall hope to gather flowers quite a month before we do from those sown in the open air. I have tried more than once to grow Sweet Peas indoors in a cool Peach house, but utter failure was the result. There was plenty of growth, but it was weak, and though abundance of flower-stems showed, not a flower ever opened, but turned yellow and dropped or withered on the stem. I should be glad to learn from anyone who may have succeeded in forcing this flower of his mode of culture.

W. WILDSMITH.

PROPAGATING.

THE PROPAGATING HOUSE. This may be considered the mainspring of the plant department. I am afraid that, in many cases, the importance of propagating young stock annually is not fully recognised, and consequently suitable provision is not made for successfully keeping up or increasing the stock of many of the most useful and beautiful pot plants. It is not necessary to go to a great expense to provide a suitable place for propagating the most difficult subjects; indeed, with a little contrivance, a good propagating case may be fitted up in any establishment, from the smallest to the largest. I have seen various contrivances where proper accommodation had not been provided, such, for instance, as a box placed on the pipes close to the boiler, and covered with a sheet of glass, with just sufficient Cocoa-nut fibre refuse in the bottom of the box to plunge the cutting pots in, and under such and similar conditions the most difficult subjects have been propagated. Here, however, I intend to deal with the propagating house as it should be in every establishment of any pretensions. My idea is that the propagating house,

in two divisions, should be about 10 feet wide, of whatever length may be considered necessary, and just high enough to walk through comfortably. One side should be fitted with close cases, subject to a good brisk bottom-heat, say four 4-inch pipes running through the first division next to the boiler and two in the second division. On the other side the same quantity of piping should be used, but not closed in. The stage on this side should be covered with some material that will retain moisture for standing or plunging the pots in. A structure somewhat after the above will be found a most useful adjunct to any establishment both for propagating and rearing any tender subjects which may require a little extra care. It is also advisable to have sufficient room for the accommodation of stock plants of such subjects as are benefited by being placed in a little extra warmth for a short time previous to the cuttings being required. It must be borne in mind that the most complete structural arrangements will be of little avail unless careful and regular attention is paid to everything connected with this department, for success depends more on the regular attention to the various requirements of the inmates of the propagating house than to the most perfect accommodation. As this will be the commencement of the busy season, the first thing that should be seen to is that everything is thoroughly clean and sweet. All old plunging material should be removed and replaced with new Cocoa-nut fibre refuse, but before doing so, all the walls should be whitewashed, using fresh lime and adding a little sulphur; the glass and woodwork should also be washed. Another matter of importance is that the compost used for propagating purposes should be perfectly free from worms and other insects; also, that it should not contain anything favourable to the growth of fungoid matter. Pots, drainage, and, in fact, everything connected with propagating should be clean and fresh. Careful attention to all these minor details goes a great way towards success. Ventilation and watering are also points of importance. The cases should be opened every morning, and only remain open long enough to sweeten the atmosphere, or rather not long enough for the cuttings to flag.

WATERING.—While it is of the greatest importance that cuttings should not be allowed to suffer for want of water, the other extreme must also be avoided. It is my belief, however, that cuttings more often suffer from want of water than from over-watering, for the reason that after being a little too dry they get withered, and when water is given they cannot absorb it, and consequently what is called damping sets in. Damping when once it commences will soon destroy a batch of cuttings. While the cases are open in the morning all the occupants should be examined, and any signs of decay carefully removed. It requires a sharp eye to detect the first appearance of damping, especially when it is caused by a fine thread-like fungus, which is often very destructive. The progress of this deadly enemy may be checked if taken in time. On its first appearance the pots of cuttings should be removed, some hot ashes stirred into the plunging material, and some hot sand shaken over the surface of the pots after the cuttings affected have been removed. If this form of damping should be very troublesome, it is advisable to clear the case, thoroughly cleanse it, and use fresh plunging material. With good management a propagating house may be kept fairly well throughout the year. By good management, I mean that care must be taken to always keep a little in advance rather than to get behind with any work connected with this department, and to attend, whenever the room can be best spared, to those subjects which may be propagated at any season of the year. The busiest time will be from the beginning of February to the end of May, and as it is during this period that the most tender subjects have to be dealt with, it is necessary to work with caution. No advantage will be gained by overcrowding; on the contrary, this is frequently a source of evil, as when cuttings are put in too closely together, it is impossible to detect

the first appearance of damping, or to check it after it has been discovered. Another point of importance is to take care to remove the cuttings from the close case as soon as sufficiently rooted, and gradually harden them off until it is quite safe to expose them. Although it may seem a little tedious to attend to all these minor details, yet I believe in the long run it will be found to be of great advantage, and will save a great deal of vexation and disappointment. A.

GARDEN FLORA.

PLATE 684.

INDIAN LILIES.

(WITH A COLOURED PLATE OF *LILIUM NEPALENSE*.)

Few plants during the past year attracted so much attention at any meeting of the Royal Horticultural Society as did this rare Himalayan Lily when exhibited by Messrs. Low and Co. on September 11. The reason of this was, in the first place, because it had never before flowered in England, but more particularly from the fact of its being quite different from any other in cultivation. With respect to this being the first time of its flowering, I may mention that there is a record in the *Gardeners' Chronicle* of the blooming of *L. nepalense* in 1855, but the description of it would lead one to suppose that some mistake was made, and that *L. polyphyllum* was the species intended. Again, Mr. Elwes, who in his "Monograph of Lilies" was so careful whenever possible to illustrate living specimens, was in the case of this species obliged to fall back on the specimen in Wallich's herbarium. The flower as there shown is different from that of Messrs. Low, for in the monograph in question the flower resembles that of a partly-opened *L. Szovitzianum*, being of a yellowish colour, with the centre stained red. Again, Mr. Baker gives *L. nepalense* as a white flower, suffused more or less with purple on the outside towards the base. With such conflicting opinions concerning this Lily, it is not to be wondered at that when really exhibited, and proved to be so distinct and beautiful, it should attract a very large amount of attention, for it must certainly be put down as one of the finest introductions of the year. The general appearance of *L. nepalense* is well shown in the accompanying plate. The bulbs of Messrs. Low's plants are somewhat globular in shape, and composed of rather large scales of a deep, almost blackish purple. They are not unlike very dark-tinted bulbs of *L. neilgherrense*, and there is also a good deal of resemblance between the two in the lower part of the flower-stem (just as it leaves the bulb), which is of a firm, almost woody texture. Concerning the cultural requirements of *L. nepalense* little can be said, but it will undoubtedly prove to be rather a difficult Lily to cultivate. Messrs. Low's plants were potted in a compost consisting of a large proportion of fibrous peat, and grown, I believe, in a cool greenhouse. That treatment such as this suited them was shown by the success they met with; still, I question if it will be possible to keep them in health and flower them year after year in this country. The Nepal Lily seems to me a good deal like *L. neilgherrense*, which flowers freely enough from imported bulbs the first season, but after that the floral display will be much less. About half-a-dozen years ago I had a few bulbs of *L. nepalense* sent me from Nepal, and not being large enough to flower when received, I tried hard to induce them to grow, but in vain. They pushed up weak stems freely

Drawn for THE GARDEN by H. G. Moon, from specimens sent by Messrs. Hugh Low and Co., September 11, 1888. Lithographed and printed by Guillaume Severeyns.



NEPAULESE LILY (*LILIUM NEPALENSE*.)

enough the first season and promised to do well, but the bulbs did not gain in strength and gradually dwindled away. *L. nepalense* is, by Mr. Baker, placed in the sub-genus *Eulirion*, or funnel-flowered Lilies, but from the specimen exhibited, its place therein would, I think, have to be reconsidered.

The Lilies that are natives of the Himalayan region are very limited in number, there being, besides *L. nepalense*, *L. Wallichianum*, *L. neilgherrense*, *L. polyphyllum*, and the distinct *L. giganteum*. Of these, *L. Wallichianum* was also awarded a certificate by the Royal Horticultural Society a fortnight later than *L. nepalense*. The blooms of this are pure white, very long and narrow, opening somewhat abruptly at the mouth, while the segments usually reflex in a marked manner. The bulb of *Lilium Wallichianum* is very compactly built, being composed of a large number of rather long and pointed scales, closely adpressed together, so as to form a firm, solid, and somewhat pointed bulb, the colour of which is generally whitish. The flower-stem, which is usually about a yard high, is slender, and clothed with long narrow leaves of a rather light green tint. This is essentially a greenhouse Lily.

L. NEILGHERRENSE may also be grown in a greenhouse. A coloured plate of it was given in THE GARDEN, August 18, 1885. This is the best known of the Himalayan Lilies, for a considerable quantity of it is often imported during the early months of the year, and it is then possible to obtain good bulbs at a very moderate price, that is to say, when compared with the price of a few years since, but still, of course, much higher than that of such Lilies as *auratum* and *longiflorum*, which are imported in great numbers. The *Neilgherry* Lily varies considerably in many particulars, but a thriving specimen usually reaches a height of 2 feet to 4 feet, and is clothed with scattered dark green leaves of a stout, firm texture, of, generally speaking, a length of 3 inches to 4 inches, but often somewhat shorter. The blooms are very massive, and from the time at which they expand last in perfection longer than those of the species which flower during the summer months. Where a number are grown together many points of difference may be observed in the flowers, some being much longer than others; in some the tube gradually widens from its base to the mouth of the flower, while in others the tube remains about the same length, and expands abruptly at the end. In these last the segments usually reflex more than they do in the shorter and broader flowers. The colour, too, ranges from almost white to deep primrose, and I have had plants with the exterior of the bloom and the edges of the petals suffused with purple, which gave a very uncommon appearance. This character, however, I find, is not constant, as some that I flowered and which showed this peculiarity in a marked manner quite lost it the following year.

L. POLYPHYLLUM is much hardier than any of the preceding, and forms a very pretty and distinct Lily. It belongs to quite a different class, being by Mr. Baker placed in the sub-genus *Martagon*, and having as its nearest relatives *L. monadelphum* and *L. carnolicum*. In the first place, the bulb is peculiarly long and pointed, reminding one somewhat of that of the little bright-coloured Siberian *L. tenuifolium*, while the prettily reflexed and drooping blossoms are usually of a pale greenish yellow shade, sometimes almost white, and dotted more or less profusely with purple. When planting this Lily thorough drainage is very essential, for if too moist during the winter the bulbs are liable to decay just at the base, and while the scales continue fresh the whole bulb will drop to pieces when moved. Of this Lily a coloured plate was issued with THE GARDEN for February 12, 1881. The finest example of *L. polyphyllum* that has come under my observation was from Mr. Wilson at Oakwood, who succeeds so marvellously with many members of the Lily family. According to a note

from Mr. Wilson, the stem reached a height of 5 feet 5 inches, and bore thirteen flowers.

L. GIGANTEUM, the last of the Indian Lilies to be here mentioned, is very distinct from any other kind, unless it is the small-growing Japanese *L. cordifolium*. The leaves of *L. giganteum* are large, heart-shaped, and of a beautiful glossy green colour, especially when first expanded. This Lily may be either grown in large pots for the decoration of the conservatory or planted out where somewhat sheltered, such, for instance, as in a *Rhododendron* bed. It gradually increases in size till the flowering stage is reached, when the stately flower-spike starts direct from the centre of the bulb and completely exhausts it. After flowering, a few offsets are generally produced, which take three years or more to become strong enough to bloom. A good specimen of this Lily will push up a spike from 7 feet to 10 feet high, and, when terminated by ten or a dozen of its long tubular-shaped blossoms, it is truly a grand Lily. The individual blooms are about 6 inches long, white, tinged with purple on the inside and with green on the outside. *L. giganteum*, which is hardy only in the southern counties of England, will well repay greenhouse culture in the colder districts. It was introduced into this country in 1852, but is by no means a common plant in gardens. H. P.

KITCHEN GARDEN.

SEED LISTS.

By this time nearly everyone owning or in charge of a garden, one acre or upwards in size, will have received a considerable number of seed catalogues from various sources, and few will venture to disagree with me when I assert that both the nursery trade and the gardening profession have good reason to be proud of the excellent manner in which these are prepared. Having at different times criticised the contents of these catalogues, more especially as to the bewildering and fast-increasing number of varieties of nearly every kind of vegetable included, it is only right that I should take an early opportunity of giving praise where it is due. It seems to me they have nearly reached perfection; at any rate, only the most ingenious or the most enterprising firms will be able to much improve either the interior or the attractive exterior of the catalogues distributed. At one time there was a growing tendency to exaggerate, this being most apparent in the illustrations given of growing or newly-lifted crops—notably in the way of Peas and Potatoes. Whether the ridicule cast upon these has, or has not, been the cause of the withdrawal of some of them is immaterial, the fact remaining that this season they are less frequent than usual. A few there are to be seen, and most glaring exaggerations, too, and these, for the credit of the firms responsible, I hope will not be repeated. Truthful illustrations of growing crops, such as may be given by photographs, are most instructive and acceptable; but those representations of marvellously enlarged crops of Potatoes that closely cover a great breadth of ground, those rows of Peas with a dense surfacing of pods, and those wonderful crops of Tomatoes and Cucumbers are, to say the least, most misleading, and in the end do more harm than good. If they lead to numerous orders for seeds or roots, it not unfrequently happens that those who purchase and give these novelties a trial fail to discover any great merit in them. A feeling akin to disgust is thereby engendered, this being followed by a resolution to “fight shy” of all subsequent introductions till it is found they are nearly or quite all that those responsible state them to be. There is really no necessity to exaggerate the merits of any new

variety or improved form that is honestly considered valuable. If superior, they are not long in gaining popularity, as there are always plenty of gardeners able and willing to testify to their merits.

As far as the woodcuts of single specimens or small groups of fully grown vegetables are concerned, I am of opinion that the majority of them are truthful and good. This applies to the catalogues of both metropolitan and provincial seedsmen, who in many instances obtain their “electros” from much the same source. Even quite local seedsmen have adopted the plan, probably from compulsion, of issuing lists with showy wrappers, and the engravings are also numerous and fairly truthful. They have also thought it wise or necessary to follow another very common practice in vogue among numerous leading provincial seedsmen, as well as a few near London. I allude to the custom of prefixing the name of the firm to one or more varieties in each section. At the present time I have before me fully a score of catalogues distributed by what I may, without any disparagement, term second-rate seedsmen, and in nearly every instance this reprehensible practice has been largely adopted. Sometimes this is apparently an excuse for charging rather higher prices for the seeds; in others, most probably it is due to a resolve not to be outdone. This cheap method of gaining a little notoriety may answer well at first, but the time will come when the least experienced will discover that Blank's Giant Prize Cos Lettuce is only another name for Paris White, the only difference being the former costs sixpence per packet, which probably will weigh a quarter of an ounce, while the latter can be bought from the same seedsman at just half that price. Mr. Blank not unfrequently gives an illustration of some of his novelties, but, unfortunately for his reputation for veracity, the same engravings are to be seen in other catalogues with quite a different prefix. Some may argue there is no great harm in these proceedings, but if we put the morality of the question on one side, the fact yet remains there is little or no sense nor wisdom in these shallow attempts to mislead. By all means make the catalogues as attractive and serviceable as possible, but let them be so framed that criticism may be defied. Especially should exaggerations be avoided, as these vex amateurs, who cannot succeed in producing similarly marvellous crops and are injurious to professional gardeners, who have to give some explanation of a similar failure to their employers.

It may be a fancy of mine, but I cannot help thinking there is a tendency on the part of compilers of catalogues to curtail the lists of varieties in many instances, and this I hold to be a step in the right direction. We are sometimes told that many varieties, new and old, are retained on the seedsmen's lists simply because they are asked for and appreciated by some of their customers, and in this case there is something to be said in favour of the practice. If there are some who prefer the old Essex Rival Pea to the much superior Telephone, Laxton's Supreme Pea to Stratagem, Walcheren Broccoli to Veitch's Autumn Protecting, the Aigburth Brussels Sprouts to Ne Plus Ultra, Battersea Cabbage to Ellam's Early, James's Intermediate to the New Intermediate or Matchless Carrot, Marquis of Lorne Cucumber to either Telegraph or Cardiff Castle, and the Custard Vegetable Marrow to Muir's Pen-y-byd, these are to be pitied, but must, presumably, be studied all the same. Some of the leading seedsmen mention a considerable number of varieties, intimating that they can be supplied, but do not

describe them, and when this is done with a view to gradually withdrawing them from cultivation this also is right. It is very certain all do not merit the eulogiums passed on them by the framers of the lists, and it is equally evident that a considerable number when ordered are not unfrequently drawn from the same bag. Most of the catalogues contain a notice to the effect that the season of 1888 was most unfavourable to the ripening of seeds generally, and this no one need be surprised at. We shall have good reason to be thankful if one half of the seeds sown germinate.

W. I. M.

CELERIES.

EXCEPT those persons who grow Celery for seed, very few probably grow it unblanched. There is little use for Celery unblanched; indeed, it is doubtful whether there is a more undesirable form of salading than is Celery in that state. But naturally grown Celery, when the plants are got out fairly early and they thrive well, presents the best method perhaps of testing varieties as to distinctness and habit of growth. The process of earthing or blanching always develops in Celery unnatural character; whilst natural culture permits the characteristics of habit to be seen effectively. In all tests of varieties, plants should be left to make natural growth, and should also be earthed. In that way all the various points in varieties, or assumed varieties, are brought out, and a truer tone as to the character of each sort is obtained. That there are many distinct varieties of Celery there can be no doubt, and each one finds somewhere numerous admirers. Still, the sorts most widely grown are comparatively few. Take the London market trade, which confines itself to a fine red variety known as Covent Garden Red, and is rather stronger and coarser than Leicester Red. No doubt the former kind is known in seed lists under diverse appellations; but if the market growers be applied to, they will say that it is the old Market Red grown by them for any number of years. Its merits are hardiness, solidity, good flavour, and it gives per plant considerable weight. Both Leicester Red (or Major Clarke's Red) and Sulham Prize are fine-coloured kinds, the former perhaps the most favoured because it is so solid and compact. Perhaps it is the most compact grower of all red Celeries, although it may not be the dwarfest, but it will be hard to excel it. The giant Celeries find favour with those who want specially huge samples for exhibition; but here in the south I find judges rather determine in favour of smaller samples of exceptional quality and solidity, and at the same time cleanly and thoroughly blanched.

The Lancashire exhibition Celeries are, according to name, presumably different from those ordinarily found in seedsmen's lists. In the north Celeries are grown to great size, and are wonderfully blanched, but the treatment given is of a more careful kind than gardeners generally can bestow. There may be something in the kinds or they may be, after all, but well-known kinds with striking local appellations. I have a few of these Celeries growing naturally, and some of them are evidently very robust growers, the finest whites apparently being Clayworth Prize and Lancashire Prize, whilst the finest reds are Big Ben and Blackpool Prize. The constant recurrence of the appellation "prize" shows that Celeries are regarded for the exhibition qualities in the north chiefly. It may be that some of them, however, are very meritorious sorts, as there can be no doubt but that the Lancashire judge requires solidity, crispness, and flavour, as well as bulk, in the prize samples. Our ordinary best white Celeries seem to be incomparable Dwarf White, of which there are yet some true strains to be got; Grove White, and Matchless. A good batch of the true Dwarf Incomparable, often sold under other appellations, is hard to beat for flavour, solidity, and keeping quality, for whilst the tops are so dwarf, little leafage is exposed to the frost, the plants are very hardy, and, further, are very late in running to seed. Perhaps for that reason it is one

of the safest kinds to grow for very early planting. The production of show samples of blanched Celery is not much encouraged in the south apparently, except perhaps at cottagers' shows; but cottagers seldom exhibit very fine samples. Such grand exhibits as may be seen at the Lancashire shows would surprise southern growers. The best samples of Celery seen in the south are usually found in collections of vegetables in the autumn and winter, when their value as salading is invariably recognised and appreciated.

A. D.

KITCHEN GARDEN NOTES.

THE MUSHROOM HOUSE.

ONE very frequent cause of failure in Mushroom houses is the maintenance of too high a temperature, especially during cold or frosty weather. It is when the fires are burning most briskly that much harm is done in plant and fruit houses, as well as in those devoted principally to Mushrooms. A little extra heat may be necessary to keep out the cold, or to prevent the beds cooling to an injurious extent, but rather than raise the heat in a Mushroom house to 60° and upwards in frosty weather, I would much prefer it to drop to 45°, and even lower. Where much fire heat is given, this is apt to rapidly exhaust both the atmosphere and beds of moisture, and thereby act most prejudicially to the crops. The beds in overheated houses are quickly exhausted, and the crops puny and poor in quality. To counteract these influences it is the usual practice to daily damp down the walls and floors of the house, and the beds are also freely and frequently damped, but this is of little avail. The most productive beds are those that longest retain sufficient moisture in the manure to ensure steady decay accompanied by slow generation of heat, and the first to fail are those that rapidly dry throughout. If a bed requires a good soaking of water after it has commenced to produce Mushrooms, it will soon fail, as if enough water is given to moisten it, this will also cool it to an extent destructive to the spawn. In most instances too much moisture is the cause of the tiny Mushrooms turning brown and soft, and refusing to make any further progress. Low temperatures will check growth, but not prove destructive. If only sufficient fire-heat is given to keep the temperature up to 50° in cold weather and only 5° higher when it is warmer outside, the loss of moisture will be much less marked, and it will not be necessary to damp down often. Then, supposing the beds are surfaced over with a good depth of straw litter, the soil, should it become dry at any time, may safely be moistened through a portion of this litter. A gentle syringing with tepid water, slightly impregnated with common salt, is all that is needed, or the salt may be dispensed with, after which the portion of dry litter removed may be returned to its old place. In reality a well-built and carefully sheltered thatched or ceiled Mushroom house requires but little fire-heat, especially when fresh beds are made every month. When no fire-heat is employed, no syringing nor damping down is necessary or advisable, the beds not unfrequently remaining in full bearing for two or three months, with scarcely any attention. We sometimes find it necessary to change that portion of the litter touching the soil, substituting some that is drier, and occasionally a slight hotbed is formed under a bed that has either cooled too rapidly or produced Mushrooms too slowly. No doubt a well-heated house is of the greatest service in forwarding Seakale and Rhubarb, but the Mushrooms are by far the most profitable and ought to be most studied. Comparatively high temperatures at this time of the year are only injurious when caused by fire-heat, and if the latter is applied in cold weather it ought to be discontinued when it is milder. We rarely take any notice of the thermometers, and if failure to maintain a constant supply ever occurs it is principally due to an insufficiency of material for making successional beds.

ICE HEAPS.

A short spell of frosty weather has, doubtless, in very many instances lasted quite long enough for

the ice house to be nearly or quite filled with good ice. This is an important matter, and those responsible are always glad when it is completed. Not a few experienced gardeners consider it advisable to supplement this supply with an additional heap formed on the surface of the ground, this keeping surprisingly well, and obviating the necessity of early visits, with their attendant waste, to the ice house proper. In some instances these heaps have been found to keep even better than the ice stored in the more orthodox manner; in fact the experience gained plainly indicates that there is now no real necessity to construct the old-fashioned sunk egg-shaped wells for storing ice, these, in addition to being very expensive, not answering so well as those formed above ground. I do not propose to discuss the best forms and methods of constructing the above-ground ice houses, but wish rather to point out plainly how ice may be cheaply stored, and in such a manner as to quite dispense with the necessity for any great outlay at the present time. Many who possess an ice house do not, now that a comparatively cheap supply can be had from the nearest fish merchant, go to the expense of filling it, especially when the extensive carting has to be paid for. In very many instances the ice house is located conveniently near the dwelling house rather than the source of the supply, but an ice-heap may usually be formed at a short distance from the water. What is needed is a well drained, shady position, nothing being better than a clear space among trees on a northern slope. The first proceeding should be to mark out a clear breadth of ground say 20 feet by 10 feet. This should be enclosed by stout stakes or posts and rather closely fitting rough slabs, such as may be procured from many private sawmills or pits, to a height of about 5 feet, the most convenient end only being left open. The enclosure may be either roughly paved or covered with faggots, this both keeping the ice clean and facilitating the egress of the water or dissolved ice. The next proceeding should be to fix movable boards all round at not less than 18 inches from the sides, this space being filled in with fine sawdust according as the ice is thrown in. It is advisable to break up the ice before throwing it in, and this can be most quickly done with the aid of mallets and a temporary pavement formed close to the enclosure. According as the fine ice is levelled over the interior and rises to near the top of the movable boards, these must be drawn upwards, taking care, however, to fill up the space outside of them as firmly as possible with sawdust. The open end also must be gradually boarded up, and after the ice is level with the top of the enclosure, it should be gradually narrowed off in much the same manner as a hay-rick is formed, a slight sprinkling of salt serving to run the exposed surface together into a solid mass. A thickness of about 18 inches of fine sawdust should cover this ridge, over this being placed a thatch of straw or Bracken, this or some such contrivance being necessary for keeping the sawdust together, and also assisting in excluding warmth. A heap thus constructed during the next sharp frost experienced, if not opened too often or in a reckless manner, should be available for fully twelve months. If only a temporary supply is needed, to last say to midsummer, an enclosure may be dispensed with, and it is possible to do without stakes or boards. A cool, shady, and well-drained site is, however, very essential. A space 12 feet by 6 feet, or considerably larger, according to circumstances, may be staked out and a wall all round formed with squarely cut blocks of ice, the interior being filled in at the same time with crushed ice. Without the temporary assistance of boards, some skill will be needed in building the sides especially, but the mass is soon glued together. The heap, when 4 feet or upwards in height, must be gradually narrowed off, a sharp ridge being necessary, this being duly smoothed over preparatory to the mass being enveloped in a thickness of 12 inches or more of fine sawdust. It is a good practice to cover the sawdust with about 18 inches of fresh leaves, but as these are scarce and very wet this season, a similar thickness of straw litter or Bracken is the best substitute.

Unless a good thickness of some of these non-conducting materials is banked over the heaps and roughly thatched, the ice fails to keep, everything depending upon the exclusion of warm air and rain. Each time the heaps are uncovered at one end for the purpose of removing some of the ice, the coverings ought to be quickly and carefully returned to their old position. W. I.

TREES AND SHRUBS.

DECIDUOUS TREES AND SHRUBS.

WHILE all trees and shrubs of a deciduous character have a very different appearance in winter to what they have during the summer months, yet there are some kinds which, when devoid of foliage, stand out in a marked manner from all their associates, either by reason of their habit being more pronounced when leafless, through their bright-coloured bark, or some other noticeable feature. Of deciduous trees, the Birches are very conspicuous throughout the winter months, and of these the common Birch is, I think, if possible, more beautiful in winter than in summer. Just now, where associated with other trees, the shining white trunks of the Birch are conspicuous for a very long distance, and closer inspection reveals the elegantly drooping spray, so different in outline from that of the Oaks, Elms, Beeches, and other forest trees. Birches often differ from each other considerably, either in the colour of the bark, arrangement of the principal branches, or pendulous character of the shoots. Of the many varieties of the common Birch now in cultivation may be selected two. The first, *fastigiata*, may often be met with as upright as the Lombardy Poplar, while the Weeping Youngi, with its long, thong-like branchlets, is a striking tree at all seasons. Another distinct species is the black Birch of the United States (*Betula nigra*), which is very distinct from its European congener, but is at the same time equally as noteworthy. This American representative forms a free, bold, but somewhat slow-growing tree, often divided into several branches at but a little height from the ground. The small spray does not show the drooping character so much as that of the common Birch. The bark of the black Birch is most marked in winter. It peels off and hangs in flakes from the main stem and principal branches, thus giving to a tree of this species a wild and picturesque appearance. In this the bark is reddish, and for this reason it is often called the red Birch. Of Elms, the most conspicuous when devoid of foliage is the Winged Elm (*Ulmus alata*). This derives its name from the peculiar corky excrescence with which either side of the branches is furnished, and as this character is common even to the minor twigs, the whole of them appear to be of unusual stoutness, which is owing to the corky ridges of the bark. This tree is a native of North America, but the cork-barked variety of our English Elm, especially that known as the Dutch, is most singular. The weeping variety of *Ulmus montana* is very distinct even when leafless. Among the many varieties of the common Ash the golden-barked kind stands out conspicuously from all the others. In this the yellow-coloured bark is, of course, more noticeable in the winter than at any other time. There is a form of this as pendulous as the ordinary Weeping Ash. In another variety (*jaspidia*) the bark is striped instead of being of a uniform clear yellow. The cork-barked Elm has its counterpart in the Ash, a variety of which (*verrucosa*) has the bark as rugged as that of the Elm. An Ash more curious than ornamental is *cristata*, a dwarf variety with

fasciated Cockscomb-like branches. There are many species and innumerable varieties of Oaks, but none so grand and picturesque when devoid of foliage as a fine old specimen of our English Oak. The formidable spines with which the branches of the North American *Gleditsia triacanthos* are studded give it a very uncommon appearance, which is heightened by the rather rugged character of the specimen. Another tree whose bark is especially noteworthy is the striped Maple (*Acer striatum*, or *pennsylvanicum*, as it is often called). This forms a good-sized tree, with usually a somewhat regular shaped head, and the bark, even from the trunk to the minor branchlets, is greenish, clearly striped with white.

Of shrubs remarkable for their bright coloured bark, which causes them to be especially conspicuous at this season of the year, must be mentioned the Golden Osier (*Salix vitellina*), which might almost be classed as a tree. This is very distinct by reason of the rich yellow colour of its bark, and when lit up by the rays of the winter's sun its beauty is greatly enhanced. The Dogwood (*Cornus alba*), with bright red bark, is another shrub worth a note just now, and of this there is a variety (*sibirica*) not so vigorous in growth as the type, the bark of which is of a lighter and brighter hue than that of the other. To these may be added the Himalayan Bramble (*Rubus biflorus*), whose stems present the appearance of having been white-washed, and *Lonicera xylosteum*, the bark of which is of a greyish tint. The trees and shrubs above mentioned include most of the strongly marked forms. T.

BERRY-BEARING PLANTS.

NEVER before can I remember so abundant a crop of Holly and other berries as during the present season, and this is always joyous and welcome news about Christmas and the new year. Often has the thought struck me, how neglected and uncared for are the majority of our handsomest fruiting trees and shrubs, and how well they could be substituted for many of the commonly grown, and I might almost say invaluable, occupants of three-fourths of our country shrubberies and gardens. It is also a somewhat strange fact that many, perhaps the majority, of our berry-bearing trees and shrubs are such as can, either for beauty of foliage or flowers—both in many cases—well hold their own with any of the plants commonly cultivated for floral show alone. Even the Holly, when well set with flowers, is by no means an uninteresting plant, and what can come up to it as a berry-bearing subject? What may likewise be said of a score of others, to wit, the Strawberry tree (*Arbutus Unedo*), the Beam tree (*Pyrus aria*), *Cotoneasters*, many kinds; the Box Thorn (*Lycium europæum*), *Skimmias*, *Roses* (*Rosa rugosa*, *R. villosa*, and *R. cinnamomea*), and a full half hundred of Thorns.

By carefully thinning out our shrubberies and planting, instead of the many commonly grown rubbish (covert plants in the majority of instances), a few ornamental berry-bearing shrubs and small-growing trees, the appearance created at Yuletide would, in the majority of instances, be very different to what it is at present. There is no excuse, for happily the major portion of these plants are such as will exist and thrive as well in the shade as the sunshine, are inexpensive, readily cultivated, and of great, almost unappreciable, value for Christmas and new year decoration of churches, houses, and halls.

THE COMMON HOLLY, as well indeed as the variegated forms, are just now particularly attractive, they being, in most instances, thickly studded with their ruddy berries.

In the yellow fruited form we have a most distinct and handsome plant, particularly when in full fruit, and I cannot help wondering why so

ornamental and useful a shrub is not more commonly cultivated. If anything, the foliage in this variety is even of a more intense and lustrous hue than that of the normal plant, while it is equally fruitful, quite as easily grown, and of great value for the contrast it affords.

THE SEA BUCKTHORN (*Hippophae rhamnoides*), as a bright and distinct fruit-bearing shrub of moderate proportions, is to be highly recommended. The silvery leaves are borne well into the winter season, and contrast so markedly with the pinkish yellow berries. To say that the berries are thickly produced gives a stranger but a poor idea of what a fair-sized plant appears like when seen in its full fruiting stage and towards the close of the year. I have measured twigs of nearly a foot in length thickly studded with berries; so thickly indeed were they packed, that no trace of the wood was to be seen. Sandy soil and a maritime site are perhaps preferred by the Sea Buckthorn, but that it will likewise succeed well where ozone is wanting in the air we have ample proof.

SKIMMIA JAPONICA is another extremely useful berry-bearing evergreen shrub. It is of modest growth, rarely exceeding a yard in height, with dark glossy Laurel-like leaves and rather inconspicuous greenish white flowers which are succeeded by myriads of deep red berries. The berries are of good substance, lasting well in a cut state, and are set off to perfection by the dark Yew-green shining leaves. I have found this pretty plant to succeed best in a shady (north) border and in a mixture largely composed of peat with just sufficient loam to render it friable. *S. oblata* is another nearly allied form that is well worth a fair share of notice. *S. fragrans* I find to be another desirable member of the family.

OF THE SPINDLE TREE, two species at least, *Euonymus latifolius* and *E. europæus*, are bright winter shrubs, for if left unmolested by birds they are usually thickly studded with their curiously formed and curiously marked berries. The red and pendulous capsules open when fully ripe and reveal the bright yellow or orange-coloured seeds. Good-sized specimens frequently attain to a dozen feet in height and spread proportionately. As a shade tree the *Euonymus* does fairly well, but to be seen in perfection it must be planted on the outskirts of a wood or shrubbery, and where sunshine is freely admitted. Loamy peat and a dampish situation suit them best, but they are not at all particular if the soil is fairly good. Birds are fond of the berries; therefore, if wanted, they must be preserved.

MAULE'S CYDONIA, with its large quantity of red-cheeked yellow berries, is certainly a plant of which the possessor of a good-sized specimen may well feel proud. Unfortunately, and for some reason or another that I cannot well explain, every plant does not seem to produce fruit in sufficient quantity to become attractive. To see, however, a fair-sized plant thickly studded with its bright golden fruit, tinged with red on the outward side, makes one almost cry out that this *Cydonia* is one of the handsomest berry-bearing plants in cultivation. A warm and rich loam, sunny situation, and an occasional thinning out of the too abundant shoots go far in the cultivation of this handsome shrub.

THE SNOWBERRY (*Symphoricarpos racemosus*) everyone knows, although it is perhaps not a first-class ornamental plant. It, too, like the last plant, cannot always be relied upon to produce a good crop of berries, but this is, in my opinion, mainly owing to want of proper cultivation, for one far more frequently sees the shrub in a poor worked-out soil amongst natural Thorns and Briers than gracing, as it well deserves to do, at least a second-rate position on the lawn or in the shrubbery. So very few of our ornamental berry-bearing plants produce pure white fruit, that the greater interest and value should be attached to those that do. For mixing with some of the deep red and black-fruited shrubs the snow-white berries of the *Symphoricarpos* are of great value, and as they remain in good condition for a considerable length of time are certainly not to be despised for shrubbery planting. Any soil will grow the Snowberry, but

to produce fruit in greatest quantity it is all the better for a free loam or loamy peat and warmish shady situation.

THE PERNETTYAS, though of dwarf growth, generally speaking, are yet amongst the most showy of fruiting shrubs. The typical *P. mucronata* is not one of the most showy in this way, although there is something peculiarly pleasing about a couple of the arching twigs, well berried, when placed amongst other occupants of the vase or china bowl. To describe the many forms (hybrids) of the *Pernettya* would be a task of no mean proportions; suffice it to say that from white to black every colour is represented. Of dwarf growth, for they do not usually reach a couple of feet in height, these *Pernettyas* are excellent rock plants, but they must be placed in cool peaty soil, and in juxtaposition to a plant of the normal species before their beauty is fully revealed. The berries last for a great length of time; indeed, I have frequently noticed them remaining in perfection on the plants for nearly three months. *P. mucronata* is a big, straggling shrub, of frequently 7 feet or 8 feet in height, with thickly-set, small shining leaves, and it flowers freely, although, individually, the blooms are by no means conspicuous. To any person who possesses, or can possess, a peat bed, these *Pernettyas* should certainly come in for a fair share of attention. *P. speciosa* I grow as a table plant, the great quantity of red berries, as also its neat habit, rendering it highly attractive for such a purpose.

COTONEASTERS must on no account be omitted from our list, for, beyond doubt, amongst them are some of our brightest berry-bearing shrubs. *C. frigida* during the winter months is usually a plant of great beauty, the bright, almost crimson, berries being produced in the richest abundance. It is a straggling bush, of often nearly a score of feet in height, and one that is not often seen in cultivation, but withal a plant that well deserves extended culture if only for its bright and long-lasting fruit. *C. Simonsi* and *C. macrophylla* are two other of the most useful kinds, they being of very easy growth, fruiting freely, and being of fairly rapid growth. There are many other useful and highly ornamental kinds of *Cotoneasters*, but the above-named are some of the best.

THE BOX THORN (*Lycium europæum*), when seen in full fruit, is a by no means unattractive plant. It is of scrambling growth, has Privet-like stems and leaves, and bears yellowish crimson fruit in some quantity. As a seaside shrub, the Box Thorn perhaps does best and fruits most freely, but it also succeeds admirably in inland quarters and where sand—its favourite soil—is almost entirely wanting. At Rhyl, in North Wales, this plant grows with unusual luxuriance, and is there used in the formation of hedges, and with very good results. One fence that I measured was fully 50 yards long, nearly 6 feet wide, and 8 feet high. The Box Thorn, which is of rather trailing habit, was kept upright by a double bar fence run along the centre of the hedge.

THE COMMON YEW, as seen to-day, just reminds me that it must not be expunged from our list. Never before have I witnessed this tree with greater numbers of berries or these of larger size. In the yellow-berried form we have a most interesting and beautiful shrub, but one that, unfortunately, is not half enough appreciated. The berries are quite as large as those of the normal plant and as plentifully produced.

THORNS of various kinds are not one whit behind any of the foregoing as berry-bearing plants. The lovely *Crataegus Pyracantha Lalandi* is one of the best, and well worthy is it of more than a passing notice, which may, to a less extent, certainly be said of the typical *C. Pyracantha*. The Tansy-leaved Thorn (*C. tanacetifolia*), with its big yellowish berries, and *C. coccinea*, with scarlet fruit, associate nicely when planted side by side in the shrubbery.

THE BEAM AND SERVICE TREE (*Pyrus Aria* and *P. Sorbus*), when laden with their large and showy fruit, are small-growing trees that look well when placed along the margins of woods and plantations.

Birds soon devour the berries of both species, so that, unless in extremely mild winters, the beauty of either is rarely fully set forth.

BENTHAMIA FRAGIFERA AND **ARBUTUS UNEDO** (the Strawberry Tree) are perhaps too well known to require description, the latter in particular. For their large and brightly coloured fruit both trees are of great value in an ornamental sense, and should find places in every collection of shrubs and trees.

THE BLADDER SENNAS (*Coluteas*) and **HOP HORNBEDS** (*Ostrya*) produce curious and pretty pods and catkins, and for which they are largely grown and greatly appreciated. The inflated pod of the Bladder Senna is peculiarly attractive in early autumn, while the Hop-like catkins of the *Ostrya* render the plant one of great interest.

Numbers of other fruit and berry-bearing trees and shrubs might be recalled to mind, but amongst those above named at least a few of the best and commonest will be found. A. D. WEBSTER.

Syringa villosa.—This beautiful Lilac is a native of Northern China and is a vigorous and very hardy shrub, now 5 feet high here, by as much through the branches, with stout, erect, pale brown shoots, marked with white spots, broad and ample pale green strongly reticulate-veined leaves, and narrow and rather obtuse, often interrupted clusters of pale rose or flesh-coloured flowers, which are decidedly less fragrant than those of the common Lilac. They appear here towards the end of May. *S. villosa* is a valuable and desirable addition to gardens. The only drawback which it has yet developed as an ornamental plant is found in the fact that its leaves fall very early, or after the first frost, without any change of colour.—*Garden and Forest*.

Picea bracteata.—I was pleased to see in **THE GARDEN**, January 5 (p. 12), the engraving of the cone of *Picea bracteata* sent by Mr. Coleman. I planted a fine plant from the same batch of seedlings, but it did not succeed so well as Mr. Coleman's specimen. Although the plant grew away well and was nicely established, the severe frost of 1861 killed it down to the snow-level, so that Mr. Coleman's expression as to its hardiness is rather misleading. The thermometer at 14° below zero showed that the frost would have killed the plant to the ground; fortunately, a branch 2 feet long was preserved under the snow. This branch was carefully tied up and in time became the tree, but for some years very little or no progress was made. The tree afterwards started into rapid growth, and is now about 25 feet high, although not so well furnished to the ground as many of our coniferous plants are. The plant is a star of the first magnitude among the other trees; our *Wellingtonias* bear no comparison to it for beauty. *Taxodium sempervirens* shared the same fate in that terrible winter; it grew out from the bottom, and is 40 feet high, a very beautiful specimen.—WM. CULVERWELL, Thorpe Perrow, Yorkshire.

The autumn-flowered Mezereon.—This *Daphne* is a very beautiful shrub as, indeed, are all the other varieties, among which may be mentioned that usually met with in nurseries under the names of *rubra*, *atro-rubra*, or *purpurea*, which has flowers of darker colour than those of the ordinary form; *alba*, in which the blossoms are pure white; and *flore-pleno*, a double-flowered form of the last. The berries, that are borne in considerable numbers, are as showy as the blossoms and remain on for a considerable period. In the white-flowered variety the fruits are yellow, and thus afford a pleasing change from those of the ordinary kind. *Daphne Mezereum* and all its varieties will not thrive in hot, sandy soils; indeed, so situated they will scarcely exist, but they all delight in a cool, moist, but well-drained spot. A good, open, loamy soil suits them perfectly, and when once established they are very impatient of being disturbed. Should it be intended, however, to transplant any of these

Daphnes, the autumn is the best time for the work, as the new leaves on the points of the shoots are often pushed out soon after Christmas.—*Field*.

STOVE AND GREENHOUSE.

LUCULIA GRATISSIMA.

I RECENTLY saw a very fine specimen of this plant flowering profusely on a wall, its large trusses of flesh-coloured flowers filling the house with a delicate and pleasing odour. This plant has now been an inmate of our plant houses upwards of sixty years, and yet one rarely sees it. What can our gardeners be thinking about to let all these fine old plants slip through their hands; the plant I here allude to was planted by myself some five or six years ago, so that instead of a dirty bare wall there is all the year round an abundance of rich green leaves, and through the autumn and winter a profusion of deliciously sweet-scented flowers, which may be cut and used in glasses in the dwelling house, or kept upon the plant in the greenhouse. When a truss or trusses of bloom are cut the



Luculia gratissima.

stem should be cut long enough to include some of its fine leaves, which contribute largely to the effect produced by the flowers. Moreover, this is a plant which a lady may cut as she likes without injury to the plant, as ladies usually act sensibly and cut their flowers with long stalks so that they produce a tasteful effect when arranged in a vase. This system, however, must be avoided in hard-wooded greenhouse plants, for with them the obtaining of a long stem would in many instances necessitate the destruction of one or two years' growth, and therefore destroy the plant; such kinds, however, should not be used for cutting flowers from. Of the *Luculia* I have seen plants ranging from 1 foot to 18 inches high grown in pots, and bearing on the top a large truss of blooms. How are these obtained? I imagine they are struck or layered after the flowers are set. I do not think they are grown from young cuttings. The plant, however, is not satisfactory when grown in pots, but thrives well in a greenhouse when planted out against a wall or in the centre of a house and treated as a shrub. Another kind which is an excellent companion to the

above is named *Pinceana*, after a celebrated grower of greenhouse plants who lived at Exeter; its flowers are pure white. When planted in the open border, neither of these plants requires much warmth in winter, and I would strongly recommend anyone having a blank wall in a cool house to plant against it one or both of these varieties. The border should be amply drained and filled with a mixture of fibrous peat and turfy loam mixed with some sharp sand. W. H. G.

CHINESE PRIMULAS.

THE superb collection of Chinese Primulas which Mr. Cannell exhibited at the Westminster Aquarium last week evidenced that we have in these beautiful winter flowers reached quality added to size and robustness which admits of no gainsaying. They were yearling plants in about 6-inch pots, showing very varied forms and hues of foliage, and all wonderfully robust and healthy. Were it not that the flowers carried on the plants were so superbly coloured and so very fine, it might have been thought that the foliage showed almost too gross a culture. Perhaps the plants had been well fed, or it may be that the soil was only fairly good and that the strong growth formed came as much from ample pushing from seedling to flowering as to any other cause. It must not be imagined that Chinese Primulas need exceptional pot room. Few similar plants perhaps have fewer roots and are so exceedingly fine in texture proportioned to the luxuriance of the leafage which Chinese Primroses have; hence they do not so much need ample pot room as fitting soil and quick growth. The very fineness of the plant's roots proves often a reason why plants apparently looking so robust yet bloom so poorly. The roots have become parched with heat and drought at some moment of inattention, or have with even greater probability been too heavily saturated with water, and have damped. Perhaps they have become too old or set and fail to act as feeders. In any case many Chinese Primroses sadly fail to bloom well when the season comes, and growers are wondering why such should be the case. There can be no doubt whatever that one of the great secrets of Mr. Cannell's success in *Primula* culture is found in the rapid growth of the plants from the seedling state, and whilst giving only just enough of pot space also furnishes the best of soil. And here we find that, assuming it to be free from fungus or insects, there is no soil so good for Chinese Primroses as is well-decayed silky loam. A stiff clayey loam is, on the one hand, just as obnoxious as is a compost of all porous mixture, such as peat and leaf-soil. If a proportion of about two-thirds of this sweet, silky, turfy loam be provided, with the other third of good, clean, old hot-bed manure, well rubbed through a sieve, and a good proportion of sharp silver sand, a suitable mixture is obtained in which the plants cannot but thrive. The plants do well with about three pottings—first into 3-inch pots, then into 4½-inch pots, and finally into 6-inch pots. If some plants show exceptional strength or have been sown very early, they may get a further shift into 8½-inch pots, in which size plants might well become from 18 inches to 20 inches across, and carry huge heads of bloom. To what size plants must ultimately develop into chiefly depends upon the time of sowing, but from the 1st of March till the end of May is found suitable, according to the space at disposal and the requirements of the grower. Mr. Cannell is breaking some new colours in flushed or shaded forms; these pale towards the eye, deepening outwards. One flower of a rosy hue was especially beautiful. Delicate tints are terribly killed under the horrid yellow light of the Aquarium gelatine roof, but rich blood-reds are very effective. These Mr. Cannell has finely developed, indeed they are almost perfect. The lovely salmon, carmine, magenta, and scarlet forms, also flaked, margined, and speckled flowers, show how varied and beautiful is the Swanley strain. All this visitors to the Aquarium could judge of for themselves.

The exhibiting of this grand lot of Primulas happily served to save the midwinter exhibition from comparative failure. A. D.

Anthurium Rothschildianum.—Whatever may have been the opinion of some growers of plants respecting this variety, I cannot but express my unqualified approval of it, the more so since seeing a very handsome form of the plant flowering in Messrs. Seegar and Tropp's nursery at Dulwich. This plant is well figured in THE GARDEN, Nov. 13, 1886 (p. 454).—W. H. G.

Toxicophlæa spectabilis.—This beautiful member of the Dog-bane family was introduced some few years ago by Mr. Williams, of Holloway. I have frequently seen it flowering, but never in such a superb manner as I saw it recently, thus proving how much one loses who discards such plants. It is a compact, much-branched shrub of somewhat slow growth, and the flowers, which are pure white and delicately fragrant, are borne in a terminal corymb, and also in the axils of the leaves for some 9 inches or a foot down. These flowers may be cut for placing in glasses in the dwelling house, and the trusses of bloom may be used with much effect as sprays if mixed with fronds of Maiden-hair Fern. When used as a coat flower,



Luculia Pinceana.

however, I prefer its own deep green leaves.—W. H. G.

Cyrtanthus lutescens.—This seems to be as free-flowering as its better-known relative *Cyrtanthus McKeni*, and I do not know of two plants more likely to please the amateur who possesses only a greenhouse than these two Cape bulbs. *C. McKeni* forms a bulb about the size of that of a large Snowdrop, and produces long, Grass-like evergreen leaves, while the flower-spike reaches a height of 9 inches to 1 foot and is terminated by a cluster of blossoms. The individual blooms, which are tube-shaped, about 2 inches long, and of a curved outline, are of an ivory-white tint and agreeably scented. From its shallow rooting properties this bulb does better in rather deep pans than in pots, and no doubt the same treatment would suit *C. lutescens*, but of that I have had but a limited experience. This last-named seems to be deciduous, while *C. McKeni* is evergreen and should never be subjected to any drying-off process.—T.

Azalea Deutsche Perle.—Like most of the Indian Azaleas, this is of continental origin, but when first put into commerce I am unable to say. At all events it is a very beautiful variety and there is a great demand for it. The flowers are pure white and the petals very massive, the whole bloom reminding one of that of a *Gardenia*. It can be readily forced, and will no doubt before long supersede many of the older varieties. The growth is free, which is a great advantage when required for cut flowers, as a good length of stem can be

taken with the blossoms. Like other Azaleas that are forced annually, this will gradually flower earlier than at first, as the growth is completed sooner, and consequently the buds are ready to start earlier in the season than those that have not been forced. A coloured plate of this Azalea was given in THE GARDEN for May 19, 1888.—H. P.

SOLANUM JASMINIFLORUM.

THERE is one objection common to many of the plants that can be used as greenhouse climbers, which is in their being naturally so vigorous that when the root room necessary to keep them in health is given, they make so much growth, as to seriously interfere with the plants that are grown in the body of the house beneath them. This difficulty might, no doubt, be got over by devoting houses principally to subjects of twining and climbing habit, confining the things grown under them to some of the coarser growing Ferns, with a few of the hardier species of Palm and other fine-leaved plants that can keep up a struggling existence with little light. An arrangement of this sort is occasionally met with.

Amongst the climbing plants that will do with ordinary greenhouse warmth there are few, if any, that interfere so little with whatever is grown under them as *Solanum jasminiflorum*. It has comparatively small leaves, and its spare rambling shoots extend far, and though it makes sufficient growth to take off the bareness of the rafters to which it is trained, it is not dense enough to do much mischief to anything that is grown beneath it. The flowers are of the purest white, and are produced in loose bunches for a long period during the summer. They are not too large for using in the smallest arrangements of cut flowers, such as sprays, nor in the small stands now so much in fashion, that hold a spray or two of bloom and a bit of greenery. For choice bouquets they afford a relief from things like *Stephanotis*, *Bouvardias*, and a few others, which, however beautiful in their way, are so much used that a change to something different is at times desirable. The plant can be grown in a large pot or tub, or it may be planted out in a border. Where there is the means of giving the roots room in the latter way, it will make more growth and produce proportionately more bloom, and as there is no disposition to over-luxuriance in the plant, it is best planted out.

It can be propagated by cuttings made of the shoots. These should consist of young growths such as are produced from the eyes immediately below where a branch has been cut back, and which are generally obtainable in spring after the plant has made some growth subsequent to its having had the branches shortened. This shortening is necessary more or less during the latter part of winter, as from its spare habit, if not cut in, it gets bare and devoid of young growth for a considerable length above the base. To keep the plant furnished with young flowering wood, it is best to shorten the branches at different lengths from the collar. If the cuttings are taken off with a heel, there will be little difficulty in getting them to root; whereas if severed at a joint when more length of growth has been made, they are liable to decay instead of rooting. Put them singly into small pots, with a few bits of crock in the bottom and a little Sphagnum or other fibrous matter over the drainage; half fill the pots with a mixture of sifted peat and sand, the top all sand. Confine them in a striking frame or under propagating glasses; keep moist, and give no more air than necessary to prevent the cuttings damping. A temperature of 75° will be sufficient; in this

roots will be formed in a few weeks, after which give more air, increasing it gradually until the little plants will bear full exposure to the air of the house; stand them in a light position, and encourage growth by a temperature approaching that in which they have been struck. With a mixture of peat in the bottoms of the pots in the way recommended, there will be no necessity to give a shift until the pots are moderately full of roots and some top growth has been made. In the case of things of this character that do not like to be disturbed till they have made some progress in both top and root growth, it is better to give the cuttings something that will sustain them for a time better than sand alone. When, as already said, the pots are fairly full of roots, move into others two or three sizes larger; now give them good turfy peat with some rotten manure, both of which should be broken finely by hand; add enough sand to keep the material porous. Where good fibrous peat is not available, turfy loam may be used instead, but I have found that this *Solanum* grows more freely in peat when it can be had of good quality. When the top growth has extended 15 inches or 18 inches, pinch out the points of the shoots to induce them to break back; this, if necessary, must be repeated so as to secure three or four branches before too much length of growth has been made. A stick or two must be put to each plant for support. As the sun's power increases, shade will be required during bright weather; syringe overhead in the afternoons, and gradually reduce the temperature to that of a greenhouse as the summer comes on. But if there is the means, the plants should be kept in a moister, closer atmosphere during the first season than established greenhouse stock requires. In this way more growth will be secured, and as the object will be to get the plants up to a flowering state without delay, it is better to push them on. During the summer another shift will be required; give this as early as the condition of the roots will warrant, so that the plants may get well hold of the soil before the end of the growing season. Long slender sticks will now be needed to support the tops, or the shoots may be trained to strings run up under the roof.

As autumn comes on give more air and less water, reducing the latter still more as winter approaches. A warm greenhouse temperature, say of from 40° to 45° in the night, will be better for the plants than cooler quarters. As soon as a little growth has been made, move into pots two or three sizes larger than those they occupy if the root progress is such as to warrant this; if not, a less shift will suffice. Treat as during the previous summer, except that more air and less moisture in the atmosphere will now answer. The plant is a free flowerer, and may be expected to bloom for a long time throughout the summer. Strings or wires under the rafters will now be required to train the shoots to; if necessary, one plant may be made to furnish two or three rafters. Syringe overhead freely in the afternoons, with a view to help the growth and keep the foliage clean and free from insects. Water must be given liberally to the roots, never allowing the soil to get too dry whilst active growth is going on. As autumn advances give more air and reduce the water supply as before, giving still less through the winter. In spring, additional pot room must be given, unless the plants are to be turned out in a bed, in which case the space occupied need not be so large as would be necessary for things of a more vigorous nature. In making the bed or border, it is requisite to see that it is well drained, and that the soil is open. The soil should have a good portion of

turfy matter in it, and ought to be in a more lumpy state than when intended for potting, as when once the plants are turned out there is not the means of renewing it that there is when they are in pots. In addition to the requisite amount of sand, some broken charcoal or crocks should be mixed with the material. Turn the plants out just as the roots begin to move, but do not disturb them unnecessarily. If the new soil is made as solid round the balls as that of which they consist, there will be no danger of the water passing off through the new material and leaving the roots dry. Do not give so much water for a time after planting out as the soil will bear when the roots have begun to move freely. From this time the general cultivation required will be such as already advised. Each spring before the growth has begun to move, 2 inches or 3 inches of the old soil may be taken off the surface of the bed and replaced with new. Previous to this the tops should be shortened more or less, according to the condition of the plants and the space to be filled. Weak manure water will help the growth if given once a fortnight or so during the summer. T. B.

Ouvirandra fenestralis, the Lace-leaf plant of Madagascar, is exceedingly fine now at Burford Lodge, indeed finer, I think, than I have ever seen it. I am specially interested in this plant, having received a large mass of it from the hands of Mr. Ellis soon after he first introduced it. I have myself grown this plant well, indeed, Mr. Ellis told me, to a much larger size than he had ever seen it in its native country, but I think Sir Trevor Lawrence's plant has larger leaves. I never had much difficulty in growing the Lace-leaf plant, and the plant at Burford Lodge is a striking example that it does not require any extra care; then why have the majority of plant growers discarded it? I look upon it as one of the most wonderful plants in the whole vegetable kingdom.—W. H. G.

Sparmannia africana.—This old-fashioned plant is rarely seen, yet it is very suitable for a large conservatory, where it will yield a profusion of flowers from January onwards. When planted out it grows very rapidly, but does not flower so freely as when the root room is limited. Though it attains almost the dimensions of a tree, yet it will flower freely even in a small state, and its pretty blossoms, which are borne in good-sized clusters well above the mass of foliage, will always attract attention. The individual blooms are pure white, except the dense and showy mass of golden and crimson anthers. There is a variety with double flowers which by some is considered superior to the type, though I much prefer the single form. The latter, however, certainly possesses one great advantage over the double variety, and that is its greater freedom of blooming, for the double kind rarely flowers well.—H. P.

Correas.—This genus of plants belongs to Australia, where the English settlers have christened the various kinds the "Native Fuchsia," which is not an inapt comparison. Notwithstanding the fact that these plants flower through the winter and spring months, how very seldom one meets with them in the gardens of the present day. I was the more pleased, therefore, to find a few kinds of this genus in a garden some distance from London. These plants specially reminded me of my young days, when they were well and largely cultivated. The plants in question had been grafted upon the kind known as *magnifica*, which is a bold strong grower, and it was claimed for this stock that it appeared to produce more vigour in the plants than the old *alba*, which is usually used as a parent for all the kinds. This was particularly noticeable in the case of *C. cardinalis*, a plant with bright scarlet tubular flowers, tipped with light green. It is a profuse blooming species, but usually fails to produce the effect its bright flowers should show on account of the thinness of the foliage. In

this plant, however, the leaves were plentiful and the specimen produced a beautiful effect; in fact, I may say it is the only time I have seen a plant of this kind which could be called handsome, the improvement in its appearance being ascribed to the stock. *C. ventricosa*, another kind flowering profusely, was very leafy. It is a much-branched kind, with tubular, rich crimson flowers, the lobes being tipped with green. Brilliant was another kind equally beautiful, the foliage being very deep green, and the long pendent flowers wholly deep rich crimson. I may add that these plants were flowered as grown; they were compact, but not mop-headed specimens, neither were the shoots trained upon a trellis. I certainly should like to see the Cape and New Holland plants return to favour, the bright colours and delicious odour yielded by a house full of these plants in spring being one of the happiest reminiscences of my early days in the garden.—G.

PLANTS IN AN UNHEATED HOUSE.

I HAVE previously alluded to the best method of excluding frost from an unheated house, and endeavoured to sketch some means that might be employed to mitigate, if not wholly ward off, its effects. Damp, as well as frost, are foes that need to be kept at bay, and damp will sometimes destroy more plants in an unheated house than frost, and especially so if the house be on the north side of a residence where little or no sun falls. The builders of suburban villa residences appear in many instances to regard the plant structure, to which they give the appellation of conservatory, however small, as a mere ornamental appendage to the house, and its adaptability for the growth of plants is the last consideration. In such structures many persons attempt to grow a few plants with varying success. They are often very defective in the matter of ventilation, which can only be given by means of side windows, which in winter time admit cold draughts of a hurtful character. If air be altogether excluded, then damp does its destructive work, and when damp is present the killing effects of frost are more severely felt.

In the case of a house on a north aspect, very little water is required during the late autumn and mid-winter months, and what is given should be given with great care. This is a grave difficulty with many villa gardeners. Not long since a neighbour brought me a plant (*Ficus elastica*) which maintained a healthy condition during the summer, but in the beginning of November was losing its leaves and had fallen into a sickly condition. The fact was, the soil about the roots was sodden and sour, and it was no wonder the plant sickened. It had been watered too much, and on my saying so, the reply was, "I was told to water it frequently in summer, and I concluded that it would be necessary to do this every day." This reply may provoke a smile, but among many persons who attempt to grow plants there is an impression that plants need a meal of water every day, and administer it accordingly quite irrespective of the state of the soil. Is it to be wondered at that plants so treated die?

At this time of the year plants in a cold house might be regarded as undergoing a period of rest; the functions of growth are almost, or quite, at a standstill, and they will bear the soil becoming nearly dry. The grower should watch the weather, and if water is necessary, give it when the weather is open, mild, and drying. It is best to take the plant to the scullery sink, water it well with chilled water, and then allow it to drain thoroughly before it is returned to the house. This is one way of preventing damp from gathering upon the shelf of the house, and so spreading to the plants. Plants in a state of inaction will go for a long time without water, but as soon as they begin to show signs of suffering by the flagging of the leaves or shrinking of the wood, then water should be given, taking care to soak the ball of soil thoroughly. To ensure this being done, it is well to stand the pot in a vessel of water until the soil is quite saturated with moisture. If water is administered to the plants in the house, let it be done on the

morning of a day that promises to be a drying one, so that any moisture on the shelf or floor of the house may dry up as quickly as possible.

Damp soon shows itself upon the leaves of a plant, and any so affected should be picked off as soon as discovered. The surface soil should be occasionally stirred so that damp should not gather there; the outside of the pots also should be kept as clean and dry as possible. These are simple precautions, but they have a great deal to do with the safe keeping of plants through the winter.

On all occasions of mild sunny days, when the wind is in the south or west, let air be given. Sunny, genial days occur up to the beginning of December, and if they are few and far between during that month and January, they occur again in the middle of February and onwards. But it is always well to close the house as soon as the sun begins to shine, thus conserving the warm air as much as possible.

By means of such precautions many plants of a tender character can be brought in safety through a trying winter. Anyone making pets of plants will not find it irksome to give the small attentions suggested, and they may fairly look forward to bringing many in safety through the winter.

R. D.

Hibiscus Dennisoni.—This is an elegant member of a family of plants all of which have been much neglected. The plant in question, however, is not showy as far as colour goes, as its flowers, which are large and freely produced, are of a soft creamy white, and contrast admirably with the leathery, cordate, dark green leaves. Judging by examples which I recently noted, it is well suited for pot culture, and produces quantities of flowers which continue to make a display for a long time. This plant is a native of the Pacific Islands, and thrives in an ordinary stove. It should be potted in a mixture of loam, peat, and leaf-mould, with a little sharp sand added. Drain the pots well, give plenty of water to the roots, and syringe the leaves frequently, before the flowers appear, to keep away the red spider.—W. H. G.

Eranthemum pulchellum.—This is an easily grown, free-flowering plant for the stove during the winter months, and is among the most ornamental of the genus to which it belongs, the flowers being of a beautiful shade of rich bright blue, and borne in the greatest profusion. The plant is of very easy culture, all that is needed to obtain good flowering specimens being to strike the cuttings either in the spring or early summer, and grow them on somewhat cool during the hot weather, and when autumn sets in remove them to the stove. By this means good healthy foliage is maintained, as if kept too close during the summer the leaves are very liable to become infested with red spider, which soon destroys the beauty of the plant. The individual flowers do not last in perfection very long, but a succession is kept up for a considerable period. When the pots are full of roots an occasional stimulant will be of service in lengthening the flowering season.—T.

Azalea rosæflora.—I was both pleased and interested on reading "H. P.'s" remarks on the above Azalea. There are, however, one or two points in addition which I venture to make respecting the plant: (1) its perfect hardiness; (2) its habit; (3) positions best suited for its full development. This Azalea has been grown in a shady position on the rockwork at York for several years without protection and without injury, and therefore may safely be said to be hardy. To see the many plants, both large and small, of this Azalea in the York Nurseries one would scarcely speak of them as "globular," but rather as irregular, straggling bushes from 6 inches to 2 feet or more high (not grafted plants). Now a word about the positions in which it evidently thrives the best. This was brought to my notice in the following manner: At the Saltaire Exhibition nearly two years ago Messrs. Backhouse exhibited some very fine specimens, one plant especially being fully a yard in diameter. This was left there the greater part of

the summer and I quite expected to see weak, puny growths, owing to it being in a sunless and dark place. This, however, was not the case, for the plant made far better and stronger growth than those which had been nursed, syringed, and cared for in the usual way at York. To all intending cultivators I would say, Grow it in shade. Treated in this way, and with proper material at the roots, it will not be found so slow as heretofore. It would be most interesting to know more of the history of this plant, its native habitats, and whether there is a single form of it, or one of any other colour besides that of the type. What a treasure a white variety would be!—R. POTTER.

Drosophyllum lusitanicum.—This novel member of the carnivorous section of plants I recently noted in excellent health in the garden of Sir Trevor Lawrence at Dorking. It is a native of the sandy shores and dry rocks by the seaside in Spain and Portugal, and differs from our own Sundews (*Droseras*) in having ten stamens to its flowers; and we are also told that in the manner of developing its leaves it is different to any other plant, inasmuch as they are rolled in a revolute manner. It forms a soft, but woody stem several inches high, and the leaves on the summit are some 6 inches or 8 inches long, quite narrow, and tapering to a point. The base of the leaf immediately joining the stem is smooth, but every other part of the plant, except the surface of the petals, is covered with reddish purple viscid glands, which are stalked, and under a microscope somewhat resemble button Mushrooms in shape. The flowers, of a soft bright yellow, are borne in a somewhat lax corymb. Sundews receive a considerable amount of attention at Burford Lodge, where numerous plants are to be found which are, unfortunately, neglected by the majority of plantmen.—W. H. G.

BOOKS.

MANUAL OF ORCHIDACEOUS PLANTS.*

WE have before us part 4 of this work, which deals exclusively with *Cypripediums*, and its issue at the present time is all the more welcome on account of the light which it throws on plants belonging to this justly popular genus, which has of late attracted a great amount of attention. It is only right to state here that the greatest credit is due to Messrs. Veitch and Sons for taking in hand and making perfectly clear and comprehensive a subject so exceedingly intricate as that relating to the various positions of species, varieties, and sub-varieties of the plants composing the genus *Cypripedium*. The authors, fully aware of the arduous task before them, candidly state (p. 9) that—

The variability in the size and colour of the flowers brought about by cultivation has been the most fruitful source of the existing sub-varieties, whose number is becoming practically unlimited. The consequence of this has been the creation of an overwhelming *Cypripedium* nomenclature, often so confused and perplexing that it is found impossible to deal with it in its entirety within the limits of the present work.

Notwithstanding the above statement, it may be safely said that no other work has done so much to simplify the genus as the new part just issued. All the known species and varieties are described, each accompanied with an historical note in which the origin, as far as it could possibly be ascertained, is given, together with the date of introduction and the name of the discoverer. In the compilation of this part, the same order as followed in the parts previously published has been preserved. After pointing out the superficial differences between the *Cypripediums* proper and the group originally called *Selenipedium* by Professor Reichenbach, who, however, afterwards abandoned that name in his subsequent articles in the *Gardeners' Chronicle*, and expressing an opinion shared by numerous specialists that "this dismemberment of the *Cypripedia* is not final," the authors describe the numerous species and varieties already in cultivation.

* "Manual of Orchidaceous Plants." Part 4: *Cypripedium*. By James Veitch and Sons, Royal Exotic Nursery, King's Road, Chelsea.

This is followed by a complete list of the hybrids artificially raised and a schedule of their proposed classification into groups, headed by the species to which each of them bears the greatest analogy. This new feature is a decided step in the right direction, as a purely alphabetical nomenclature gives no clue as to the relative positions that these seedlings occupy towards each other or towards their parents. An able review of "*Hybrid Cypripediums*" will be found at p. 70, in which the authors reproduce minutely the history of the process of hybridisation, and after noting its effects on that class of plants, defend with complete success and perfect right at p. 72 the simple English nomenclature, which they have been the first to adopt and to which they have adhered since the hybrids have become so numerous. As in the former parts, the use of the Fahrenheit thermometer is secondary to that of the centigrade, which is undoubtedly the most rational way of measuring the temperature, and which ought to supersede a system which possesses no definite basis. The care in the preparation of the work shows a masterly hand throughout, and it is only just to add that neither trouble nor expense have been spared to render this the most complete as also the most accurate book on the subject.

THE ORIGIN OF FLORAL STRUCTURES.*

THE author has felt impressed by what he regards as the inadequacy of the theory of natural selection to account for the diversities of form and structure in the vegetable world.

As generally understood, the Darwinian theory recognises (1) the fact that organisms vary from generation to generation, the descendant differing more or less from its progenitors in some way or other; (2) that more descendants are produced than can, under existing circumstances, possibly come to maturity, and (3) that of the variant forms, those will, of course, stand the best chance of coming to maturity which are best fitted to meet their surroundings. In other words, Nature selects the fittest, and these survive. But the question naturally arises, May not the surroundings have played an important part not merely in selecting advantageous variations, but in originating all variations? This question has presented itself to the minds of many investigators in the Old World, and it has been thoughtfully treated by Cope, Hyatt, and Ryder in this country. This is the inquiry which Professor Henslow places before the reader in the work under consideration, and he employs in some cases the terms which had been previously used by the American students above-mentioned, whose works were doubtless unknown to him.

At the outset we will say that the book appears to be a useful contribution to the subject. It is attractive and readable throughout, but to us it has been unsatisfactory, or, rather, unsatisfying. The lack does not arise so much from the method of reasoning or of statement of observed or cited facts, as from the author's use of terms. This may be illustrated by a reference to the beginning of the book. After assuming the ideal type of floral structure, he proceeds as follows: "We may at once consider the 'Principles of Variation,' as I propose to call them, in accordance with which the different members of flowers can be altered." "There are five principles which require special consideration. They are usually designated by the terms number, arrangement, cohesion, adhesion, and form." "The above five principles constitute the most important, in accordance with which Nature has brought about the infinite diversity which exists in the floral world. There are minor distinctions hereafter to be considered, such as colours, scents, &c.; but they are of less importance in investigating the causes at work which have evolved specific and generic differences amongst flowering plants." This sentence, in which we have placed italics, appears to indicate that the author makes

* "The Origin of Floral Structures through Insect and other Agencies." By the Rev. George Henslow, Professor of Botany, Queen's College. 349 pages, and numerous illustrations. D. Appleton and Co., New York. 1888.

no clear discrimination between a principle and a distinction, since the first is said simply to be more important than the latter. In other words, he employs the term principle to express distinctive character or distinction, and yet having appropriated it for this purpose, as he perhaps had a perfect right to do, makes it do double duty as a law or mode of action "in accordance with which Nature has brought about the infinite diversity which exists in the vegetable world." The author has probably not felt that any ambiguity can arise from such use of terms, but the casual reader and the careful student alike, who take up the book for the first time, will be liable to entertain a distrust which is not wholly warranted. The book ought to do good service in stimulating observation and in exciting intelligent inquiry even among those who are not botanists. *Garden and Forest.*

* * * From the above it will be seen that even the sympathetic editor of *Garden and Forest* is struck with the loose use of words of some of our self-styled "scientific" men.—ED.

ORCHIDS.

W. H. GOWER.

EULOPHIAS.

THIS very extensive genus is widely distributed, chiefly in India and Africa. It is a family which has not gained much favour with Orchid growers, chiefly perhaps because the dull-coloured, small-flowered species have been the first ones introduced.

E. GUINEENSIS and its variety *purpurata*, however, take rank with the most showy of tropical Orchids, the variety differing only in colour from the typical plant. It is a somewhat strong grower, with oblong or pyriform pseudo-bulbs, which are stout and some 2 inches high, bearing a pair of broad and strongly ribbed dark green leaves. The flower-scape rises from the base of the bulb, and attains a height of from 2 feet to 3 feet, bearing from one dozen to three dozen flowers, which individually are upwards of 2 inches across. The sepals and petals, nearly equal, standing together, and erect, are purplish green; lip large and spreading, white, with a crimson blotch at the base, from which proceed numerous radiating lines of the same colour. In the variety

PURPURATA the sepals and petals are deep rosy purple, whilst the large lip is rich magenta with a crimson stain, from which radiate numerous deep crimson veins. It is one of the most showy Orchids known, and is a native of Western Africa.

E. MACROSTACHYA is an Indian species, found on the Madras Hills and also in Ceylon. It has a rich yellow lip, streaked with purple, and is well deserving attention, although far less showy than the previously named kind.

E. ENGLOSSA and *Saundersi* are two West African plants, similar in growth, but differing very much in their flowers. Both, however, are handsome, and deserve more extended cultivation.

All the above require a warm, moist atmosphere.

The following notes on *Eulophia megistophylla*, of which an illustration is given, are from the *Revue Horticole*:—

This new plant, which was introduced from the Comoro Islands, in 1885, by M. Humblot, appears to attain large dimensions, judging from the shape and length of the pseudo-bulbs. It has recently flowered in a warm house at the Muséum in Paris, under the care of M. Louri. The following is a brief description of it: A plant of a very vigorous growth. Pseudo-bulbs very much elongated, almost caulescent in shape, not much swollen, and terminating in leaves which resemble those of a Phaius, the limb being leathery, strongly nerved, and attenuated for some distance at both ends. Inflorescence stiff, erect, 3 feet or more high, branching, with alternate ramifications, which stand closely erect. Flowers numerous, slightly fragrant, closely

set on ovarian peduncles, which are alternate, horizontal, between 1 inch and 2 inches in length; lip spreading, internal divisions more or less united, forming a hood, the deeply-lobed base of which bears on its lower part a short spur. All the parts of the flower are of a greenish yellow colour, strongly marked with brownish red lines. Without being what may be termed a handsome plant, *Eulophia megistophylla* (Rehb. fil.) is not devoid of merit, as, independent of its fine leaves, the plant is free-flowering, and produces a succession of bloom for three or four months.

The genus *Eulophia* (Robert Brown) was placed by Lindley in the *Vandæ* section of the



Eulophia megistophylla.

Orchidaceæ. The species under notice requires the temperature of a warm house.

Lælia elegans Blenheimensis.—This is the provisional name given by Mr. Sander, of St. Albans, to a superb new form, imported by him, and which I recently saw in flower. It is truly a grand variety, the flowers being very large, of a superb rich colour, and presenting a more massive appearance than those of any other variety known to me. The sepals and petals are broad and spreading, very deep rose-coloured; lip exceptionally broad (for *L. elegans*); middle lobe frilled round the edge and wholly deep rosy purple. It is one of the best of the dark forms of *elegans* which Mr. Sander has been so fortunate in introducing of late.—G.

Calanthe Sandhurstiana.—This is a beautiful hybrid, somewhat stronger in growth and deeper in colour than the grand *C. Veitchi*. It has also a dark spot on the lip. Besides its rich colour and length of spike, it appears to withstand the ravages

of a London fog better than other forms of this genus, which is a decided gain. We recently noted this plant in Mr. Williams' collection at Holloway flowering in great perfection.

Odontoglossum aspersum.—A somewhat curious form of this plant was recently flowering in the nurseries of Messrs. Seegar and Tropp, Lordship Lane, Dulwich. The flowers were of good size; the sepals and petals of a rich creamy yellow, the former mottled all over with cinnamon-brown; the petals much the broadest, and wholly of a rich creamy yellow, saving a few marks of cinnamon-brown at the base. In the normal form the large spreading lip is creamy yellow, but in the variety now noted the lip is of the purest white. Such a form we have not previously observed.

Dendrobium Goldiei.—If I mistake not, this beautiful plant was introduced by Mr. Williams, of Holloway, from the neighbourhood of Torres Straits. It is by no means a common plant, and I was much pleased to see it recently flowering with Mr. Measures at Camberwell. It appears to have a close relationship to *D. superbiens*, yet the flowers are quite distinct both in form and colour from those of that species, being of a rich claret colour. Coming from such a warm district, it naturally requires considerable heat to maintain it in good condition. A figure of this rare plant appeared in

Vol. XIV. of THE GARDEN (p. 244, t. 145).

—W. H. G.

Vanda Amesiana.—This superb new plant, introduced recently by Messrs. Low, of Clapton, is now flowering in the Wilton House collection at Southampton. It is a beautiful species and thoroughly distinct from any other Orchid in cultivation. It also appears to be a profuse bloomer, but not a strong grower, the plant having more the appearance of an *Aerides* than a *Vanda*, to which genus it has been assigned by Prof. Reichenbach, whose knowledge of this order of plants cannot be questioned. Its leaves are distichous, ligulate, rounded beneath and channelled on the upper side, and gradually taper to a fine point. They are thick and leathery in texture and very deep green. The spike is erect, upwards of a foot high, and bears from six to twelve flowers, which are very agreeably scented. The sepals and petals are pure white, with a faint tinge of flesh colour, whilst the lip is rich rosy-magenta. This is another of those beautiful small-growing Vandas which deserve the attention of all growers of Orchids. We cannot say from what part of the East this species has come, as the eager competition in trade necessitates the withholding of the name of its habitat, but it appears to thrive well with our other kinds. It is the first plant we have seen flowering in a private establishment.

Cattleya Trianae.—Numerous fine varieties of this plant were recently flowering in Messrs. Seegar and Tropp's establishment at Dulwich, where there is a large quantity of this species. Many flowers have been cut off by the fog, but should we be favoured with clear weather, there will be a grand display in this nursery shortly.

A new *Cypripedium.*—This is a new hybrid, which I recently noted in the establishment of Messrs. Seegar and Tropp, and is, I believe, from the same batch of seedlings from which they recently raised *C. Seegarianum* and *C. Savageanum*. The plant in question is the result of a cross between *C. Harrisianum* and *C. Spicerianum*, and the habit of the plant partakes of the first-named parent, which guarantees it to be a free grower. The leaves are light green, tessellated with a deeper shade of the same colour. The flowers, however, are more like those of *C. Spicerianum*; the dorsal sepal is white veined with red, and the whole of the surface between the veins is suffused with bright reddish violet; petals somewhat short, bronzy-green, profusely spotted with dots of claret colour; lip large, same colour as the petals without

the spots. A charming and thoroughly distinct form and a valuable addition to a genus which, I am assured by numerous growers of Orchids, is the most satisfactory of all, especially for growers in London or in any of the large towns.—W. H. G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JANUARY 15.

THE first meeting of the year was held last Tuesday in the Drill Hall, Westminster. The following were the best things shown:—

First-class certificates were awarded to the following plants:—

VANDA AMESIANA.—There have been several notes upon this beautiful Vanda in THE GARDEN from time to time, but we believe this is the first time on which it has been exhibited. It is one of the introductions of Messrs. Low, of Clapton, from the East Indies, and is a small-growing evergreen species of undoubted distinctness and beauty. The grooved leaves are narrow, leathery, and deep green; the flower-spikes erect, and carrying very delicately-coloured fragrant flowers, the sepals and petals of which are of equal size, white suffused with blush, the lip being deep rosy-magenta, a rich contrast to the paler tint of the sepals and petals. It is stated in one work to bloom in May and June. One specimen sent home to Messrs. Low, but which unfortunately did not survive the journey, was said by the collector to have borne 185 flowers. This seems to show that this Vanda has the great merit of free blooming, in addition to the intrinsic and delightful beauty of the flowers themselves. From Mr. Hill, gardener to Lord Rothschild, Tring Park, Tring.

CHINESE PRIMULA SWANLEY MAUVE (single).—Those who like a rich mauve colour will find a gem in this new variety of Messrs. H. Cannell and Sons, Swanley. The flower is about 2½ inches across, of great substance, and of a wholly mauve colour except the greenish yellow eye. The constitution of the plant is apparently most robust.

Awards of merit, to be a kind of substitute for the second-class certificate, were given to Chinese Primulas Miss Inez, double white, from Mr. John Knight, The Oaks, Epsom, and P. Princess Mary, delicate rose, from Messrs. H. Cannell.

Beyond the above there were few other things of any note. An interesting exhibit was the hybrid Phalenopsis named P. Rothschildiana, from Mr. Hill, Tring Park Gardens. It is a hybrid between P. Schilleriana and P. Aphrodite, the accepted name for P. amabilis (Lindl.). It is intermediate between the two, and has the sepals and petals pure white, the lip being dotted with crimson. A note will be found respecting this in "Notes of the Week" of the present number. Mr. Pollett, Fernside, Bickley, showed *Odontoglossum crispum rubro-maculatum* and O. Bickleyense. The former is a strikingly marked variety, and carried a spike of nine flowers which are snow white, except that the sepals and lip have large blotches of deep chocolate-maroon. The other was far more robust, the flowers large, creamy white, blotched boldly with brown. The specimen of it showed wonderful growth. A well-grown specimen of *Eucharis amazonica* came from Mr. A. Newell, gardener to Sir E. Saunders, Fairlawn, Wimbledon Common. *Cypripedium Savageanum*, a hybrid recently described in THE GARDEN, was shown by Messrs. Seeger & Tropp, of Dulwich. The best of the Swanley Primulas besides those named were Her Majesty, white, and Punctata carminata elegans, rose. Messrs. Cannell also sent the double-flowered *Bouvardia flavescens*, a yellow variety, apparently very free blooming. An interesting exhibit was *Billbergia decora* from Mr. F. Ross, of Pendell Court Gardens, Bletchingley. It is a very free winter-flowering Bromeliad from the Amazon valley, and has pale scarlet bracts. English growers have never seemed to take to the bromeliaceous class of plants, though the Belgians consider them in almost the same light as

we do Orchids here. In Kew Gardens there is a fine collection, but in very few other places. Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham, sent four kinds of *Lælia*. They were *Lælia anceps Dawsoniana*, petals broad and with the sepals white, lip lined inside with deep crimson, front portion deep magenta; *Sanderiana*, very beautiful, pure white, lip deep magenta, large, and of great substance; *Percivaliana*, blush, lip magenta; and *Stella*, a grand form, with narrow petals and broad sepals, white, and with a stain of yellow on the centre of the lip, but beyond this no other colour.

FRUIT comprised samples of *Doyenné d'Alençon* Pear from the Rev. W. Wilks, Croydon; Grape Mrs. Pearson, in excellent condition for January, from Mr. Allan, Gunton Park Gardens; and Apple Bodenham from Mr. J. Davies, gardener to Rev. H. Arkwright, Bodenham. It is something like Brabant Bellefleur, but we cannot speak of its quality.

The Rev. W. Wilks, before the business commenced, made a few remarks with respect to some alterations the council had made in the arrangements of 1889. The principal alteration was that the votes for and against certificates should be counted, recorded, and published; the other, that an award should be given to plants or fruits that were not sufficiently new or distinct for a first-class certificate, this to be called an "Award of Merit." The opinion was much divided as to the value of this award, but the majority of those present considered it an advantage.

The Chrysanthemum conference.—This part of the National Chrysanthemum Society's mid-winter exhibition should have proved to have been a complete success. The authorities of the Aquarium had, however, provided no better place for the gathering than one end of an open gallery, where the light was bad, the seating accommodation limited, and the noise going on in the building seriously interfered with readers and hearers. The acoustic properties of the place were so bad, that many of the some 200 growers present, numbers of whom had to stand through the whole time, could hardly hear. For that reason a general wish was expressed that the very admirable papers read should be published. It is very evident that the National Chrysanthemum Society will be simply a shuttlecock so long as it holds its gatherings at the Royal Aquarium. Mr. Holmes, the secretary, in the absence, through illness, of the veteran president, occupied the chair. Mr. Molyneux read the first paper, handling with much ability the subject prescribed to him, "Chrysanthemum Manures," and Mr. Gibson, of Morden Park, gave a capital paper on "The Damping of Blooms." Discussion was taken on these two papers. In relation to manures, one grower preferred bone dust to bone meal or dissolved bones for stiff soil, as also did Mr. E. Beckett, but Mr. Molyneux preferred the bone meal. With regard to the latter paper, Mr. Gibson was asked to define scalding as distinct from damping, which he did as clearly as possible. Mr. Kipling, of Knebworth, then read a meritorious paper on "Late Winter Chrysanthemums," which practically admitted of little discussion, as none resulted, and Mr. N. Davis, of Camberwell, concluded the series with a somewhat speculative paper on "Chrysanthemum Sports." Mr. G. Gordon referred to the value of sports on the show table. Cordial votes of thanks were given to the readers of papers and to the chairman.

Name wanted.—Your correspondent J. H. Reeve (p. 521, last volume) wishes to know what Pusley is. A few extracts from the Department of Agriculture report for 1887 will give about all the facts requisite: "Purslane or Pusley, a low prostrate annual with thick fleshy leaves." Prof. Gray states it is a native of Europe. Cobbett says it is a vile weed, and only fit for pigs and Frenchmen. I have seen it cultivated for salad in England. To continue the report, it states that it is troublesome from its prolificacy and early maturity, and from the fact that it will retain its vitality and mature its seeds after being detached from the soil. The amount of seed borne, and under favourable circumstances will grow, may be judged from the fact that 250,000 have been counted

on a single plant. I forgot to mention the botanical name (*Portulaca oleracea*). It is fortunate that Pusley is not included among English weeds, for if so, in a moist summer it would want hoeing up every day. —JAS. TAPLIN, Maywood, N.J., U.S.A.

Anthracite coal.—With reference to anthracite coal, perhaps our experience of it will be more encouraging to "B." than that of "T. R. F." and "X." We have used it last winter and this. We have a No. 3 tubular boiler, which has to heat about 400 feet of 4-inch piping. My man says he finds that anthracite coal raises the heat more quickly than coke, and that it gives a greater heat. The other day, when there were from 18° to 20° of frost he found the coal reliable, and did not use quite a bushel in the twenty-four hours. He mixes the ashes, cinders, &c., from the dusthole. He gives hardly any draught at all even to get the fire up when fresh lighted. He makes the fire up at 5 o'clock in the afternoon, and that, with the addition of a shovelful of coal next morning, lasts till five that day. Mixed with ashes, the coal does not cake. On the coldest night the coolest part of the conservatory (which is 80 feet long, the rest of the piping being laid on to the house) was not below 38°, and the fire was not made up to its fullest extent.—N. W.

* * The anthracite coal may answer in your case, where it only seems necessary to keep up a moderate temperature. You do not say whether any forcing has to be done, or whether you have a stove wherein a high temperature must be kept up.—ED.

Covent Garden sales.—Seeing in THE GARDEN of January 5 "Cornwall's" experience of Covent Garden dealers, I feel it is only fair to warn others not to send either flowers or fruit to any of these people without very good security for the cash. My case was this: In the early part of December I saw that a certain man advertised in THE GARDEN for good flowers and fruit, and as I had a great many Chrysanthemums, wrote and asked what he would give per dozen. In his answer which I have before me he says, "I can offer you from 1s. to 1s. 6d. per dozen." I happened to be going to town that week, so I went and saw him. He seemed most anxious I should send him a good supply up at once, and I brought down with me five empty boxes. Not feeling inclined to send up a large quantity the first time, I packed nine dozen good blooms, size from 2½ inches to 5 inches or 6 inches across, sent them off and paid the carriage. For days I heard nothing, and I had to write several times before I could get an invoice, which had on it simply, "one box of Chrysanthemums, 3s. 6d.," but I can get no explanation from the man as to the very small return; neither can I get the 3s. 6d. I know that week that blooms such as I sent him were selling from 1d. to 2d. each, as I bought some on purpose to see the price. I cannot help thinking that "Cornwall" and I have been cheated by the same man.—GLOUCESTER.

Heating by steam.—I propose erecting a set of glass houses about 150 feet long. Can any of your correspondents give me their experience in heating with steam from a vertical boiler which would run a dynamo for the dwelling house?—OAKS.

Mushroom house.—I propose building a Mushroom house about 30 feet by 10 feet, 6 feet by 8 feet in height, walls to be of brick, roof of matchboards thatched over, and shall be glad to know what thickness of brick is necessary, whether ventilation is wanted, north or south site preferable, hot-water boiler and pipes indispensable, &c. There being plenty of thick stone walling, with a north or south aspect at hand, could I make a lean-to house?—G. B.

BOOK RECEIVED.

"Rosarian's Year-Book" for 1889. Published by Pentrose and Sons, 23, Old Bailey, London.

Names of plants.—*Cruciferae*.—*Maxillaria picta*.—J. P. —1, *Cypripedium cardinale*; 2, *C. vermiculatum*; 3, *C. bellatulum*.—*C. M. B.* —1, *Eranthemum pulchellum*; 2, *Apelandra fascinator*; 3, *Erica brunnides*; 4, *E. elegans*.—*Nothofagaceae*.—1, *Adiantum fulvum*; 2, *Ionaria fluviatilis*; 3, *Doodia caudata*; 4, *Asplenium bulbiferum*; 5, *Doryopteris palmata*; 6, *Selagin caudiformis*.—*G. L.* —1, *Hypolepis distans*; 2, *Pellaea hastata*; 3, *Platylova Brownii*; 4, *Adiantum Wilesianum*.—*F. R.* —1, *Odontoglossum hebraicum*; 2, *Cattleya Trianae* var.; 3, *Cymbidium Lowianum*; 4, *Lælia autumnalis*.—*J. J. J.* —1, *Rhipsalis saliciformis*.—*M. R.* —Pale form of *Cattleya Mossiae*.—*H. J. R.* —1, *Cattleya Percivaliana*; 2, *Cypripedium insignis* (good form); 3, *Calanthe vestita luteo-ovata*; 4 and 5, *C. vestita igneo-ovata*; 6, *C. Veitchii alba*, apparently. —*S. S.* —1, *Cattleya Walkeriana*, quite distinct from *C. nobilior*; 2, *Calanthe Sandhurstiana*; 3, *Lælia anceps Hilliana*; 4, *Pendrobium superblens*.

WOODS & FORESTS.

FORESTRY.

PROPRIETORS of woodlands will be glad to learn that the prices of timber have been gradually rising for some time back, and from the general appearance of trade we have every reason to expect that the rise in price for some classes of timber will not only be maintained, but even exceeded before long. Home wood props for some time back have been realising 2s. per dozen of 72 feet for 3-inch stuff, and 4s. 2d. for 5-inch crowns f.o.b. This shows an advance of 2d. on the former and 11d. on the latter. Scotch Fir sleepers have been selling at 1s. 8d. and Larch at 2s. 6d. The former for some time have realised from 3d. to 4d. and the latter from 7d. to 9d. per cubic foot, according to quality; but from the notes in a paper before me on this subject I am led to believe that present prices will at least keep firm for some time. In order to show this the following quotation may prove interesting. Messrs. Alison, Cousland, and Co., in their annual timber report, say:—

The important record of this year is that the long-looked-for good trade has come, and this has been patent in the timber trade for the last five months. . . . Mechanics and manufacturers have increased their demands for wood, while pattern and box makers have been for some time very brisk. Cabinet-makers and workers in hard woods have been recently well employed. . . . There is almost a certainty that trade will continue good during the ensuing year. The stocks here, excepting deals, are low, and if the demand is maintained sufficient to keep the stock from accumulating prices will remain steady. . . . Yellow Pine deck wood and board wood have touched the highest prices on record. . . . This year the railway companies are pressed for rolling stock; therefore it is expected that the market will be bare of logs before June.

On the same subject Messrs Edmiston and Mitchells, in their yearly timber circular, say:—

In our last report we predicted that the tide had at last turned and ventured to anticipate a brighter state of things. In this, we are glad to say, we have not been disappointed, and it may safely be asserted that the general trade of the country has vastly improved, and is not without promise of further development. . . . It is not surprising, under all the circumstances, that we are able to record a much more cheerful report on the values of every description of timber imported into the Clyde than we have been able to do for many years past.

It will therefore be seen that the new year is far less gloomy than some of its predecessors. The first impulse given to the timber trade at Glasgow was the building of the house for the great International Exhibition at Kelvingrove, where upwards of 700,000 cubic feet of timber were used for the principal building alone.

Owing to the fine open weather which we have experienced for some time back, planting, felling timber and other estate improvements have not only been carried out to the best advantage, but also at a moderate outlay. I may here remark that in all my experience as a planter I have never seen better weather than the present for such operations since the winter of 1858-9, when I planted about 300 acres from November till March. Although the elevation above sea-level ranges from about 1000 feet to 1400 feet, yet very few blanks occurred, thus showing the necessity of pushing on such undertakings when the weather is open and propitious.

But although the weather is favourable for planting, yet this is the best season for felling timber, and when such is requisite it should not

be lost sight of at a favourable opportunity. When timber is felled before the sap begins to rise, it can be seasoned with less risk of damage by fungi than if felled during the growing season when loaded with sap. There is no time during the year so favourable for seasoning wood as the month of March; consequently I have found it a good plan to cut up as far as possible a sufficient quantity of the different sizes of scantlings for the requirements of the estate in early spring, in order to take advantage of the drying winds of March. On the other hand, when trees are felled and cut up for use when in a state of active growth, there is always a risk of the wood being damaged by black inky spots, and as these spots during damp weather often become covered with a fungoid growth in a single night's time, it shows that the wood is impregnated with the seeds of rot and decay, and therefore should be avoided as far as possible. In order to avoid this state of things, I have found it to be an advantage to place the newly-cut-up wood under cover in an open shed in such a way that a free current of air can pass through it from all quarters. This is a point of much importance in preparing wood, as inspectors of works and builders will not purchase wood cut when full of sap but at a reduced price, and a great many of them refuse to have it upon any terms. The felling of wood at the proper season and having it thoroughly prepared are important branches of the forester's duty, and should always be attended to.

J. B. WEBSTER.

EPPING FOREST.

MR. MCKENZIE, superintendent, sends us the following regarding Epping Forest: "A great deal of nonsense is written annually about the management of Epping Forest, and I lead much too busy a life to reply to everyone who fancies he knows all about forest management.

"At the time the rights of assignment and of lopping ceased the pollards stood on an average as many as 530 per acre; it was therefore clear that the trees intended to remain should have room to develop their heads. In order to do this the densest places were first selected, and the most promising trees were given the necessary room for spreading, not with a view to making timber trees of them—that was impossible—but with a view to making picturesque trees, and getting rid of the sear undergrowth which was a danger to the forest on account of the numerous incendiary and accidental fires which occur every summer, and also with a view of allowing the Grass and innumerable wild flowers to grow in profusion where there was previously neither a blade of Grass nor a wild flower to be seen.

"If the self-constituted preservers of Epping Forest would spend one-tenth of the time they occupy in writing to the Press in looking at the portions of the forest dealt with in this manner in previous years, and would do so on a Bank holiday, they would see thousands enjoying these portions for the tens they would see in the portions yet uncleared, and the way in which such parties enjoy themselves would be instructive.

"To attain this happy result has been the great object of the conservators, to whom I am alone responsible, and whose confidence I possess to the fullest extent, and I challenge anyone to say that any attempt has ever been made to convert Epping Forest into a Victoria or any other park. The management of some 6000 acres of a long-neglected and misused forest is no easy task, but I have the satisfaction of knowing that I have the support and approval of everyone whose experience in such matters is worth having."

THE trustees of the Massachusetts Society for Promoting Agriculture agreed, at a recent meeting, upon the request of Mr. B. E. Ferrow, to contribute

£20 towards the cost of the exhibit, which the officers of the Forest Division of the Department of Agriculture are preparing, to illustrate the forests and forest products of the United States at the Paris Exhibition of 1889.

THE DRAINAGE OF LAND.

THE draining of land being an expensive operation, it is necessary that it should be carried out economically, and in a manner calculated to attain the best results. This cannot be effected by any haphazard system, or by adhering strictly to any given rule, as it is often found, even in fields adjoining each other, that to do the work efficiently the depth and distance apart at which the drains may act in the once case, would be but imperfectly performed if they were placed in a similar position in the other. It is therefore necessary, before proceeding with draining operations on land that requires a regular system of drainage, that a definite plan, and one that is likely to prove effective should be first decided upon. The chief points on which this plan should be based are the position of the main drains, the depth and distance apart of the minor or secondary drains, and the direction in which they are to run.

The first consideration is the position of the main or carrier. This should be placed, all circumstances being favourable, in the lowest portion of the field, and in such a position as to have a sufficient fall. Sub-mains may be run into this where it is impracticable to carry all the minor ones into it. The depth of the mains will depend on that of the smaller drains, but in all cases they should be half the diameter of the pipes intended to be used, deeper than the latter, so that the low edge of the openings for the small pipes may be in the centre of the large ones, and unless there be a heavy run of water no interruption will take place with the inflow.

Various opinions exist as to the direction in which the minor drains should run, but where sufficient fall can be obtained they seem to act most efficiently when placed at an acute angle to the direct inclination of the ground. They are thus in a position to intercept the natural gravitation of the water that may arise from springs or that which falls on the surface. The depth of the minor drains and their distance apart should be regulated by the nature of the soil. Thus in an open or porous soil a depth of from 3 feet to 3½ feet, with a width between of about 24 feet, will prove effective; while on stiff or clay soils a depth of 3 feet, with a distance of about 18 feet apart, will be required. There are, however, occasions when it is desirable to go to a greater depth so as to reach a sound bottom, but otherwise, owing to the excessive cost of deep drainage and the imperfect manner in which it has hitherto acted, the depth at the present time seldom exceeds 3½ feet.

A. S.

Lime as a preservative of wood.—Lime is said to be a good preserver of timber. Ships and barges used for the transport of lime last longer than others. A small coasting schooner, laden with lime, was cast ashore and sunk. She was raised and set afloat once more, and remained sound for thirty years. Again, a platform of nine planks was used to mix lime on during three generations; then, being no longer required, was neglected, and at length hidden by Grass that grew over it. Sixty years afterwards, on clearing the ground, it was discovered sound and well preserved.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference purposes to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d.

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London: 27, Southampton Street, Strand, W.C.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWERS FOR HOUSE AND ROOM DECORATION.

FLOWERS now form such an important addition to the decorations of the house, and are, moreover, used in such profusion, that the gardener's resources are often taxed to the utmost to meet the still increasing demand. Not only are flowers in request for the dinner table, boudoir and sitting-room, but entrance halls, landings, and bedrooms are all enlivened by their presence. Notwithstanding the fact that flowers lend a charm to all apartments of the house when judiciously used, there is, I think, a danger of overdoing it in the present system of using flowers. A few glasses or jars placed in advantageous positions, and naturally and gracefully furnished, are, I consider, far more pleasing to the eye than a large number placed upon almost every available table, ledge, or cabinet top. Crowding is invariably the evil to be guarded against in all our floral arrangements. When large vases and epergnes of mixed flowers were in vogue, four times the requisite quantity of material was used in filling them, and now that the mixed vases are happily being superseded by simple glasses filled with flowers and consisting only of one or two kinds, there arises a similar danger of too greatly multiplying the bowls and glasses until they become a confused mass, exhibiting neither form nor beauty. One certainly has the idea and feeling of being surrounded by a host of flowers, and to some people this is all they desire, but to others—and I would fain think they constitute the majority—there are evidently a want of taste and a total absence of any definite idea in such lavish use of flowers. Unless when entering into any formal arrangement for a particular room, dinner table, &c., when they are often required of one form or colour, flowers, where used in rooms for the pleasure and enjoyment of those who frequent them, are more pleasing and attractive when simply, though artistically set up, and when the idea of the artist is apparent.

Much also depends upon the selection of glasses, which should be of different sizes and shapes, but always of plain or simple pattern, clear glass being the best. Jars and bowls are suitable for some things. Whatever description of receptacle is used, it should be chosen with a view to show the flower in its proper character. Roses, Dahlias, Chrysanthemums are not suitable flowers for small flat glasses, as their stems have to be so much shortened as to be scarcely visible. They should have glasses that will accommodate from 4 inches to 6 inches of stem, otherwise they are shorn of much natural beauty. Small glasses are better suited for Primroses, Snowdrops, Violets, and Squills. Open-mouthed glasses somewhat like a tall tumbler are well adapted for arranging such flowers as Carnations, Tea Roses—especially those that bloom in clusters—Daffodils, and Sweet Peas. Orchids should always be displayed to the greatest advantage, and as near to their natural position when growing as possible. Lilies, Amaryllids, Nerines, and similar things also deserve special attention, for no flowers are more valuable and beautiful for rooms than these are. Flowering shrubs of all kinds look well in jars and bowls, as also some of the larger hardy perennials.

As much, if not more, depends upon the thought and judgment exercised in cutting the flowers as the taste displayed in arranging them when gathered. Flowers indiscriminately collected cannot be well set up; therefore, the decorator should carry in his mind, when collecting his material, the purposes for which he requires it, the size and shape of the glasses and jars he intends filling, thereby greatly reducing his labour, as he knows where each handful of flowers is to go, and waste through cutting too many is avoided—no small consideration at some seasons of the year. To find a suitable companion in the form of foliage when their own is not available is often a difficult matter. More range, however, is desirable in this respect. Many fear to go outside Ferns and Asparagus stems when numbers of beautiful things may be found in the shrubbery. Amongst the Barberries are found several useful forms. Ivies, too, there are without number admirably adapted for mixing with flowers, besides many Conifers and others. Hardy perennials furnish us with much valuable material. Acanthuses, Aquilegias, Spiræas, &c., are most suitable; then there are the Bamboos and Grasses. All these things have long lain out of the beaten track of the flower gatherer; however, when once their value is discovered, they will not long remain so, but become indispensable.

In warm weather the best time for gathering is in the early morning, the stems, leaves, and petals at that time being charged with moisture, and when placed in water soon after being cut, remain in a fresh condition much longer than when picked in the daytime and allowed to droop before they can be arranged in the glasses. Flowers that stand well are always most in favour with those who require them largely for cutting, for however beautiful some kinds may be, if they do not possess in addition lasting powers, their value is considerably diminished. Nor is this to be wondered at, seeing the time and care which are bestowed upon them. Where the means for producing them are limited and the demand at the same time great, the gardener is compelled to select only those possessing this long-lasting quality. More particularly is this selection necessary with those grown for producing a supply during the winter months, when the blossoms unfold so slowly. It requires a considerable amount of forethought to be able to maintain a continuous supply of flowers during the winter season in private establishments where the other and various departments all claim attention, and where, perhaps, the houses are not particularly well adapted for the production of cut bloom.

When the Chrysanthemums are done, there is a considerable falling off, and the value of really late-flowering varieties of this flower should be borne in mind when propagating a stock for another year. Amongst those I have found to be good late kinds are, *Boule de Neige*, *Princess Teck*, *Hero of Stoke Newington*, *Mrs. N. Davis*, *Ceres*, *Mons. Lemoine*, *Meg Merrilies*, *Boule d'Or*, *Mrs. Charles Carey*, and two single varieties, one called *America*, and the other *Master Charlie*. *Calanthes* are valuable for winter cutting, and are easily grown by those possessing a stove. *Azaleas* are good things for forcing. *Tea Roses* yield quantities of bloom if the plants have been well cared for in the summer and the roots are in good condition; whilst besides *Marguerites*, *Callas*, *zonal Pelargoniums*, *Primulas*, and *Cyclamens*, there are many other things not so well known, but which should be grown to give variety. Among these are *Habrothamnus Newelli*, *Crassula lactea*, *Primula obconica*, *Freesia refracta alba*, not to

mention the many Dutch bulbs which are now so cheap and so well adapted for cutting.

A. BARKER.

ROSE GARDEN.

FORCING TEA ROSES IN AMERICA.

THINKING our method of forcing Tea Roses in this country would be of benefit to English growers, I will endeavour to give a few leading points. The plants are propagated the second week in February, potted into 2-inch pots and kept growing, a shift into other pots being given as they require it. By the first week in July they are good plants in 4-inch or 5-inch pots, from which they are planted into the benches in the houses, the benches being made to hold 5 inches to 6 inches' depth of soil, which is composed of good turfy loam and about one-fourth part of thoroughly decayed manure. The plants require all the air that can possibly be given them while at rest in the summer and frequent syringing to keep them clean and healthy. During the autumn they receive the same treatment, only they are more closely watched, as cold winds are sometimes very destructive and should not be allowed to blow in upon them. I am greatly in favour of ample ventilation to let the warm close air escape. Great care is needed in watering during the dark days of November and December, as if the soil once gets soaked with water the plants are injured. They should be kept at a day temperature of 60° to 65° and a night temperature of 50° to 55°. Painting the pipes here and there with a paste made of sulphur and lime is a good way to eradicate mildew. To keep green-fly down a good syringing is preferable to fumigating, as the tobacco smoke is sometimes very destructive to the buds, depriving them of their colour as well as deforming them. The plants should not be given a top-dressing of rotten manure till spring, as it excludes the air from the roots at the very time it is most needed. If they want a little nourishment before that time, some bone-meal worked into the soil will be found very useful.

The varieties we grow are *Lady Catherine Mermet*, *The Bride*, *Perle des Jardins*, *Papa Gontier*, *Bon Silene*, and *Niphetos*. They are all excellent Roses, the last three being very free, whilst *Lady Catherine Mermet* and *The Bride* are the two most lovely Roses in cultivation, being of superb form and great purity of colour. A vase filled with some three or four dozen flowers of the two last-named varieties arranged loosely and artistically is exceptionally beautiful. The plants are propagated from a single eye. Good solid wood, such as that from which a bloom has been cut, is the best. The cuttings are struck in clean sharp sand in an open bench in the propagating house, with a top heat of 50° and a bottom-heat of 65°; they root in about four weeks and are potted when the roots are about an inch long.

R. H. C. BAIRD.

Rochester, N.Y., U.S.A.

Tea Rose Madame Hoste.—In THE GARDEN, January 19 (p. 44), there is some account of this Rose which I think desirable should not pass unchallenged; I allude particularly to the statement (copied from the *Garden and Forest*) that within the past few days flowers have developed in America which rival the largest and most perfect *Maréchal Niel*. *Madame Hoste* is undoubtedly a charming Rose, and one that will rival many of the most prominent favourites. I am growing it largely, but buyers must not expect it to be either in colour or size a rival to *Maréchal Niel*. It is a yellowish

white, base of petals deeper yellow, large, full, and perfect form, a good grower, and abundant bloomer. In the bud state, when half expanded and fully developed, it maintains its beauty to the finish.—**BENJAMIN R. CANT.**

NEW ROSES OF 1888-9.

IN continuation of this list, which was last week suspended after the Hybrid Teas, we come to the Bourbons, which constitute a well-recognised link between the more obvious and direct progeny of the Tea-scented Roses and the universally accepted Hybrid Perpetuals. The additions made to the Bourbon class are not now-a-days very numerous, but this year Madame Schwartz announces a sport—Mme. Ernest Calvat—from that hardy, free, and rampant variety, Mme. Isaac Pereire, and if the sport combines the good qualities of its parent with a distinct and more pleasing shade of colour, it will be watched with great interest. M. Allégatière also continues his work with the myriad-flowered Roses, and appears this year to have obtained a fresh break, which it may be hoped will prove valuable.

BOURBONS.

MME. CHEVRIER (Vigneron).—Flower of fair size, erect, colour flesh-rose; extremely free-blooming.

MME. ERNEST CALVAT (Veuve Schwartz).—A sport from Mme. Isaac Pereire, which it differs from only in having flowers of a transparent china rose colour, base of petals yellowish.

MULTIFLORA.

FRANCESCO INGEGNOLI (Bernaix).—Vigorous climber, flowers small, round, semi-double, in large trusses, colour bright red, white tip; not perpetual.

POLYANTHA ROSES.

BLANCHE REBATEL (Bernaix).—Dwarf plant producing immense trusses of miniature flowers of a bright red colour.

FLORA (Veuve Schwartz).—Dwarf plant, with large trusses of flowers, cream colour, passing to pure white; fragrant.

MARIE PAVIÉ (Allégatière).—Dwarf plant, flowers large for the type, the colour of Souvenir de la Malmaison.

HYBRID POLYANTHA.

CLOTHILDE SOUPERT (Soupert and Notting).—Raised from a cross between Mignonette and Mme. Damaizin (T.). Vigorous plant, from 15 inches to 18 inches in height; flower large, very full, imbricated; outer petals pearly white, centre deep rose. Very free and fragrant.

DR. REYMONT (Allégatière).—Raised from a cross between General Jacqueminot and Polyantha. Very perpetual, flower of fair size, colour crimson.

MADAME ALLÉGATIÈRE (Allégatière).—Raised from a cross between Jules Margottin and Polyantha. Plant ever-blooming, flower bright rose, of moderate size, and lasting well.

PROVENCE.

PRESIDENT DUTAILLY (Dubreuil).—A perpetual variety, with erect velvety crimson flowers, cup-shaped, and very fragrant.

VIERGE DE CLERY (Baron—Veillard).—Flowers large, pure white, very fine, but not perpetual.

MOSS.

CEILLET PANACHÉ (C. Verdier).—Flowers of medium size, full, well formed; calyx well mossed; petals rosy-white ground, flaked and striped with bright red.

HYBRID PERPETUALS.

CHESHUNT SCARLET (George Paul).—A most vivid scarlet-crimson flower, semi-double only, but beautiful in the bud. First-class certificate Royal Horticultural Society as a decorative Rose.

COMTESSE BERTRAND DE BLACAS (E. Verdier).—Flowers globular or cupped, bright rose; fragrant.

COMTESSE BRANICKA (Lévêque).—Flower large, silvery satin rose.

COMTESSE DE ROQUETTE-BUISSON (Lévêque).—Clear rose, shaded deeper.

COMTESSE D'EU (E. Verdier).—Flower globular, bright cherry-rose colour, shaded vivid red.

COMTESSE JULIE DE SCHULENBURG (Soupert and Notting).—Crimson-purple, shaded velvety maroon.

COMTESSE O'GORMAN (Lévêque).—Bright red, shaded poppy-red and purple.

DUC D'ORLEANS (E. Verdier).—Brilliant red-lighted with shades of brighter red and carmine. Shape of Annie Wood.

EDOUARD MICHEL (E. Verdier).—Bright carmine shaded with currant-red; margins of petals reflexed.

EUGENE PERRIER (Perrier).—Seedling from Géant des Batailles. Flower solitary, erect; colour carmine, reverse of petals nearly white; fragrant, free, perpetual.

FELIX RIBEYRE (E. Verdier).—Deep rose, bordered silvery rose.

FERDINAND JAMAIN (Lévêque).—Colour the brightest red, very free.

JAMES BROWNLOW (Alex. Dickson).—Raised from a cross between Marquise de Castellane and Paul Neron. Flowers very large and fragrant, with very smooth petals of great substance, colour brilliant carmine; plant very vigorous, free, and perpetual.

JOHN D. PAWLE (George Paul).—Velvety crimson, shaded maroon, cupped; very perpetual and distinct.

JULES DESPONDS (Liabaud).—Flower globular, scarlet-red, shaded purple.

LADY ARTHUR HILL (Alex. Dickson).—A seedling from Beauty of Waltham, producing very distinct flowers of a rosy lilac colour. The plant is vigorous, very free blooming, and has most handsome foliage.

MME. BÈGNER (Vigneron).—Flower erect, bright red, fragrant.

MME. MANTIN (Vigneron).—Petals bright salmon-rose, with silvery margins; very perpetual.

MARCHIONESS OF LOENE (Wm. Paul).—Flowers cupped and very fragrant, colour full rose, shaded with carmine; habit very perpetual.

MARGARET HAYWOOD (Haywood).—A bright rosy pink sport from Madame Clemence Joigneaux.

MARGUERITE BOUDET (Guillot).—Plant fairly vigorous, flower large, erect; colour tender rose and lilac, shaded with silvery white, very fragrant.

MARIE METRAL (Liabaud).—Flower salmon-rose colour; habit of General Jacqueminot.

MARQUISE DE SALISBURY (Lévêque).—Rosy flesh colour, deeper centre, very large and well formed.

MONSIEUR TRIEVOZ (Veuve Schwartz).—Bright rose, shaded carmine, very perpetual. An improved Victor Verdier.

MOSER (Lévêque).—Flower blackish purple, lighted with scarlet and crimson.

OSCAR II. (Soupert and Notting).—Colour brilliant carmine, with silvery reflex; very fragrant.

PRINCE DE BEIRA (E. Verdier).—Flowers bright rose, shaded with red.

PRINCESSE MARGUERITE D'ORLEANS (E. Verdier).—Soft rose shaded deeper, margined almost with white.

PROFESSEUR JOLIBOIS (E. Verdier).—Flowers cupped, deep red, shaded with carmine.

SOUVENIR DE JOSEPH PERNET (Pernet père).—Flower amaranth-red, margined with blackish crimson and purple; very perpetual.

SOUVENIR DE VICTOR GAUTREAU (Gautreau).—Flowers of medium size, deep red, shaded with velvety carmine.

SOUVENIR DU BARON DE ROCHETAILLÉE (Liabaud).—Flowers globular, colour cinnabar-red.

VICTOR LEMOINE (Lévêque).—Dark red shaded with purple and brown.

WHITE LADY (Wm. Paul).—A creamy white sport from Lady Mary Fitzwilliam, less full than the type, but with immense petals. T. W. G.

MARECHAL NIEL ROSES IN POTS.

WHEN looking through a moderately sized garden the other day I was somewhat surprised to see a number of plants of Maréchal Niel Roses in 7-inch pots. Some had just been placed in an early vinery that had been started, but the majority of them were at the time mentioned in a cool house. The plants were of only one year's growth; indeed, the gardener made an annual practice of growing plants in 7-inch and 8-inch pots for the purpose of forcing into bloom during the months of February and March. They are usually struck from cuttings of young wood taken from an old plant in March. Six or seven are inserted in pots filled with a sandy compost. As a rule, the cuttings rooted best when placed close to the outside; indeed, in the case mentioned no cuttings were inserted in the centre of the pot. This, however, is, in my opinion, a matter of no importance, provided other points are judiciously managed. The cuttings inserted and well watered with tepid water, the pots are then plunged into a brisk bottom-heat, say about 85° or 90°, and covered with a bell-glass. Treated thus they will root in the comparatively short space of three weeks or a month, when they are potted into small pots and encouraged to grow as much as possible by being placed in a warm house and kept well syringed. When necessary they are repotted into the flowering pots, this usually taking place about the beginning of June. For the final potting a rough compost of fibry loam, Mushroom manure, and half-inch bones is usually used, and special care is taken to make the soil very firm, the cultivator referred to being under the impression that the Maréchal Niel, especially when on its own roots, as in this case, does best in firm soil. As soon as the final potting is done, every encouragement is given the plants to make growth. They are generally placed between the Vines in a warm vinery, and the growths tied to the wires up the roof of the house, and running parallel with the Vine rods. No stopping is done, so most of the plants are in reality one long stem, similar to a young Vine rod, though it frequently occurs that at about 18 inches or so from the base a natural break takes place; if so, all the growths are encouraged to grow. When well established in their flowering pots and growing vigorously, the plants are watered with liquid manure three or four times a week, and by this attention and keeping the growths free from green fly by a free use of the syringe, they not unfrequently make growths 10 feet and 12 feet in length and as thick as a child's finger by the end of August. At this period they are generally removed to a south wall, against which the shoots are temporarily tied, in order that they may become thoroughly well ripened, this being considered the chief point in their culture. Towards the end of September or early in October the plants are removed to a cool house, usually a Peach house or vinery. Three or four stakes are put in each pot, and the stem twisted around them. The surface of the old soil is scraped off and a top-dressing of loam and horse manure given, after which the plants need no further attention until they are placed in heat to bloom. Plants of this description would produce an immense quantity of bloom, and at the same time form neat specimens for embellishing the conservatory or room. C.

Rose Cloth of Gold.—My nephew, who is travelling in Ceylon, writes me as follows: "You have no idea at home of how Roses grow here. At a friend's estate close by there are two Cloth of Gold bushes, the stems of which are each 18 inches and 24 inches in circumference. I always heard at home that this Rose was a shy bloomer. These bushes have hundreds of lovely blooms on them. They are 9 feet in height."—C. J. G.

"The English Flower Garden."—Replying to various correspondents who have been unable to obtain copies of this book—long now out of print—we beg to say that it is now, after many changes and additions, being reprinted, and that it will be ready about one month hence.

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

CAULIFLOWERS.

WHERE plants have bolted owing to their being raised too early or if they are scarce from any other cause, it is advisable to sow seed now of both early and successional varieties. The Extra Early Forcing is the quickest to heart in, and this being of neat habit, renders it one of the best for culture in frames, rough pits, or handlights. Either Dwarf Erfurt, Mammoth, Mont Blanc, or Early London may be sown at the same time, these being a week or ten days later than the Early Forcing, while Magnum Bonum and Pearl are still later. The seed should be sown thinly in pans or boxes of fine soil and be set near the glass in gentle heat. Overhead syringing must be avoided, this breaking down the very brittle seedlings, which ought to be either given plenty of air when the weather permits, or be transferred to a warm greenhouse or other shelves for a few days prior to their either being pricked off thinly into boxes of good soil or in pairs into 4-inch pots. They ought never to be placed far from the glass, nor be allowed to become dry at the roots, this invariably ending in premature hearting in. Being duly hardened off, they ought to be finally planted before they become drawn or much root-bound. These early-raised plants are suitable for planting under glass, and also at the base of sunny walls and on warm borders. In the latter case they must be roughly protected with either mats or branches of Spruce Fir or other Evergreens. It is yet too early to interfere with those plants wintered with the aid of glass or other protection, but those under handlights especially ought to be thinned out early in order that the reserved portion may be forwarded somewhat. The plants should be given abundance of air in order to keep them dwarf and hardy, and unless frosts prevail, the thinning out and transplanting may be done during the second or third week in February.

FORCING LETTUCES.

Up to the present time very little harm has resulted to late-raised unprotected Lettuce plants, but even if these escape later frosts, they will not heart in so quickly as will January-raised plants of the Early Paris Market grown in frames. This variety, in addition to being of very quick growth, is also of excellent quality. To have it at its best, however, it should be gently forced. The seed ought to be sown at once thinly in pans of fine soil, and either set on a gentle hotbed or on a shelf in a forcing house. While the seedlings are growing, a slight hotbed ought to be prepared for their reception. On this set a two-light or larger frame, and if this is deep, partially fill it with some of the shortest forcing material, on this placing about 8 inches of fairly rich loamy soil, finishing off with a thin surfacing of fine light soil. If there is no likelihood of the bed becoming too hot, prick out the seedlings direct from the seed-pan and before they become drawn. The plants may be disposed 5 inches apart each way, the aim being to cut half the plants for early use and when not more than half grown; the remainder are left to grow to their full size. If preferred, they may be put out 8 inches apart each way, and none cut before they have formed hearts. Gentle forcing only should be resorted to, air being given whenever the weather is mild. The plants should be kept well supplied with tepid water, and the frames be matted over or otherwise protected every night. A good supply of this Lettuce may also be had from boxes of rich soil set near the fronts of gently-forced vineries and Peach houses. The earliest Lettucues grown in the open air are usually rather tough, but our forced plants are so tender as to require very careful handling and packing.

POTATOES IN PITS AND FRAMES.

Gentle hotbeds formed of leaves, or leaves and manure, are of the greatest assistance in forcing Potatoes, and where deep heated pits are available their culture is much simplified. Where only one or two frames, or two or three lights in a pit can be

devoted to the early crops, it is not, as a rule, advisable to commence forcing yet, most employers expecting a constant rather than a fitful supply. We find deep heated pits admirable for forcing Potatoes, these being cleared off early or before Easter, and either kidney Beans or Potatoes planted in close succession. The successional supplies of Potatoes, some of which are started now or early in February, are also followed by Beans, &c. Leaves are scarce this season, and many that we have collected are already half decayed; consequently we and all others similarly situated will have to depend principally upon stable manure for the hotbeds. This must be well prepared by frequent turnings, a violent or rank heat proving destructive to the Potatoes. Sufficient must be introduced into a pit to bring the soil up to within 6 inches of the glass, while for the frames the beds may be about 42 inches high at the back with a gentle slope to the front. If the manure is rather hot, delay soiling for a few days, otherwise it may be done at once. First face over the bed with a layer of short manure, on this placing not less than 9 inches of fresh loamy soil, such as old Melon and Mushroom beds, to which is added some sandy mould obtained by sifting over old potting-bench refuse. A 6-inch potful of superphosphate to every light, this being well mixed with the soil, will benefit both the Potatoes and succeeding crops. The sets, which ought not to have lost their first strong sprout, should be set closely and uprightly in boxes or trays and placed in gentle heat to commence active growth. All side shoots ought to be rubbed off, and when the central or reserved sprout is about 2 inches long the tubers ought to be planted. This is found a much better plan than planting direct from the storing place. The drills for them, which may well be opened with the hand, should be about 5 inches deep and from 12 inches to 15 inches apart, according to the width of the lights. Dispose the sets not less than 6 inches apart, and carefully mould over with the hand. Radishes are frequently sown over the surface of the beds, but unless very thinly grown they do not attain a serviceable size in heated pits, but succeed in unheated frames or where the Potatoes grow more slowly. The frames require to be closely covered every night with mats and also litter in severe weather, and all should receive a little air during the warmest part of the day, this being increased as the days lengthen and the haulm advances. Very little water is needed at the outset, unless given for the benefit of the Radishes, but when growing strongly, the Potatoes must not be allowed to become dry at the roots. No subsequent moulding up is necessary or advisable. Old Ashleaf, Mona's Pride, Veitch's Improved Ashleaf, Victor, Early Border, and Eclipse are all suitable varieties of Potatoes for forcing, the two first-named, if obtained true to name, being the best.

ONIONS FOR EXHIBITION.

Before the secret leaked out, many skilful gardeners could not understand why they failed to produce such fine specimens of the white Spanish type as were shown by a limited number of competitors at the leading shows. In some few instances these were really the result of sowing seed in the autumn, but it soon became an open secret that the finest and best-shaped bulbs were obtained by sowing seed in heat early in January, the plants thus obtained being far ahead of any raised later in the open. This practice is now largely followed by numerous exhibitors, and it is startling to some and amusing to others to see fine bulbs, 5 inches and upwards, staged early in August as "spring sown." The morality of this proceeding is of a doubtful nature, but as they are not disqualified, others must adopt the same system if they wish to equal or surpass their more enterprising rivals. Rousham Park Hero, Anglo White Spanish, and Banbury Improved are all fine for exhibition, the first-named, perhaps, being the best. Sow a pinch of seed in a pan of fine soil, well pressing it in prior to covering, and set it on a gentle hotbed or on a warm shelf till the seedlings appear. They must not be drawn up in heat, sturdy, not spindly plants being needed; but if first set on a greenhouse shelf and gradually hardened off, they

will be ready for dibbling out some time in March or early in April where they are to mature. Onions thus raised may be transplanted readily, and if given heavily-manured, deeply-dug, yet firm ground and otherwise liberally treated, growth is rapid, and fine, well-ripened bulbs will be obtained for the August shows. W. I.

POTATOES, EARLY PLANTING.

THE soil is so thoroughly soaked with heavy rains, and the frost has rendered it so soft and retentive, that it will be needful to think twice before commencing to plant early Potatoes in the open ground. There are many non-practical gardeners who rush hastily to the conclusion that with the incoming of the new year come also the sowing and planting seasons. It would be far wiser in most cases, and especially so with the soil in its present sodden, cold condition, were March to be regarded as the beginning of the season, and all sowing and planting of tender or semi-tender crops deferred till then. Seeds generally will be of doubtful quality this year, for we had last season one of the worst seed-producing seasons ever experienced; therefore, it is most evident that early sowing, so far from being helpful to growth, may but serve to prevent it. In many cases seeds which ordinarily are sown in March would be safer if not sown until April. Indeed, under any circumstances it is doubtful whether the seasons do not more and more favour deferred sowing. Growth, if begun late, will be all the more likely good and rapid, because the solar heat is greater, and there is far more of daylight than is the case a month sooner. Then we always find that plants from seed once checked or stunted by frost or excessive rain rarely recover and become so robust as plants from a later sowing and which have not been checked. Probably all seedsmen will this year very specially advise cautious late sowing of seeds, both because the soil is wet and cold, and samples are of indifferent quality. Potatoes come into a diverse category from seeds, but then if the tubers are sound and fully matured, they will break as strongly as during previous years. Very possibly some of the disease which so terribly devastates our Potato breadths is occasionally assisted by our method of planting the Potato so early, and thus in treating it as a hardy plant we only weaken its constitution and its power to resist the disease. Soil in a cold, wet condition, as it is now, is about as bad a bed in which to place Potato tubers as can well be found. The sets would be far better off on the shelf, and may then be kept and planted safely in proper seasons, with the certainty that a good crop will result in due course. Grubs and slugs do early planted Potatoes great injury in wet soils. Not only do these pests prey upon the tubers, but they devour the young shoots also. Later, when the soil is both drier and warmer, growth is more rapid, whilst insects have other food or are less active. It is easy to get Potato tubers for seed so advanced in growth, that some two or three weeks may be gained if the sets be started in a moderately mild temperature a month before being planted. It is better to get this sprouting done and an inch or so of stout growth put on to all the sets in good time, so that the tubers may be in a cooler temperature, and be partially hardened off before the sets are placed in the soil. Everybody knows how to effect the sprouting, but it is a pity so few take the trouble to bring it about. The method will this spring specially repay for the little labour involved in getting several pecks of early tubers duly sprouted as advised. A. D.

Beet.—It presents an admirable example of the comparative mildness of the winter so far that Beet roots stand out in the open ground not only quite unharmed, but fresh and vigorous in leafage. That is seen in no specially sheltered place, but in rather cold soil. Beets are, without doubt, by far the best flavoured when left in the ground as long as possible, as none of the juices of the roots are then lost. Even when lifted for the winter, I have always found storing by laying the roots in thickly beneath overhanging trees and throwing a few

leaves amongst and over the roots to give all needful protection, whilst the roots may be taken from the soil so sheltered in the hardest of weather and are quite plump and fresh. Carrots and Parsnips also keep well in the same way. A gardener at Mettistfont Abbey some years ago kept all his roots in this way beneath his nut trees during the winter. Whilst Dell's Crimson, or any of the selections from Dell's, such as Elcombe's, Pragnell's, and others, seem to be the favourite Beets for exhibition, not a few growers and market gardeners who like good-sized roots as well as rich colour and soft, pleasant flavoured flesh, prefer the Pine-apple or the Selected Covent Garden. This latter is a fine robust Beet, and the foliage is more erect than is that of the old and favourite Pine-apple. Beyond these, perhaps the most popular is the red Turnip-rooted kind, a variety happily of which so far it has not been easy to make synonyms, for the Turnip-rooted Beet remains what it is, let the selection be ever so carefully made. Those who have to meet a demand for early Beets find this kind a welcome aid. It is not without its value in the market for early work also, but the tapering-rooted kinds will always retain their position in popular esteem, because the flesh gives when properly prepared such delicate salading.—A. D.

THE ROYAL HORTICULTURAL SOCIETY.

I HAVE read a letter in your last issue from Mr. C. J. Grahame on the affairs of the above society in which my name is mentioned, and it is on this account that I venture to send a few lines, and at the outset I have to say that we have no "one-man-rule" here. It is my good fortune to serve a council who take a lively interest in the proceedings of the society. Take an illustration. A few years ago we wanted to raise a considerable sum of money for the erection of new glasshouses. The present chairman of our council (Mr. Joseph Broome) made a proposal for securing the needful. The council met, resolutions were adopted, and circulars issued, but had the matter rested here the result would have been practically nil. On several days in the week, for several months, Mr. Broome left his warehouse and called upon gentlemen in the city pleading the cause of (our then) poor society, and I believe that the result exceeded his expectations. On these occasions it was my good fortune to accompany him, and the training I received has, I venture to think, been of some service to our society since. We have issued thousands of circulars during the last few years setting forth the principles of membership to our society, but it has been in the main owing to the personal call which has brought about a better state of things. Whether the Royal Horticultural Society can adopt a similar plan I know not, but I think that the council might give the proposal a trial. There is one officer in connection with institutions which I have no hesitation in saying does much more harm than good, namely, that of hon. secretary. If the paid secretary is a man of energy and fertile in resource, he will very often be bringing some proposal under the notice of the governing body; but it may happen, and very often does happen, that the proposal does not meet with the approval of the hon. sec., and perhaps no action is taken, and thus a feeling of restraint is engendered, the result being unfavourable to the institution. I observe that the Royal Horticultural Society has recently appointed its committees. I would suggest that they appoint a canvassing committee consisting say of thirty members, and that these members go out in couples in likely localities, and lay the claims of the society before the community. Mr. Grahame is quite right in saying that horticultural interests cannot be served without money. To an outsider

like myself it seems a most extraordinary step the holding of horticultural meetings in a drill hall. The surroundings of a place like this of necessity shut out an expansion of the social element, which is an important factor in connection with horticultural demonstrations. Wishing that the old society may yet have a long and prosperous career.—BRUCE FINDLAY, *Manchester*.

— Will you allow me, as an old stager, to make a few remarks on Mr. Grahame's note on the Royal Horticultural Society (page 44). I entirely agree with the first paragraph on the importance of a good paid secretary. I long urged the necessity of one; indeed, it was only from the fact of influential members of the "special committee of Fellows" being strong on this point, that I continued on the council when my friend, Major Mason, and others left it.

The words in the special committee's report of 14th of February, 1888, are:—

The committee urges the paramount importance of appointing a well-qualified paid secretary at as early a date as possible, the services of such an officer being, in its opinion, indispensable for the adequate discharge of the work involved in the re-organisation of the society.

Mr. Grahame speaks of an accession of nearly 700 new Fellows in the past year; about 250 of these joined in answer to my appeal during the few months during which I felt justified in making it. One or two of these were £4 4s., some £2 2s., and the rest £1 1s. Fellows. Their names were given to me directly, or through friends or others who adopted the appeal.

Mr. Grahame speaks of the difficulty of getting amateurs to serve on the committees. During the long time I was chairman of the floral committee I felt very strongly that those who owned and took an interest in gardens should be well represented as well as those who supplied and cultivated them, and did my best to get amateurs to join, also asking those of my colleagues on the council who were Orchid growers to find one of their friends to come on. It was in answer to an appeal made in THE GARDEN of 29th December, 1883, that the energetic honorary secretary, Mr. Wilks, sent me his name, through a friend, as one willing to serve. The floral committee has just lost the services of an amateur, Dr. Lowe, one of the best and most successful rock-plant authorities in the country, and has gained those of Mr. Marshall, who adds to his many other qualifications the important one that he has considerable knowledge of the past history of the society. I entirely believe in Chiswick and in Mr. Barron, but not in its being a good place for the bi-monthly meetings. I believe its cost is now less than £1000 a-year.

I doubt the cost of a new Fellow being £1 1s., or even half that sum, and think that it should be remembered that if some have taken advantage of the power to reduce their subscriptions, others have joined as £4 4s. and £2 2s. subscribers, on account of their considering the lower subscription to be a good move.

The Royal Agricultural Society of England lives and pays its way principally on £1 subscriptions. I am too recent a member to have received any "proceedings," but I believe full ones are issued.

One effect of the new regulation, that no one can judge on the committees without being a Fellow, will be to put amateurs in a more hopeless minority at the general meetings than even they were before. Two committees of forty each, almost all with professional sympathies and accustomed to attend, will be, and anyone with the power of influencing them will be, com-

pletely masters of the situation.—GEORGE F. WILSON, *Heatherbank, Weybridge*.

— Mr. Grahame, the ex-secretary, I presume, of the Royal Horticultural Society, in his remarks and criticism, evidently Kensingtonian to the backbone, says some people are endeavouring to get up a spurious excitement about the society's greatest incubus, Chiswick, and to indulge to the fullest extent this hobby, they would deprive the London Fellows of any advantages in the way of floral meetings unless they were prepared forsooth to go to Chiswick. The movement, he says, has been "scotched," not killed, the party interested being a noisy and persistent, if not an influential, one. Strong language this; but is it true that the practical horticulturists would deny London Fellows the pleasure of attending floral meetings in London? I hope and think not, as I believe all who have the society's true interests at heart, whilst restoring Chiswick to its proper position as a laboratory and going back to the old lines, would insist upon having a bright, cheerful room in London, not only large enough, but conveniently situated for the fortnightly meetings. If this noisy party is too weak to hold its own or too pliant to persist in its good fight not only for the retention, but the restoration of Chiswick, why, as Mr. Grahame says, the sooner it is handed over to Kew the better. Kew surely has enough to do at home, but if it has not, what does Kew know about practical horticulture? Why, just enough to go on with the dabbling which already has brought the society to the verge of bankruptcy. If it is to be lifted out of the slough, gentlemen like Mr. Harry J. Veitch, in touch with employers and their gardeners, must still handle the ribbons, and if they fail we must affiliate with local societies.

Turning from this letter to intelligence which has just reached me, I have pleasure in informing the persistent party that in the Chiswick Gardens the trials for the year 1889 will comprise artificial manures, Muscat and Frontignan Grapes, fruit trees in pots, typical varieties of vegetables, also Broccoli, Cauliflower, Brussels Sprouts, Broad Beans, and Gourds. The collections of flowers will include Gloxinias, Pelargoniums, Chrysanthemums, Dahlias, Cannas, hardy herbaceous plants, alpinas, Carnations, Picotees, Pinks, and Pæonies.

If Mr. Barron carries out these trials well, as I am quite sure he will, the society as well as the contributors will get something for the "annual dead loss of about £1000," and if the fruitists who go to see the Frontignan Grapes and pot fruit trees, the florists to admire the wealth of beauty placed within their reach, do not become subscribers or increase their present subscriptions, the true friends of the society will be greatly disappointed. Mr. Barron already has a splendid collection of Figs in pots, but more varieties, it is reasonable to hope, will be sent. Then what a grand opportunity for correcting our Peach and Nectarine nomenclature and for reading papers on these fruits actually growing on the premises. Last, but not least, let us hope the trade will enable Mr. Barron to put his own teaching into practice by sending the pick of their Muscats and Frontignans in fruiting pots, as it is very important that the latter be brought prominently before the rising generation of young gardeners.—W. C.

Chimonanthus fragrans.—It is indeed surprising that a shrub like the above, perfectly hardy and flowering at the dullest time of the year, should receive such scanty attention from planters. The scent of the flowers is delightful. A few sprays are quite sufficient to scent a whole room.

CHRYSANTHEMUMS.

E. MOLYNEUX.

THE BEVERLEY FAMILY.

A FEW years ago the different varieties of this family of incurved Chrysanthemums were looked upon most favourably, and were considered essential in a prize stand of blooms, but now they are seldom met with at the leading shows and hardly ever in the winning stands, owing to their rough appearance, the petals being much too erect to form neatly incurved blooms. More especially is this the case since the introduction of the variety Mr. Bunn, which is a decided improvement, both in the form of the petals and colour on Golden Beverley, from which it is a sport.

As proving the decline in popularity of Golden Beverley since the advent of Mr. Bunn, an audit, recently published in a contemporary, of the number of blooms shown in the first prize stands at the leading exhibitions shows that Golden Beverley was only shown three times in first prize stands at forty leading exhibitions while the variety Mr. Bunn was shown thirty-four times. This fact proves the superiority of Mr. Bunn over its parent. Beverley was shown only fifteen times at the same number of exhibitions. Two new sports have appeared during the past season, and no doubt in time this will become an extended family. During the past season we had here on trial a sport from Beverley which the year previous possessed some curious features in colouring, the ground colour being of the original Beverley type, creamy white, which sometimes is slightly coloured. In the case under notice each petal had a distinct rose-coloured stripe down the centre, which rendered it a novel as well as a pleasing freak. Unluckily, it reverted back to the original colour, and for that reason it was discarded. The Beverley family is in much favour amongst amateur cultivators and other growers in the north of England. Especially well suited are the forms of this family for the amateur cultivator, as he can generally depend upon the plants producing a good percentage of blooms, no matter what the season may be, this not being the case with many others of the incurved section. Plants of all the Beverley type grow tall when cultivated for large blooms. Owing to their weak, drooping habit of growth, they are not well adapted for growing in any other form, the peduncles being so weak that the flowers do not show themselves except when numerous stakes are employed. The plants being weakly in growth, the employment of large pots is a mistake. Pots of 8 inches in diameter are large enough for single plants of any variety of this family. A somewhat lighter and less rich soil, with ample drainage, will be found an advantage. This and careful watering will prevent an early loss of the leaves from the plants, a weakness this family is subject to. At present there are five varieties now belonging to this family.

BEVERLEY.—The original form, I learn from the National Chrysanthemum Society's catalogue, was introduced in the year 1863. The colour is a creamy white, sometimes splashed or faintly striped with pink, but more often not than otherwise; the blooms are round, of good form, but the petals are too erect, not incurving sufficiently to render them

compact enough to rank amongst the leading varieties in the incurved section.

GOLDEN BEVERLEY was introduced three years later, and is, I presume, a sport from the original, being, as it is, the exact counterpart of Beverley except in colour, which is pale yellow.

MR. BUNN was introduced in the year 1881 as a sport from Golden Beverley, upon which it is a great improvement in form of the petals, which incurve neatly and are broader in form than those of its parent; the colour is bright golden-yellow, which under the best treatment is almost orange-yellow. The variety Mr. Bunn supplies a colour for the earliest shows not obtainable in any other sort. Nowhere in the south of England have I seen such fine examples of this variety as in the northern counties, where it generally assumes a deeper tone of colour. The petals are broader and incurve more regularly, owing possibly to the fact that

CHRYSANTHEMUM COTTAGE PINK.

THERE can be no doubt about the merit of this capital flower as a truly hardy out-door Chrysanthemum. The engraving shows a bunch of it, gathered from the open garden in the middle of November, when its cheerful light pink flowers, with rosy centres, are about at their best. The stalks are stiff and strong, and the leaves almost leathery. After the first frosts the leaves acquire a brilliant colouring, being edged, and splashed, and marbled with a strong crimson that adds much to the beauty of the plant. No rain hurts the flowers, whose petals on first opening are quilled, but afterwards become broad and flat. It is almost, if not quite, identical with Emperor of China, but possibly the plants that bore the flowers en-



Chrysanthemum Cottage Pink. Engraved for THE GARDEN.

growers there are enabled to select crown buds of this variety; whereas in the south many growers are compelled to depend upon terminal buds, the crown buds being too early for the shows in the south.

H. SHOESMITH is said to be a sport from the previously-named variety, but in my opinion it more closely resembles the Beverley type. The colour is a dull bronze and not quite the colour sought after. No doubt it will meet with many admirers for the early shows.

BRONZE MR. BUNN I have not seen, but from those who saw it at the late Hull show I learn it is an improvement, and likely to prove an acquisition, the colour being decided and the form of the flower good.

Chrysanthemum H. Waterer.—This is a fine late-flowering orange-yellow variety. On the 31st of December last we saw some blooms of it, which were large, fresh, very full, the petals being long and flat; altogether it is a fine sort for midwinter flowering.

graved may have a hardier constitution than the Emperor as grown under glass, from having been grown for generations in the open in cottage gardens. G. J.

Cutting down Chrysanthemums in autumn.—It is quite true, as stated by "E. M.," that Chrysanthemums have this year shown great reluctance to throw up cuttings. Many of my plants have produced no suckers at all, and when one has to wait for stem cuttings, the propagating time is thrown back considerably. As a good many of the best kinds, notably the various members of the Teck family, are always more or less shy in throwing up suckers, I this season adopted a method recommended last year by a correspondent in THE GARDEN, and the results are so good, that all Chrysanthemum growers would do well to make note of it. In the beginning of June I planted out

a few specimens of several kinds in good ground, and in the autumn they were cut down to within 6 inches of the ground. Later on they were taken up and planted in light soil, and they are now full of nice cuttings. Plants of the same kinds that were allowed to bloom are only just beginning to make cuttings. Where the latter are required early for the formation of specimen plants or for the production of large blooms, the cutting back of a few plants in autumn is probably the best way of making sure of them.—J. C. B.

NOTES ON MIDWINTER CHRYSANTHEMUMS.

AT the recent exhibition of midwinter Chrysanthemums held at the Aquarium, by far the best exhibit was that from Mr. J. Brown, Great Doods, Reigate, not that the blooms were the largest, but from their being arranged in neat bunches of about six blooms to each bunch. The blooms were fresh and the colour good. In striving to set up twenty-four single blooms on the ordinary stands at this late date, exhibitors are often compelled to insert a few very stale and often small flowers to make up the number. From a decorative point of view, I think that bunches of blooms are more effective now than shabby single blooms. The plants had been grown on what is termed the natural method, allowing most of the buds to develop on each shoot. The stand in question was made up almost entirely of Japanese varieties; indeed, throughout the show there was an absence of good blooms of the incurved sorts, showing well the superiority of the Japanese forms as producers of late flowers. In the stand named, *Beauté des Jardins* was especially fresh and rich in colour; so was *Martha Hardinge*, while amongst the light-coloured sorts, *Fulton*, *Pelican*, *Meg Merrilies*, *Rêve d'Or*, *Mons. Yvon* (pale primrose centre), and *Mrs. C. Carey* were most noteworthy. In other stands occurred good blooms of *Thunberg*, fresh and rich in colour; *Lowe's Bronze*, which bears a great similarity to *Mons. Lemoine*; and *Mme. Rozain*, bronze buff, a very fresh flower of the Japanese reflexed type. *Gloriosum* was especially noticeable, showing its adaptability for producing late flowers. Countess of Lytton is said to be a sport from *Ralph Brocklebank*, but the flowers, as shown, were very similar to those of that variety. *Boule de Neige*, one of the best whites, and *Roseum superbum* were noteworthy. *Le Centaur* (*Anemone*) much resembles *Marguerite Villageoise* both in form and colour *Guernsey Nugget* was especially fresh; so also were *Progne* and *Comtesse de Beauregard*. *W. G. Drover* (syn., *Mrs. F. Thompson*) showed different colours, according to the age of the blooms staged, some—the largest—being very “washy” in appearance; the younger and much smaller blooms showed a pleasing fresh colour. A few fairly good blooms of *Mrs. N. Davis* were staged. From the appearance of many of the blooms exhibited, it could be seen that green fly had been very troublesome to the late blooms. Successional fumigation of the plants with tobacco paper will kill the fly and will not injure the blooms of any colour if carefully done; therefore, growers need not be afraid to use the smoke for the destruction of aphides, which hasten on the decline of the blooms of Chrysanthemums more quickly than will the age of the flowers.

E. M.

Show v. decorative varieties.—The article containing the paragraph referred to by “X.” on page 22 of THE GARDEN was written with a view to give information to those persons who wish to add to their collections for exhibition, and not with a view of disparaging the varieties as decorative kinds. Some of them which are named are recommended as exhibition varieties. Why then was it wrong to judge and describe them in that way? Much better would it have been to describe them accurately than to allow cultivators to grow them a year solely from the vendor's recommendation, and in the end be disappointed, as many are by the enormous long lists of “new” varieties sent out each year and said to be improvements. I have no doubt others will differ from my views on the varieties named, but the opinions I gave re-

specting the qualities of the varieties for the purpose named cannot be disputed as being accurate. I venture to say that I have quite as deep a love for decorative varieties as has “X.” and I have not the slightest hesitation in saying that it is only by thorough development to its utmost capacity that we learn in many cases what certain varieties are capable of producing. There is no comparison between show and decorative varieties purely. Take, for instance, the variety which is the most telling of all in colour of the present day—I mean *Edwin Molyneux*. Can “X.” develop the same qualities in a decorative plant of this variety—for instance, colour and density of the petals—as is shown by the blooms cultivated for show purposes? I take it the method of culture which brings out the true character of any variety, whether it is good or bad, is the surest means of testing any new variety. After that the culture can be so modified as to bring the same variety within the scope of a decorative plant. Any variety which is considered good for decoration is not spoiled by being treated as an exhibition plant also. Writers against size in the Chrysanthemum have been agitating now a long time, but I think the truth must ere this have dawned upon them that rather than be diminishing it increases yearly, and seems to point to the fact that the “frenzy” still stands, and is more likely to increase than revert to the purely decorative taste.—S.

DAMPING IN CHRYSANTHEMUM BLOOMS.*

DAMPING of the blooms is one of the greatest annoyances Chrysanthemum growers have to contend with, for in a severe case damp steals over the blooms so suddenly as to do irreparable mischief in a few hours. What makes it more vexatious is that it does not occur in the early part of the season when there might be time to secure fresh plants and so in some measure recover the loss, but after a season's labour and care have been bestowed on the plants, and those in charge are looking forward for satisfactory results to reward them for their labours.

There are few cultivators of the Chrysanthemum whose experience extends over two or three seasons who have not felt the annoyance and perplexity which this damping causes, and as all good cultivators are enthusiastic and devoted to their plants, it naturally leads them to try and ascertain the cause of this mysterious evil. Everything is thought of to try and find where in the past treatment of the plants cause may have been given for such bad results. The supply of stimulants, chemicals, the drainage of the pots, and ventilation are all reviewed in order to find where culture may have been wrong or unsuited to the plants, in order to avoid those bad results in the future.

In my own experience I have not suffered more than others. I consider there are two forms of damping. One form damps from the base and centre of the florets, gradually stealing over the bloom until it is useless; and in the other the bloom is suddenly affected at the upper part and presents the appearance of having been scalded with hot water.

In the first form my opinion is that it is chiefly caused by overfeeding and overwatering. To obtain the highly developed blooms we meet with in the prize stands at the exhibitions, it is necessary to assist them with manure, either in a liquid state from the farmyard, or some of the various chemical compounds to be had at the present day. While the plants are growing, manure judiciously applied is of great benefit to build up vigorous plants, especially when the pots are full of roots and there is little danger of turning the soil in the pots sour. At the approach of autumn—say the middle of September—the buds have all been taken, some perhaps five weeks, and the wood has become hard up to the buds, a few of the earliest of which will be showing colour. Owing to the heavy dews we have at this season the plants are unable to take up so much water as they have been accustomed to, and also partly because they are not making growth.

* Read by Mr. C. Gibson, Mo den Park Gardens, Mitcham, at the National Chrysanthemum Society's Conference, January 9, 1889.

But strong manures are continued at this stage to obtain size and substance in the florets. In my opinion they are necessary to bring the blooms to perfection, although we may lose a few, especially in the case of varieties that are especially susceptible to damp. But I think care in watering the plants will reduce the evil to a minimum. By careful watering, I mean by applying water only when needed. If water is applied at this stage when the soil is wet, and especially if the air is charged with moisture, the plants cannot find an outlet for the superfluous moisture except in the most tender part of the plant—the bloom—hence the first adverse weather causes decay of the florets called “damping.”

In the second form of “damping” the worst case I remember occurred about three seasons ago. We had a few days very hot and bright, succeeded by a sudden change to wet with a little fog; it was about the third week in October, and the early blooms damped most severely at the time. I well remember there was a general lament amongst the growers at the floral committee meeting we had a day or two after. But having another favourable change in the weather damping stopped, and, in fact, I may say we were free from it for the rest of the season. As a grower I have had to guard against earliness, my plants having a tendency that way. Consequently, when housed, I use no fire-heat while the weather keeps favourable. When the atmosphere was not overcharged with moisture the blooms appeared all right, but when rain or fog suddenly set in then damp occurred. The fire would then be lighted and the pipes kept constantly warm, more or less according to the weather, but the fire was out at no time except on the morning of a bright day, to be lighted again in the afternoon. From the time the firing was commenced there was a reduction in damping. This leads me to conclude that the atmosphere and the sudden changes of the same have much to do with the damping, and especially where the blooms are suddenly affected. Fire heat dispels the stagnant moisture and causes a buoyant motion in the air favourable to keeping the blooms. When fire heat is first applied and blooms are opening, great care must be taken to keep the house well ventilated, and to let the pipes warm gradually, or the sudden heat might cause a great quantity of moisture to ascend, and then be condensed on the blooms, thus aggravating the evil it is intended to cure.

Numbers of early blooms were lost this season through a kind of damping of the lower florets, which faded in the way a bloom would through age, although these had, perhaps, not finished their centres. I believe this is attributable to the foggy weather we had at the time, for with dryer weather a great improvement at once became apparent, although, I think, blooms generally did not have the staying powers of an average season when we had more sun. I think this season the Chrysanthemums have suffered with most other plants. As the past season has been so very exceptional I need not dwell on this matter, for after all our efforts are feeble without that prime agent the sun. In conclusion, whilst I think where high feeding is carried on for the production of high class blooms damping will be present to some extent in most seasons, I think the best safeguards against damp are careful watering and ventilating, a dry and airy atmosphere, avoiding as much as possible all sudden changes, and the frequent use of stimulants rather than strong doses occasionally.

Single Chrysanthemum Jane or Snowflake.—Late in December some pretty white flowers were cut from plants of this variety grown in the following manner: When the blooms were cut from the main stems and side shoots, other growths commenced to push from the nodes on the main or central stems. These were allowed to grow, resulting in the production of the flowers above-named, which were of good form and pure white in colour.

Easily satisfied.—Mr. Ellis Lever shows his appreciation of natural beauty and all the lovely things in England by the following observations in the course of a letter to the *Times*:—

The Crystal Palace, as it now exists, is admirably

adapted for repeating the Hyde Park show, and the lovely gardens belonging to it could be utilised and enjoyed to the fullest extent. There is not, in this country, anything so grand or beautiful as the Crystal Palace and its surroundings.

ORCHIDS.

W. H. GOWER.

ONCIDIUM SPLENDIDUM.

THIS grand species is now very fine in the St. Albans Nursery, and, judging by the numerous flower-spikes which are rising, it promises to be a great source of attraction for a long time to come. The plants now flowering are some from amongst a large importation received by Mr. Sander in the early part of last year, and thus has been dispelled the idea of this variety being shy-blooming. It is said to be a wild plant both in Mexico and Guatemala, but from which district Mr. Sander's plants were obtained has not transpired, although I am given to understand it is found growing on the ground amongst the rank herbage, which dries up, leaving the *Oncidium* bare in the dry season. He assured me that these plants had cost him a lot of time and money to obtain, and when they did arrive they were so very strong and in such excellent condition, that the general public could not believe them to be true. Their flowering, however, has proved them to be what they were offered for, and also shows it to be a grand species. The flowers, at first sight, very much resemble those of *O. Barkeri*; they are, however, thicker in texture, the sepals and petals are all reflexed, which does not occur in *Barkeri*, and the yellow in the lip is much deeper. Moreover, the lip in *splendidum* is not unguiculate, as in *Barkeri*, which has a distinct narrow claw between the side lobes and the front lobe, while it is distinct in the crest. The flowers lack the beautiful odour of *Violets* which is given off by the last-named species. Were it not for this, anyone might mistake the flower for a fine variety of *Barkeri*; but having once seen the growth of the plant, I cannot understand how anyone can assign it a place as a variation in form only of that species, for no two plants can be more distinct in appearance. The first plant known of this species was brought to England by Mr. B. S. Williams, he having obtained it, I believe, from Messrs. Thibaut and Keteleer, of Paris, and this remained the only plant in England for some years. From Holloway it passed into the then famous collection of Mr. Sam Mendel, of Manchester, and when the plants were sold at that establishment it was purchased by Mr. Williams, I believe, for the sum of sixty guineas. I do not remember exactly the next destination of the plant, but I think it must have passed into the gardens of Lord Londesborough, for I find it figured in the *Bot. Mag.* (t. 5874) in January, 1871, having been drawn from the plant in the February of the previous year, then flowering in Lord Londesborough's collection, and in this place Dr. Hooker (now Sir Joseph) calls the plant a variety of *O. tigrinum* (*Barkeri*), and gives as its native country the Irapuato Mountains, near Valladolid and Paracho, and of Mechoacan, which are in Mexico. The plant had been previously well figured by M. Louis Van Houtte in the *Flore des Serres* (t. 1825), and its native habitat given as Guatemala. In this figure the spike is simple, whilst in the *Botanical Magazine* figure the spike is much branched, in this latter respect resembling the plants now flowering at St. Albans. The bulbs of these are somewhat orbicular, short and compressed, with blunt edges, deep green, tinged with a bronzy hue; they bear upon the summit

a single, stiff, thick and fleshy leaf, which is deep green, becoming brown with age, as if in its native habitat it was fully exposed to the sun, and I have observed that the leaves made in this country are not so tinged with brown. The spike is about 3 feet long, the upper third (or more) is occupied with numerous branches, which are many-flowered; flowers closely set (not lax, as in *O. Barkeri*); sepals and petals waved at the edges and recurved at the tips, yellow or greenish-yellow, transversely barred with brown, more or less bright in the different varieties; lip bright yellow, flat, lateral lobes small, deflexed, with a chestnut-brown stain on the edge, middle lobe slightly notched in front. In the specimen before me the front edge is bright chestnut-brown, the column short and furnished with small wings at the side, which are also edged with chestnut-brown. The plant appears to enjoy the warmth of the Cattleya house, and a fair amount of water to its roots when growing, but care must be taken that the drainage is perfect. When growth is finished, judging by its thick fleshy leaves and pseudobulbs, I should imagine it would enjoy a short and sharp dry season.

Orchids on cork.—Having lately noticed remarks on the culture of Orchids on cork, for the benefit of amateur growers, I wish to give my experience in this direction. During 1887 I imported a batch of *Lælia* from Rio. Having a supply of cork, and thinking how natural plants would appear on it, I fixed about a dozen plants on appropriately selected pieces, and the remainder I planted in pots, pans, and baskets. Those in pots have not succeeded so well as those in pans having vertical slots round the side, but the plants in baskets have done well, making good growth and giving plenty of flowers. The kinds referred to are *Lælia Dayana*, *L. cernua*, and *L. præstans*. My *Lælia albida* and varieties of *anceps* on cork have been a lamentable failure; whilst others on teak rafts have flowered nicely. I had also a plant of *Miltonia cuneata* on cork, which never flourished until basketed with its fellows. I have been, and am now, engaged in removing all my Orchids from the cork. I put the three first named Orchids in baskets in a mixture of peat fibre and chopped Sphagnum, intermixed with small nodules of charcoal, and surfaced the whole with Moss. I may remark that growing the first species alluded to in the coolest treatment, *i.e.*, with *Masdevallias* and *Odontoglossums*, is not an article of my belief.—E. BRETTELLE, *Newton-le-Willows*.

Cattleya calumnata.—This lovely French hybrid *Cattleya* was recently flowering in the Cambridge Lodge collection, where Mr. Simpkins is very successful with all the plants of the *Aclandiae* section, these amongst *Cattleyas* even being exceedingly handsome, and, as a rule, difficult to maintain in health for any length of time. The system of management in Mr. Measures' garden is to hang the plants up near the glass in a house in which *Cypripediums* are grown. During the winter they get no water, but the moisture in the house is sufficient to keep the short slender bulbs from shrivelling. This is specially necessary. During the period of growth, frequent applications of water are necessary with a free circulation of air. The plant in question is the result of a cross between *C. Aclandiae* and *C. intermedia*, and, naturally enough, there are some variations in the plants, the one under notice being one of the finest forms. In habit *calumnata* resembles *Aclandiae*, the short bulbs being even more slender than those of its parent. The flower retains the shape somewhat of that of *Aclandiae*. Its other parent would appear to have produced the white sepals and petals, and also to have increased the size of the side lobes of the lip. The flower is upwards of 4 inches across, the sepals and petals nearly equal, white, tinged with flesh colour, and profusely spotted with magenta. The side lobes are white, suffused with purple; front lobe wholly rich purplish-magenta, and somewhat

coarsely toothed on the edge. It is a charming plant, and when grown well flowers twice in the year.—W. H. G.

NEW HYBRID ORCHIDS.

BESIDES a long list of seedling *Cypripediums*, the only merit of many of which consists in their having been artificially produced, a good series of hybrid Orchids, due exclusively to the skill of the specialist, and all of the utmost interest, is also to be included among the novelties of 1888. Thus, for instance, there are the two splendid *Phalenopsis*, the production of which we owe to the perseverance of Mr. Seden, who for years past has paid special attention to the intercrossing of various members of this most lovely genus. One of these two new forms, and indeed a gem amongst the numerous Chelsea productions, has most deservedly been dedicated to this skilful and patient raiser. *Phalenopsis* John Seden is not only very attractive, but it is also the most distinct of the several hybrid *Phalenopsis* artificially raised. It is the result of a cross between the popular *P. grandiflora* and the beautifully coloured *P. Luddemanniana*, and the characters of both parents are plainly shown in the offspring, whose leaves are plain green, and whose flowers, about 2 inches in diameter, are white, but freely dotted all over with purple, while the three-lobed lip is tinged with reddish-purple. *Phalenopsis* F. C. Ames, although, perhaps, less showy than the one just described, is, nevertheless, a very interesting and valuable acquisition to the genus. It has been produced by the crossing of *P. anabilis* and *P. intermedia* Portei. Its foliage is uniformly green, and the flowers are of medium size and pure white, with the exception of the throat of the lip, which is ornamented with a reddish tint. In *Cypripedium Tautzianum* we have perhaps one of the most noteworthy of the many garden hybrids belonging to the genus. As might have been anticipated, this splendid novelty, being the result of a cross between *C. niveum* and *C. barbatum*, is of particularly rich and distinct colour, which in the petals is shown by veins and spots of deep crimson on a white ground, the lower edge being uniformly white, and in the dorsal or upper sepal, which is equally white, veined with crimson. Besides the peculiar, yet very pleasing combination of its colour, the flower is rendered very attractive by its neat shape, the lip being in the way of that of *C. niveum*, white on the under surface, and of a bright rosy crimson tint on the upper part. *Dendrobium chrysodiscus* is a hybrid of undoubted merit; it appears to be free-growing and free-flowering, and is the result of a cross effected between two striking parents—*D. Ainsworthi* and *D. Findleyanum*. Though possessing to a certain degree the beauty of both parents, the *Ainsworthi* parentage predominates in the characters of the flowers, which are of the same size and delightfully coloured; the greater portion is white, with a dense bronzy-red and yellowish blotch at the base. *Anguloa intermedia*, also raised at Chelsea, is the result of a cross between *A. Clowesi* and *A. Ruckeri*, and has flowers of moderate size and of the usual cup-shaped form, but entirely covered within with salmon-pink spots, which harmonise well with the pale buff colour of the exterior.

The *Cattleya* section is equally well represented by new home-raised varieties. The one named *C. Lamberhurst* hybrid is undoubtedly one of the most interesting hybrid Orchids, and one which, although not a bigeneric production, can, however, be classed with such as *Soprocattleya* and *Zygocolax*; for if the parents in this case do not belong to separate genera, their mode of growth and also their way of flowering are so very different, that their intercrossing had for many years proved very difficult. It is the result of a cross between two widely separated species, *C. intermedia* and *C. citrina*. The pseudo-bulbs, intermediate between those of both parents, are rounder, like those of *C. citrina*, but more elongated; their growth is almost upright, but the flower-spike has, nevertheless, a pendulous habit very like that of *C. citrina*. The flowers resemble in shape those of *C. citrina*, and are very fragrant, but have lost all traces of the bright yellow colour

peculiar to that species; the sepals and petals are creamy white, faintly tinted with pink, while the lip is of a delicate rosy colour, with veins of the same shade extending into the throat. *Lælia Ancepsiana* is another beautiful illustration of what can be produced at home by careful crossing; its petals and sepals are of a blush colour, and the broad lip is beautifully fringed, the pure white lower half forming a most striking contrast with the deep crimson colour of the terminal part. The plant shown from The Dell on July the 24th bore nine flowers on three spikes. We have in *Cattleya Harrisii* a most interesting hybrid, resulting from a cross between *C. Mendeli* and *C. Leopoldi*, and presenting a most happy combination of the characters peculiar to both parents. The pseudo-bulbs, like those of *C. Sieboldi*, are slender, and in the young plant shown at the meeting of the Royal Horticultural Society, October 23, they had attained the height of about 12 inches. The greatest resemblance to both parents is, however, shown in the flowers, whose broad lip, of a brilliant amethyst-purple, shows the side lobes rolled over the column, as is the case in *C. Leopoldi*, while the rosy lilac colour of the wavy sepals and petals, which are of a semi-transparent texture, resembles that of *C. Mendeli*. It is also very fragrant. *Epidendrum James O'Brien* also deserves a special notice, being the first variety of that interesting genus artificially raised. It is the result of a cross made at Chelsea between *E. evectum*, purple, and *E. rhizophorum*, brilliant scarlet. The colour of the flowers is intermediate between that of the two parents, and may be described as a bright rosy crimson or carmine. The growth of the plant is straggling, like that of *E. rhizophorum*, but the general appearance of the flowers is that of *E. evectum*, and they show the same peculiarly projecting lip as those of that species. S.

SHORT NOTES.—ORCHIDS.

Zygopetalum crinitum.—An old, but beautiful plant, deserving far more attention than it usually obtains, is now very pretty in Mr. Jacob's garden, Cheam Park, Surrey.

Lælia anceps alba.—This pure white form is very pretty just now in Mr. Tautz's garden at Shepherd's Bush, where several of the white varieties of *anceps* are showing flower.

Oncidium Phalænopsis.—This is a charming little gem, which I now see in many places round London, its bright flowers being specially welcome at this season of the year; moreover, it thrives well under the coolest treatment.—W. H. G.

Dendrobium splendidissimum.—The nurseries of Messrs. Seeger and Tropp were quite gay with this variety when I called just after Christmas. It is an early flowering hybrid of great beauty, and a great advance on its near relative, *D. Ainsworthii*.—G.

Odontoglossum Andersonianum.—A very pretty form of this plant is bearing a spike of eight blooms in Mr. Smees' garden; the sepals and petals are creamy white, bearing large spots and blotches of bright chestnut-brown. It is a charming form, which has lately become more common than when first described by Reichenbach in 1868.

Angræcum sesquipedale.—This species is flowering freely with Mr. Buchan at Wilton House, Southampton, several examples being now in bloom, the exact measurement of the flower from the tip of the upper sepal to the end of the spur being nearly 16 inches. The flower is exquisitely white and very fine.

Odontoglossum Ruckerianum.—There are many forms, or at least so-called forms, of this plant now in cultivation, but the true plant is always beautiful and distinct. The sepals and petals are margined with a band of rosy-purple, and are all spotted at the base with chestnut-brown; the lip, white in front, yellow at the base, is sparingly spotted with bright brown. It is now flowering in Mr. Williams' nursery at Holloway.

Zygopetalum Mackayi is a fine old plant, and its flowers at this season of the year are especially welcome, the broad lip streaked with blue being very conspicuous, especially as recently noted in the Studley House collection, where a plant was bearing nearly twenty flowers. *Zygopetalums* are not cool house plants, however, as they enjoy the temperature of the intermediate house.

Vandasavis.—An elegant light coloured form of this species was recently flowering in Mr. Horsman's collection at Colchester, the sepals and petals being

pure chisea-white, the spotting thick and continuous on the borders, the lip at the base being much lighter than is usual in this species. The exquisite perfume of the flowers should make these plants general favourites, independent of the graceful habit of the plants when not in flower.

ORCHIDS AT STONEHOUSE COURT.

AT Stonehouse Court, Gloucester, a capital collection of Orchids is being formed, and of which Major F. B. Chapman has every reason to be proud. This gentleman takes great interest in Orchids, every plant being under his own personal supervision, and their cultivation appears to be well understood. There are many valuable species and varieties to be seen in the different houses devoted to Orchids, the praiseworthy aim being to form a very choice rather than an extensive collection. Late in December the East Indian house was quite gay, the most noteworthy occupants being several good plants of *Dendrobium formosum* growing remarkably well on blocks suspended near the glass and flowering beautifully. *Dendrobium Dearei* was represented by two good plants, one having two strong spikes, each carrying respectively twelve and fourteen blooms. *Dendrobium bigibbum* was flowering freely, and mixed among the foregoing white *Dendrobes* was effective, and this serviceable species also remains fresh for many weeks. *Phalænopsis* in the same house are thriving admirably. One plant of *P. amabilis* was carrying a grand spike of bloom, and *P. Schilleriana* has good spikes forming. *Angræcum sesquipedale* is equally healthy, one strong plant having two spikes, and another one strong spike of bloom. A plant of *Angræcum citratum* has borne three exceptionally fine spikes. *Cypripedium Spicerianum*, *C. Haynaldianum*, and *C. biflorum* all deserve mention, these being among the best mid-winter Orchids. *Cypripedium Sedeni* and several well-flowered plants of *Cypripedium insigne* were worthy of note. *Cœlogyne cristata*, including the Chatsworth variety, *maxima*, and *Lemoiana*, are extensively and well grown and will soon present a beautiful sight, a few flowers being already open with hundreds to follow. In the same house are several good plants of *Lycaste Skinneri*, and there is also a grand specimen of *Dendrobium nobile* showing hundreds of buds. In a warm conservatory there are several good plants in flower, including *Oncidium ornithorrhynchum*, with thousands of its tiny blooms, and also well-flowered plants in baskets of *Odontoglossum Rossi*. A magnificent specimen of *Lælia anceps* growing in a 5-inch basket is carrying four good spikes of bloom, one having five blooms, and the others four each. I.

Cattleya bicolor Measuresiana.—This is a variety of this fine old species, with olive-brown sepals and petals, the rich magenta-purple lip being broadly bordered with white, which adds materially to its beauty. It is a beautiful autumn-blooming plant which is again becoming popular, and deservedly so. It requires to be kept in the warm end of the *Cattleya* house, and thrives best with good exposure to the sun.

Angræcum caudatum.—This plant, although introduced to cultivation upwards of half a century, has always remained rare, and still remains so to the present day; it has always been regarded as one of the finest of the genus to which it belongs, but some of the introductions of Ellis, Veitch, and Sander have removed it from the high position in which it was formerly held. It would appear to be a somewhat rare plant in its native habitat (West Africa), as so very few travellers find it.

Comparettia falcata.—This is a member of a small family with richly-coloured flowers, the present kind being a native of Peru and Columbia, and therefore it thrives best in the cool house. It is a dwarf-growing evergreen plant which has always been a favourite with Orchid growers, who have not been very fortunate in its cultivation, the cause, in my opinion, being too much heat and too dry an atmosphere. This plant bears a raceme of eight or

nine flowers of a pleasing shade of purplish crimson and they continue long in beauty.

Cœlogyne lentiginosa.—This charming, showy, and somewhat small-growing species we recently noted flowering in the Studley House collection at Shepherd's Bush. The flowers are nearly 2 inches across, the sepals being broader than the petals, which are pale yellow when the flower first opens, but become almost of an orange colour with age. It is a rare and pretty species, which should be grown in a shallow pan or basket near the glass in the warmest house.

Stenorhynchus speciosus, a fine old Orchid which now-a-days is too seldom seen, is now flowering in great beauty in Sir Trevor Lawrence's collection at Burford Lodge, the bright sepals and large bracts rendering it very attractive. It is nearly allied to *Spiranthes* (*Lady's Tresses*) and is said to be common in the West Indian Islands, where it is found growing in shaded moist woods and near the margins of streams at some considerable elevation, so that although it loses its leaves annually and takes a decided period of rest, its roots never become dry, and from this fact not being known, or not being taken into consideration by the cultivator, the plant is too frequently much weakened at this season by drought, this ultimately leading to its death. The plant in question has stout fleshy roots, and supports broadly-oblong leaves, which are pale green and soft in texture; the spike is erect, many-flowered, and bears numerous coral-red bracts; the sepals are long and tubular, with long pointed ends, and of the same coral-red colour as the bracts, the petals and lip being pure white. With this species are also numerous examples of the variety *maculatum*, which differs in having the leaves marked with large pearly spots. This plant will succeed well in a stove with ordinary stove plants, and it requires to be potted in a like manner. It grows strongest and best in good turfy loam, which should be well drained. During the growing season it requires an abundant supply of water, and when at rest the soil should be kept just moist, and the plant removed into a somewhat lower temperature.

Cattleya Percivaliana.—Numerous readers of THE GARDEN send me flowers of this species, all of which are fair varieties, some very good, but the finest of all, and really the finest form, which I think has come under my notice is that from Mr. Osborne, the gardener at Wilton House, Southampton. It does not excel in the size of the flower, but its colour is intense; the sepals and petals are broad and deep rose colour, the front portion of the lip being purplish crimson, behind which is a very deep crimson patch, which is bordered with deep orange colour, the inner side lobes being also profusely veined with orange, the whole making up an exceedingly rich flower. From Mr. Bedford, gardener at Straffan House, Kildare, also comes a flower. "The plant," he says, "came to me as an imported Mossia, the growth being like that of *Trianae*, but the flower is not, neither will it fit into *C. Percivaliana*." In spite of this statement, however, it is a veritable form of *Percivaliana*; the petals are fairly broad, but the sepals are very narrow and of a blush colour throughout; lip deep crimson, stained with orange behind, with a few orange veins on the side lobes, whilst the front portion of the lip is broadly margined with blush. The other contributions of this species are all fair examples of this variable, but beautiful plant, its flowers being specially welcome at this uncongenial season of the year.

W. H. G.

Cattleya Trianae Dayana.—This is one of the most gorgeous of all the varieties of this species I recently noted in Mr. Smees' charming garden at Carshalton, where, in spite of the terrible fogs we have experienced, it has stood unharmed for a month, having expanded its flowers on the 20th of December, a superb Christmas ornament. The flower in question is nearly 7 inches across the sepals and petals, lilac, flushed with rose; the side lobes of the lip are bright rose, the margins of these and the whole front lobe being of a very deep rich magenta-purple, and the throat bright orange; the petals are very broad, measuring 2½ inches

across. This most beautiful and variable species was named by Professor Reichenbach in compliment to Dr. Triana, a botanist in Columbia, and it is one of the most showy of the whole family.—W. H. G.

VANDA ROXBURGHII AND OTHERS.

I WAS pleased to read the account of this Vanda at page 30 by Mr. Gower. It is a very beautiful species, but not quite so easily grown as some others. I have always a kindly recollection of it, as it was the first Vanda I had under my care from imported plants, all of which did remarkably well in a rather lower winter temperature than that which Mr. Gower advises. He says, "Vandas do not require the amount of heat that is usually accorded them," and then proceeds to say that 60° is enough in winter. I fancy that most of the Vandas will do well in a winter temperature of 10° lower than this.

Mr. W. Thomson grows Vandas well in his large establishment at Clovenfords, near Galashiels. When I saw his plants a good many years ago they were in excellent health, well furnished from base to summit, and I fancy this exuberant health was attributed by him to growing them in a winter temperature of 50°, and even lower sometimes. Our own plants were grown in a much higher temperature at that time—60° to 65°, and they were at once placed in a lower one, which would average about 50°; indeed, on very cold nights it would fall to 45° in the early morning, but this not often, and the plants certainly did better. Some of the Indian *Aerides*, such as *A. crispum* and its varieties, *A. Fieldingi*, &c., and all of that group, succeed better in the lower temperature; indeed, we have them in this lower temperature now, and several times during the present season the temperature has fallen below 50°. The Indian Vanda *cærulea* likes a restful temperature after flowering, and we place the plants in the very coolest part of the house, where they almost touch the upright glass end open to the cold, and at the point furthest removed from the boiler. In its native habitat it delights to grow in open positions, such as on the top branches of Oak trees, tossed by the winds and scorched by the sun, while it must not be forgotten that sometimes the nights are very cold and hoar-frosts are not unknown where Vanda *cærulea* grows.

The first Vanda to flower in England, I believe, was *V. Roxburghii*, in the garden of Lady Banks at Spring Grove in November, 1820. The plant was grown in Sphagnum Moss in an ordinary wicker basket suspended from the roof of the stove house. There is a drawing of the plant in the *Botanical Magazine* for 1821 (tab. 2245). It is also well figured in the "Orchid Album" (tab. 59), and this does not differ in its markings from the early specimen. Mr. Gower omits to mention a very distinct variety of *V. Roxburghii* named *unicolor* figured in the *Botanical Magazine* (tab. 3416). The upper sides of the petals of this variety are of a uniform glossy chestnut-brown colour, and the middle lobe of the lip is of the same colour. It flowered in the collection of Lord Fitzwilliam at Wentworth. I do not know whether the singular-looking *V. teres* was the next introduction, but it appears on the scene in 1844, and flowered in the spring of that year at Kew. It was discovered about the same time by Dr. Wallich growing on trees in Sylhet, and by Mr. Griffith in Burmah. It was figured by Lindley in the *Botanical Register* (tab. 1809), and by Hooker in the *Botanical Magazine* (tab. 4114). It is unlike any of the other Vandas, and requires a totally different treatment from them. It grows very freely here. Close to the glass and exposed to the sun in the warmest house during summer in a steaming atmosphere it will grow 18 inches in a year. In winter it is again placed in the Cattleya house with Vanda *cærulea*, and receives no water for six weeks at a time. With this treatment it flowers freely in June and July.

Next we have Vanda *cristata*, a very singular-looking species which was found by Dr. Wallich as early as 1818 in Nepaul, and which flowered in Messrs. Rollisson's nursery at Tooting in March, 1842, two years before Vanda *teres* flowered at Kew. It

was described by Wallich as "a flower of exquisite beauty," but, when compared with the beautiful Orchids now in cultivation, this description scarcely applies.

In 1848 Messrs. James Veitch and Sons, of Chelsea, flowered in their nursery in December of that year *V. tricolor* (the true Vanda insignis of Blume had been discovered earlier). This was found by Mr. Thos. Lobb in Java, and is well figured in the *Botanical Magazine* (tab. 4432). Vanda *suavis* was figured in the same publication in 1860 (tab. 5174), but it is not stated who introduced it or where it flowered. In April of that year Messrs. Veitch flowered *V. gigantea* for the first time in this country, and many truly handsome species have been introduced during the last quarter of a century. No less than forty-nine species and varieties are described in the "Orchid Grower's Manual," the latest being the truly distinct and handsome *V. Sanderiana*, which is well grown in some collections and not so well in others. Mr. Horner seems to have hit the right treatment for it in his little house at Lowfields, where it does not seem to have such warm treatment as it obtains in some houses. Perhaps Mr. Horner will let us know

delicata. These forms are extremely handsome, but they cannot compare with *alba* for purity.

TREES AND SHRUBS.

THE HEMLOCK FIRS.

ABIES ALBERTIANA (Prince Albert's Fir).—This rapid growing tree, with a bole as straight as an arrow, and long pendulous branches well clothed with soft green foliage, stands in about the same relation to the better-known Hemlock Spruce (*Abies canadensis*) as the Atlantic Cedar does to the Cedar of Lebanon. In a young state it so closely resembles this highly ornamental, but too sparingly-planted Fir as to be often taken for it; but when growing side by side they are quite distinct, as *A. canadensis* forms more of a round or flat-headed tree, whilst *A. Albertiana* sends up its leader and soon overtops it. Introduced by the Oregon Association of Edinburgh, through their collector, Mr. J. Jeffrey, in 1851, and named in



Coning branch of Albert's Spruce Fir (*Abies Albertiana*). Engraved for THE GARDEN from specimen grown at Eastnor Castle.

what is the temperature of his house, and how this plant is treated. It would be also interesting to know if any cultivators have been successful in growing the Indian Vandas in a temperature of 50°.

J. DOUGLAS.

Dendrobium Cooksonianum.—This is a form of, or a sport from the old *D. nobile*, differing in having the petals marked at the base with a large deep velvety maroon blotch; indeed the petals may be said to be converted into lips, as they are marked exactly in the same manner, and which has the effect of producing a gorgeous display. Although this variety has appeared in several collections in the country, it still remains rare. It requires the same treatment as *nobile*.

Cattleya Trianae alba.—A very fine form of this plant is now flowering in Mr. Brankston's collection at Blackheath. This is perhaps the most beautiful of all the varieties of this diverse species; the flower is broad, compact, and pure white, saving a faint stain of lemon in the lip. Many plants are in cultivation under this name which, however, are not *alba*, being more or less suffused with flesh colour, which brings them close to the variety named

honour of the late Prince Consort, patron of the association, it forms one of a small section well known in this country as the Hemlock Firs, in Japan as the Tsuge, and being perfectly hardy, all the five or six species, with the exception of one from the Himalayas, deserve extensive culture, not so much for their timber, which is of little value, as for their remarkable habit and charming colour, when judiciously planted, in contrast with the more sombre and golden species in the pinetum. Indeed, independently of the fact that the list of Hemlock Firs is neither too large nor free from the usual botanist's confusion, I know of no family of Conifers so admirably adapted for giving grace and softness when well handled by the landscape planter, or for forming unique specimens in the smallest villa garden.

The tree from which the branchlet, the subject of the accompanying engraving, was taken was planted in 1862, and is now a very beautiful

specimen, but the ground being rather too thin and dry—for all Hemlock Firs like a deep, moist soil—it is not quite so robust as others growing on lower levels only a few feet above the margin of the lake at Eastnor. It has borne its diminutive pendent cones for some years, but never so freely as at the present time, a circumstance which may be put down to the hot, dry summer of 1887, as Conifers of all kinds, I am sorry to have to say, were unusually fertile last season. Having been so short a time in the country, A. Albertiana, sometimes called A. Mertensiana, has not yet assumed very large proportions, and yet there are some most promising specimens in a few places. When at Normanhurst, in Sussex, the seat of Lord Brassey, three years ago, I was delighted with some scores of trees growing there in the rudest health. But every pleasure has its alloy, for they had been planted much too thickly, and I was obliged to sympathise with Mr. Allen, the gardener, whose painful and immediate duty lay in the direction of felling or transplanting.

ABIES CANADENSIS, introduced in 1736, although too well known to need description, is not so frequently met with in the form of a really fine specimen as it should be. Its growth for the first few years, unless it stands quite clear on the open lawn, is pyramidal, but afterwards it throws undue vigour into one or two of the largest branches, when it becomes round or flat-headed and the leader loses its straightness. Its general habit then changes, but this spreading character does not detract from its beauty, as I never yet saw a large healthy Hemlock Spruce with which all artistic planters must not be enraptured. Trees here on the open lawns form perfect globes of soft grey pendent branchlets which completely hide the stems, whilst the cones, which are smaller than those of any other Fir, hang gracefully from the tips and remain perfect throughout the winter. Older trees, sheltered, but the reverse of crowded by other Conifers growing on a deep calcareous marl, have assumed a very fine character, and having been set perfectly clear, their partly exposed trunks and irregular branches now show to great advantage. The finest trees in Britain, Messrs. Veitch state, are growing at Norbury Park, near Dorking, and a grand group, no doubt still standing, might be seen thirty years ago in the grounds at Carton, near Maynooth, Ireland.

ABIES PATTONIANA, also introduced in 1851 by Mr. J. Jeffrey, to whom we are indebted for the true long-sheathed *Pinus Jeffreyi*, is so closely allied to *Abies Hookeriana*, that planters who have the one need not trouble about the other. It is described in Messrs. Veitch's "Manual" as "a tall strictly pyramidal tree, 100 feet to 150 feet high and 2 feet to 4 feet through; in high altitudes, only a shrub, of graceful habit, with slender pubescent branchlets and bright green foliage; bark thick, much cracked, and inclined to scale off, reddish grey, leaves closely set, half an inch long. Habitat, the higher regions of the Sierra Nevada; altitude, 8000 feet to 10,000 feet; from Ebbett's Pass to British Columbia." A most beautiful specimen, planted here in 1862, bears out the above description, but, judging from its slow rate of growth, I fear the youngest child will never live to see it attain 50 feet, much more three times 50 feet in height. It is, nevertheless, one of the most lovely light grey Conifers we have at Eastnor; hence my remark that some of the Hemlock Firs are admirably adapted for lawn specimens in the smallest villa gardens.

Passing over the Himalayan Hemlock Fir (*Abies Brunoniiana*), planted here and killed by

the severe frost of 1860-61, there remains one more gem of the first water which I must recommend, not only to the owner of the villa garden, but also to the landscape planter engaged in giving the finishing touch to the largest arboreal pictures. This is the true *Abies Tsuga*, the Japanese Hemlock Fir, introduced by the late Dr. Siebold in 1853. The enterprising firm at Chelsea describe it as—

A small, but elegant tree, having the habit and general appearance of the Canadian Hemlock Fir, with foliage of a brighter and more cheerful colour. Height 25 feet to 30 feet. Habitat Japan, common in the mountain forests; 3000 feet to 6000 feet of elevation.

It is likely to prove quite hardy in England, and is a beautiful tree for small lawns or for grouping in front of the stately *Abies Douglasi*; in fact, anywhere, from the rocky point, overhanging water, to the most diminutive garden, where the larger Conifers would be inappropriate.

The great American continent, Canada, and Japan having contributed to this small section of beautiful Conifers, the Japanese, in addition to the preceding, as usual, have furnished a grotesque member of the family in the form of *Abies Tsuga nana*. It is a slow-growing variety with small leaves; in fact, it is small in all its parts. Consequently, it is well adapted for rock or root-work, as it does not attain more than 4 feet or 5 feet in Japan, where it originated.

W. COLEMAN.

The Savin and its varieties.—The Savin (*Juniperus sabina*) is a highly ornamental low-growing Conifer, but it is rarely planted, yet I know of no more beautiful object on a lawn than a healthy specimen of this when allowed to assume its natural character. The branches will then radiate from the centre, and in time extend for a considerable distance, while the utmost height will probably be not more than 3 feet or 4 feet, the lower branches brushing the turf all around. Perhaps it is more beautiful in early autumn than at any other time, as then the heavy dews form on the foliage into pearl-like drops and stand out conspicuously against the deep green background. On sloping banks, too, the Savin often does well, and as a rock-work shrub it is surpassed by none, while I have seen it planted on some graves in an old churchyard, and very beautiful and appropriate it seemed. Unlike many of the smaller Conifers, it does not after a time get naked and shabby, but remains fresh and green in its old age. Besides this, winter makes no impression on the Savin, as it is quite frost-proof. There are a few well-marked varieties, chief among which are *tamariscifolia*, whose branches are more plume-like, the leaves of a deeper green, and the whole plant somewhat more upright in growth; while in *prostrata* the branches are quite procumbent, and will spread along the ground for a considerable distance, but there is usually a good length of naked stem, the principal portion of the foliage being gathered towards the ends of the branches. There is also a variety in which foliage of a creamy white colour is interspersed with that of the normal hue, and though few variegated Conifers are worth growing, this is one of the best.—T.

Sex of Skimmias.—In THE GARDEN of Jan. 12 (p. 38) I notice a contribution on the above from Mr. C. Wolley Dod, in which he observes that *S. oblata* is dioecious and produces only female flowers, and that such is the plant sold by nurserymen under that name. This statement is, I fear, somewhat misleading, and may possibly induce "A. C." and others to act on the suggestion given further on, viz. to buy *S. fragrans* and plant near it and they would then get berries on *oblata*. To the best of my knowledge, the *S. oblata* catalogued and sold by nurserymen under that name is a distinctly male plant, and therefore not berry-bearing, as probably many have already experienced who bought it with the idea that it would bear fruit. The female parent of *S. Foremani* came to me under the name of *oblata femina*, and certainly in

appearance it bore the characteristic features of the male, only that the flowers were few and very short set. By crossing this plant with pollen from *S. fragrans*, a species of vigorous habit and producing pyramidal spikes of sweet-scented flowers (*S. Foremani*) was obtained. This latter has inherited the robust qualities of the male parent as regards foliage, and surpasses in a marked degree its female progenitor in the size of its fruit bunches, which are prominently thrown up from the foliage, and which in some cases measure 3 inches to 4 inches from the base to the rounded point. Two other varieties were obtained from the same cross, the one a very fine male form; the other, with distinctive features in foliage from either of the foregoing, has not yet flowered. These facts, therefore, testify to *S. Foremani* being something different than a seedling from the male and female of the same species, and is evidence of its being more the result of a cross between two species. Of its value there can be no question, as it is doubtless unrivalled in the class of berry-bearing shrubs. I may also add that in the one instance where I have proved them, the seedlings of *S. Foremani* were unisexual, and produced six per cent. of females to males.—F. FOREMAN, *Eschbank Nursery, Midlothian*.

EVILS OF GRAFTING.

We doubt if there is a greater nuisance in the whole practice of gardening than the art of grafting. It is very clever, it is very interesting, but it will be no great loss if it is abolished altogether. It is for the convenience of the nurseryman that it is done in nine cases out of ten, and in nearly all instances it is not only needless, but harmful. Grafting enables the nurseryman to supply more quickly than he otherwise could do stock of a certain variety. It is not only detrimental to the tree itself, but the trouble occasioned by the continual removal of suckers is considerable. If we made the nurserymen give us things on their own roots, they would find some quick means of doing so. At first layers of some things are slow, but once started they make up in vigour. Then they are not confused, as the poor grafted shrub is, in struggling with an enemy below them, like the grafted *Rhododendron*, with the multitude of shoots that come up around it—a struggle which often ends in death.

Not only are distinct species put on each other, but the most incongruous things, as the Medlar upon the Hawthorn, and the *Pyracantha* upon the Quince. While, no doubt, many things are difficult to propagate, it is ridiculous to suppose that such things as the common Medlar and *Pyracantha*, which afford seed in abundance, and which could be easily raised from seed, require to be grafted.

We have seen many a Plum orchard, left to itself for a time, become one forest of shoots of some common stock that sucks the life from the graft. We bought a lot of Medlars for ornament, and were surprised to find thorns coming up from their roots. We had a lot of the prickly *Pyracantha* for fencing. The plants came, and we took some trouble with them, but towards the end of last summer Quince shoots came up from each! The Quince being vigorous in moist soil, the *Pyracantha*, which is only an evergreen trailing shrub, has a poor chance. The nurseryman, whilst saving himself trouble, gives us something we do not want, and a lot of trouble into the bargain.

The beautiful Rose *Acacia* we never see in its natural condition. It is often stunted and distorted, and in a strong wind the head is blown off. Layering would no doubt give more trouble to nurserymen than the expeditious process of grafting, but then it is their business to take trouble. Roses are often sold simply to die. We bought a batch of plants of Catherine Mermet, and planted them in a rich loamy border, and after a time found they were on the Manetti stock. After three years the plants had hardly grown at all. It is greatly to be regretted that such a stock as the Manetti should be frequently used. Evils in fruit gardens from grafting are abundant.—Field.

* * We invite our readers' opinions on the above subject. While it is always assumed that grafting

of some sort is the only safe way with fruit trees, it will hardly be maintained that it is necessary for the many trees and shrubs for which it is used.—ED.

Atraphaxis spinosa.—If you do not know the plant, you will be surprised (from its name) to see no spines. But the fact is it has none, but the tips of the branches are apt to die beyond the leaves and look spinose. It is perfectly hardy, and when in full flower is a pretty shrub. I grow it on the north side of rockwork, but I think it will grow anywhere and in any soil. It is a favourite in French gardens. I saw it first in a garden at Chartres, where it was almost a weed, and I think my plant came from the Paris Garden.—H. N. ELLACOMBE, *Bitton*.

Winter scenery.—Mr. Inchbald (p. 24) strikes a good note here. Few persons fail to admire the beautiful manner in which hoar-frost variegates every twig and branch, and this effect ought to be taken into account by every gardener and owner of a garden. But I suppose that many years will elapse before the winter aspect of a garden comes to be considered as a thing of beauty. The regular practice of clearing away in the autumn every dead leaf, stem, and frond, and showing as much bare ground as possible, has, no doubt, had much to do in preventing the beautiful winter pictures a well furnished garden is capable of showing from being appreciated as they ought. Apart from hoar-frost, my contention is that every stem and leaf and frond should be left standing for the sake of the varied shades of brown and russet they present, and there is no reason why we should not admire these tints as much as we do the varied shades of green, &c., in summer. Leaves and stems not only mark the position of the plants during winter, but afford them protection, besides adding so much to the garden landscape. From an artistic point of view there is no sort of comparison between a garden so furnished and one reduced to a dreary waste of bare earth. Only the other day I heard a person, himself no mean judge of beauty, say, when standing in front of a well-developed mass of *Polygonum Sieboldi* (dead stems), that he was not so sure that some of these things were not better dead than alive. In the case of this plant, not only are the beautiful curves of the stems and the fine spray seen to full advantage, but the purplish Plum-like bloom upon the stems is quite conspicuous.—T. SMITH.

Disputed hardiness of *Picea bracteata*.—Mr. Culverwell (p. 58), bearing testimony to the beauty of this Conifer, states that it was killed down to the snow-line in Yorkshire in 1860-1. That winter was remarkable, not only for its severity, but also for the cold wet summer which preceded it, and last, but not least fatal, for the moist mild weather which kept trees in active growth up to the eve of the frost, when the thermometer with us marked 34° on Christmas morning. So severe, indeed, was the frost, and so badly prepared the trees, that of *Pinus insignis* we lost over 150, and of *Cupressus macrocarpa* over 100, not tiny trees, but fine specimens from 20 feet to 40 feet in height, consequently thoroughly established in the soil. How *Picea bracteata* would have fared I am. I must admit, unprepared to assert with any degree of certainty, but, considering that I afterwards planted it above the death-line, and in close proximity to three fine specimens of *Cupressus Lambertiana* which had escaped, I am inclined to believe it would not have been injured. Oaks and other indigenous trees were injured by the bursting of the cells literally full of flowing sap at the time, and yet I believe we have a right to say these monarchs of the forest are hardy, and so I believe, practically speaking, is *Picea bracteata*. Facts, of course, are stubborn things, and so is a reading of the mercury 14° below zero. Then, again, these readings may be repeated, but unless the wood, as in 1860, is unripe and growing up to the eve of the frost, I am unwilling to believe that any of the Californian high-altitude Conifers can be killed to the ground. One grain of comfort, at any rate, lies in the fact that Mr. Culverwell's tree appears to

havestood bravely the frosts of the past twenty-eight years. Therefore, in the hope that the memorable summer and winter of 1860-1 may not be repeated, I must still ask all planters to give this charming Conifer a trial. Trees are cheap enough now, and everyone who reads knows where to select a suitable site. If killed once in twenty-eight years, what then? Why, plant again. The majority of planters did not venture on *Pinus insignis* a second time. We crowned our highest points and clothed the hill-sides in 1862, and we have had twenty-six years' enjoyment out of cone-bearing specimens quite as tall as those which escaped, as it must be understood that our losses were below, not above, what I have termed the death-line.—W. C.

SOME GOOD SHRUBBY SPIRÆAS.

AMONG the great numbers of flowering shrubs that we possess, the Spiræas occupy a prominent position; still, the genus is such an extensive one that in most cases a selection is necessary, and where a few only are required, I should be inclined to name the following as affording good variety, and also extending the flowering season over a considerable period. The first to unfold their blossoms are the Japanese *S. Thunbergi* and the beautiful double-flowered *S. prunifolia* fl.-pl. Of these, the first, *S. Thunbergi*, forms a much-branched bush, with slender arching shoots, clothed with bright green lanceolate leaves. The flowers are something like those of the Hawthorn, but smaller; still, they are borne in such profusion, that the principal shoots are completely wreathed with them. This species generally flowers during the month of April, when the clusters of tender green leaves make their appearance simultaneously with the blossoms, so that it is a charming shrub at that season, and not then alone, for even when the flowers are over the bright green lanceolate leaves retain their freshness till late in the season; indeed, it is often sub-evergreen in character. This Spiræa is one of the easiest of hardy shrubs to force into flower under glass, but so treated the blossoms do not last long. *S. prunifolia* fl.-pl. is usually rather later than the last-named in unfolding its flowers, but it is altogether a larger and more showy kind. It forms a large spreading bush, 5 feet or 6 feet high, with long, slender, gracefully-disposed shoots, wreathed throughout their upper portion with small clusters of pretty double pure white blossoms. The foliage of this dies off in the autumn the brightest tinted of all the Spiræas. The sprays last a long time in water if they are gathered just as the tiny rosette-like blossoms are on the point of expanding.

Spiræa arifolia, which flowers about the end of June or July, is one of the largest growing of the whole genus, reaching as it does a height of 8 feet to 10 feet, and forming a somewhat erect, but branching shrub. The flowers are creamy white, and are borne in open plume-like panicles, which from their abundance render this species one of the showiest of summer-flowering shrubs. *S. Douglasi* is another North American species, and the only shrubby Spiræa of which a coloured plate has appeared in THE GARDEN (March 17, 1883). It is a remarkably handsome shrub, of rather erect growth, and when in a thriving condition it forms a large clump of densely packed shoots clothed with foliage of a more or less tomentose character, and terminated by a dense erect panicle of rosy red blossoms. This Spiræa is very variable in the colour of the blossoms as well as in the amount of down on the leaves. Some of the forms are known under the names of *tomentosa*, *Nobleana*, and *Menziesi*, but the best and the one that should be principally sought after is the sturdy growing, deep coloured form, under whatever name it may be found. *Spiræa callosa*, or *japonica*, as it is sometimes called, as a rule does not flower till after midsummer, but from that time a succession is kept up for a considerable time. In this the deep rose-coloured blossoms are arranged in large flattened corymbs, while the unopened buds being deeper in hue than the expanded blooms form a very pleasing feature. Besides this the young shoots and leaves are brightly tinged with

red. There are several varieties of *S. callosa*, one of the most distinct being *alba*, which forms a low, dense bush not much more than a foot high, and which when in full bloom is thickly studded with its corymbs of white blossoms. Besides this a few scattered blooms are often produced till late in the autumn; indeed, it is with me the last of the Spiræas on which a bloom can be found. There is a very handsome kind, sometimes classed as a variety of this last and sometimes recognised as a distinct species, under the name of *Spiræa splendens*, which is a very beautiful shrub. It forms a dense growing mass about a yard high, and bears its blossoms in terminal flattened corymbs. The colour is a rich carmine-pink, so that a large mass of it in full flower is remarkably bright and telling. It generally blooms about July, but after the principal crop of blossoms is past, a scattered succession is usually maintained for some time. *S. salicifolia* is a good deal like *S. Douglasi*, except that the blossoms are mostly white, suffused more or less with pink, so that it forms a good companion to *Douglasi's* Spiræa. One of the giants of the genus is *S. opulifolia*, so called from the resemblance of its leaves to those of the Guelder Rose (*Viburnum Opulus*), and the flowers are arranged a good deal as in the sterile form of that shrub, although in not quite such globular clusters. In colour they are white and produced in June and July, the flowers being succeeded by inflated seed-pods of a reddish hue. There is a variety of this smaller in all parts, in which the young leaves are of a bright golden colour and very showy in spring when they first unfold, but as the season advances the foliage becomes green. *S. hypericifolia* attains the dimensions of a good-sized bush, composed of slender, gracefully arranged shoots. The flowers are pure white and arranged in small corymbs disposed thickly on short laterals throughout a great part of the branch. So thickly are the flowers arranged, and along such a length of shoot do they extend, that they form beautiful floral wreaths. There are several forms of this, one of the best being known as *flagelliformis*. *S. confusa* or *media* is a very free-blooming kind with pure white blossoms. This generally flowers soon after midsummer. *S. trilobata* is one of the earlier flowering species of Spiræa, for it can often be seen in bloom in the middle of May. It forms a low bush from 1 foot to 2 feet in height, while the flowers, which are borne in little flattened clusters, are pure white. The smallest of all the shrubby species of Spiræa is *S. bullata* or *crispifolia*, which is far more suitable for the rockwork than the shrubby border, for when associated with other shrubs, it is liable to be overgrown and quickly succumbs, while on the rockery it forms a compact little bush, less than a foot high, with small neat foliage and flattened clusters of blossoms, crimson in the bud state, but a deep shade of carmine-pink when fully expanded. It blooms in August, and will often keep up a succession of flowers till stopped by the frost. A very distinct, and at the same time beautiful class of Spiræas is the pinnate-leaved section, the oldest of this class being the Siberian *S. sorbifolia*. This reaches a height of 3 feet to 6 feet, and has large pinnate, bright green leaves, the small white flowers being borne in terminal panicles. There is a variety of this known as *grandiflora*, *Pallasi* or *alpina*, which is well worth a place. This is characterised by a dwarf habit of growth and larger flowers than the type. Both these flower in July, while the finest of this class—*S. Lindleyana*—does not bloom till at least a month later. This species will, in a good free soil, reach a height of 10 feet to 12 feet, and if planted as a single specimen, push up a number of stems, so that it soon forms a good-sized mass. The flowers are borne in large, loose terminal panicles, and as every shoot is crowned with these waving plumes, a specimen in this stage is a very beautiful object. This Spiræa is a native of the Himalayas, and though occasionally injured during severe winters, owing to its rapid growth, it quickly recovers.

The cultural requirements of the shrubby Spiræas are few, the principal consideration being to plant them where the roots are supplied with at least a fair amount of moisture during the summer, as in hot sandy soils they have a starved and un-

happy appearance. They are also greatly benefited by an occasional dose of stimulants, either in the shape of a top-dressing in the winter, or some liquid manure two or three times in the summer. No attempt must be made to prune them into regular shape by shortening back the long branches, as when the pruning knife is used it should be for the purpose of cutting out any old and exhausted wood, in order that the young, vigorous shoots may have room for their full development, as upon such as these the finest flowers are generally produced.

H. P.

The cardinal Willow.—Having planted this and the red Dogwood for ornamental purposes, the latter by the thousand, I agree with all that has been said (p. 46) in favour of the Willow, but, taken as an all-round tree, I cannot allow that it beats the Dogwood. Each is good, indeed unsurpassed, in its way from November through the hardest winters—the harder the better—until the sap begins to rise in the spring, when the colour is swallowed up in leafage. The lake at this place at the present time, especially on bright days, represents an irregular-shaped mirror, 22 acres in extent, framed in broad masses of Dogwood. The cardinal Willow has been pretty freely used for backing up and forming telling points, and, notwithstanding the fact that bright colour is flashed from each, it is so thoroughly distinct that the contrast is most charming. Many of our cardinal Willows have formed handsome trees from 20 feet to 40 feet in height, and to-day, January 19, when the sun was shining upon them, they looked like streaming pyramids of flame, whilst the Dogwood represented the solid mass of glowing embers. From these remarks your readers will gather that the Willow is admirably adapted for growing into a good-sized tree; but where a dense mass of colour is the main object, this and the Dogwood should be planted 6 feet to 9 feet apart, and made to ramify into a great number of vigorous young shoots by cutting over occasionally. Mr. Holford, of Westonbirt, Gloucestershire, adopts this plan, and his Dogwood (*Cornus alba*), from the colour of its flower and fruit, is a sight worth travelling many miles to see during the winter. Then he has another variety, which, I think, he calls *Cornus sibirica*, a deep bright purplish red, but it is not quite so free on his soil; whilst at Eastnor it gradually dwindles away, and has been given up as a failure. The cardinal is a good Willow for tying purposes; but a bright golden Osier, sent to me by Mr. Warner, of Broomfield, most handsome for forming low masses, is tougher and better.—W. C.

PROPAGATING.

PLANTS FOR STOCK.—By this time some of the most useful winter-flowering plants will be pretty well over, and a sufficient number of the most suitable plants for stock should be selected. By selecting a sufficient number and taking proper care of them, clean healthy cuttings will be more easily obtained than if a greater number of old plants were kept and allowed to be somewhat neglected.

POINSETTIAS.—Those with the hardest and best ripened stems should be selected, taking care to save a sufficient number to allow of a few failures. The best place to store them is under a stage in a house where the temperature is not too high, but it should not fall below 40° Fahr. The pots should be laid on their sides, so that the soil in them is kept quite dry. The plants may remain in this position until they show signs of starting into fresh growth.

EUPHORBIA JACQUINIEFLORA. This beautiful plant is rather more difficult to manage than most subjects, being very liable to die off, especially just after the flowering period. Those plants required for stock should be kept in a stove temperature, giving them just sufficient water to prevent the wood shrivelling, while they should be well exposed to the light so that they may break out freely and make short sturdy shoots, which will root freely under proper treatment.

CENTROPOGON LUCYANUS.—This is another very useful plant which should be looked after. A few plants properly cared for will give a lot of cuttings, the chief thing being to see that they are properly cleansed from all insect pests, so that when they start into new growth there will be no danger of the young foliage being damaged, either by the insects or by the process of cleansing them.

SALVIAS.—These are very easily managed, and make a bright display during the early part of the winter. It is, however, important that a few plants should be well cared for, so that clean healthy cuttings may be obtained at the proper time.

BEGONIA INSIGNIS.—This is another old favourite which has not found a rival in all the beautiful species and varieties which have recently been added to this family. By taking care of a few plants, so that good cuttings may be obtained in April, good plants may with ordinary care be established by the autumn, and will produce a great profusion of pretty pink bloom which is well shown off by the bright green foliage, and which from October to Christmas, or even later, is very serviceable for conservatory work.

JUSTICIA SPECIOSA, Eupatoriums and any other soft-wooded winter-flowering plants should all be looked to so as to ensure a few good stock plants.

I intend to refer to the above and similar subjects later on, but it will be of no avail to write of how things should be propagated unless material is at hand to work from. And I believe it is just this point which often causes disappointment. It is of the highest importance that good material for propagating from should be obtainable at the proper time. Weakly cuttings especially, if infested with any kind of insect pest, will not only be more difficult to deal with at first, but they rarely grow away satisfactorily afterwards; while clean healthy cuttings give far less trouble to the propagator, and are much easier to manage after they leave the propagating house.

STOVE FOLIAGE PLANTS.—During the winter months many of the most useful stove plants may be propagated, and will succeed better than if done during the summer time, as while strong fires have to be kept up there is more bottom-heat and at this season there is not so much danger of cuttings suffering through getting withered.

CROTONS.—Cuttings of these should be selected from the best coloured growths, and should be taken after the leaves are well developed and before another growth has commenced. If taken after young leaves have begun to develop they will often be lost, or if they do not fall off they do not attain to their natural size, and consequently symmetrical plants, suitable for table work, are not obtained. For cuttings, either small tops or large pieces which will be fit for use as soon as well rooted may be taken, but in either case care should be taken that they are not allowed to get withered; everything should be ready, so that they may be taken off and put into the close case with as little delay as possible. For rooting the cuttings in I like to use sand and peat in about equal parts, putting a little sand at the base of the cuttings, and using pots according to the size of cuttings, but always as small as possible. It is also desirable to see that the cuttings are quite free from all kinds of insect pests; even if there is no appearance of anything it is advisable to sponge the leaves before the cuttings are put in. Beautiful as Crotons are when well managed, there is little that is attractive about them after they have been neglected in any way, and it is, perhaps, on this account that they have not been so popular as they deserve to be. They appear to be coming into favour again now, and I think that if all who take them in hand were to propagate young stock periodically, and to take care that they are kept free from insects, and grown in a light sunny position, Crotons would again be among the most popular of foliage plants.

DRACENAS.—Any of these that have lost their bottom leaves, or have become too tall, should have the tops taken off, and these will root freely enough if treated similarly to the Crotons. The old plants will also break out again and form other

good cuttings. Stock may also be obtained either from the underground stems, or “toes,” as they are called, or old stems may be cut up into short lengths, and either be put in the Cocoa-nut fibre refuse in the propagating case or in shallow pans of sand and peat and plunged. A good brisk bottom-heat is essential. The pieces of stem should be potted up as soon as they are well started into growth, and may be kept in the close case for a few days. A great point is to avoid exposing them in any way; either roots or tops suffer very quickly if exposed in a dry place. When once the plants receive a check it is tedious work getting them into a healthy condition.

DIEFFENBACHIAS may be treated in a similar way, but as the stems are very succulent they are more liable to rot off at the bottoms. Plenty of dry sand should be used to dry up the sap, and no water given for the first day or so. The Dieffenbachias require a good rich compost and a liberal supply of water. When grown on freely many of the sorts are very distinct and effective. A.

GARDEN FLORA.

PLATE 685.

CHINESE CYCLAMEN-LEAVED POPPY.

(WITH A COLOURED PLATE OF EOMECON CHIONANTHA.*)

THERE are very few plants of the Poppy tribe that may not find a good place in the garden, and few families of plants so extensive as the Poppy-worts yield such a large quantity of subjects suitable in every way even for the most select collections. The old gardens in which collections of curiosities of plant-life formed the chief attraction are now things of the past. “Something useful” is the watchword now-a-days, and in the present instance we have a Poppy-wort that is likely to have a great future before it when once it gets fairly launched into commerce. Unlike the Poppies, the *Eomecon* holds its individual flowers for many days together, and indeed, when doing well, produces them in such abundance from May to September as to merit a first place in all good collections. It has flowered between these dates with little, if any, interval, and forms such a picturesque group, with its yellow-green, Cyclamen-like leaves and snowy flowers, that it never fails to attract attention. It is quite a novelty, having been found, in 1884, at Kwangsi, China, by Dr. Henry, and described in the *Journal of Botany*, 1884 (p. 346) and 1885 (p. 254), by Dr. Hance. It is the only species belonging to the genus, and is nearly intermediate between *Stylophorum* and *Sanguinaria*; from both, however, it differs widely in its scapose habit and racemose flowers, and also by the sepals being united into a membranous, boat-shaped spathe, and, observes Dr. Hance further, from *Stylophorum*, in having only four petals, long style and stigmatic lobes alternating with the placentas. In the *Botanical Magazine*, where it is figured (tab. 6871), it is stated to be probably half hardy; but for the last two winters, which have been a very severe test for all kinds of hardy plants, the *Eomecon* has passed through them unscathed, and, to say the very least, it is quite capable of standing our ordinary winters. The soil most congenial we find is a mixture of stiff loam and peat, in which it luxuriates, and does not take long to fill the allotted space by reason of the numerous runners it produces, rooting as it goes along, and making fresh crowns in every direction. As a pot plant, and where these runners may be checked, it forms fine compact specimens, which

Drawn for THE GARDEN by Miss Barr, in the Royal Gardens, Kew, September 19, 1888. Photographed and printed by Guillaume Severeyns.



CHINESE CYCLAMEN-LEAVED POPPY. (*EOMECON CHIONANTHA*)

if anything flower more freely than those allowed to grow without restraint. The golden yellow anthers against the pearly white petals have a pretty effect; the leaves yellowish green, and when bruised, like most Poppy-worts, giving off abundance of orange juice. The flower-stem is a foot or more in height, reddish, and usually much-branched, but in rich soil it attains a much greater height. It inhabits the banks of rivers in the province of Kwangsi to the west of Canton. No difficulty will be found in its propagation, as by means of its numerous runners it may be increased to almost any extent.

D. K.

FRUIT GARDEN.

W. COLEMAN.

OUR FUTURE METHOD OF GROWING HARDY FRUITS FOR PROFIT.

PESSIMISTS assure us that the British farmer will never give his mind and attention to the protection of stocks, much more to the cultivation of first-class fruit; that owners of the soil may plant good selections of trees, but in nine cases out of ten they will be ruined by live stock, by hares and rabbits, or by chafing against the supports before they come into bearing. This is a serious indictment, not altogether untrue, but still, let us hope, greatly overdrawn, as it is simply impossible for anyone to believe that nine out of ten of the millions of standard trees which go forth every year are so wantonly allowed to perish. If it is true, nay, more, if it is not true, the very pertinent question arises: Is this method of planting standard trees in large pasture and arable fields open to stock and deep tillage the best mode of procedure? I think not, for if we make use of our eyes we need not go far out of our way to discover that scores of acres of land literally cumbered with old and useless trees can never be restored to profitable fruit culture. Draining, manuring, grafting, thinning and pruning, of course, will work miracles amongst sound, aged, enervated trees, and being too old to suffer from the browsing of cattle they will give some fairly good fruit until such time as modern plantations can be worked forward into bearing. The orchards in America, not so many years ago, were in a condition similar to our own, but there a great and paying change has been brought about, not by proceeding upon the old lines, but by deep cultivation, by planting suitable sorts, and giving them their first consideration. Market gardeners about London adopt the same plan, as anyone driving out south or west can testify, but they do not depend upon Grass or stock for a moiety of profit. Nothing of the kind; they manure and cultivate, taking crops of vegetables, bush fruits, or market flowers for a time, but eventually the trees have the ground to themselves—a fair proof that their produce pays. Rents, rates, and labour within the metropolitan circle are high; in the country, away from smoke and fog, they are low; virgin land is plentiful, and few estates are minus a field or fields admirably adapted for fruit culture. If owners and agents are not sufficiently skilled in the selection of suitable land for Apples, Pears, Plums, Nuts, and small fruits, they should strengthen the hands of the Royal Horticultural Society, now struggling for life, by becoming members, and by this means, with plenty of practical horticulturists on the council, skilled men might be sent out to make the selection for them. Assuming that a scheme of this kind could be organised and a clever practical fruit grower put in an appearance in Herefordshire, there is hardly a farm, I venture to say,

upon which he would not find good land, well sheltered, and capable of growing all the fruits I have enumerated; but, contrary to the haphazard method of putting square pegs in round holes, he would select warm, sandy loams for Nuts and choice Pears, deep red sandstone loams for Apples, and sheltered, but elevated sites above the line of frost and fog for Plums and Cherries, which expand their flowers so early in the season. Then, again, instead of lending his countenance to digging deep holes in old pasture fields for standard trees to serve as rubbing posts for sheep and cattle, he would advise the enclosure of a few acres, more or less according to the size of the holding and the quality of the land, to be well drained, manured, and trenched for the fruit or fruits most likely to succeed upon it. If foul or in any way unkind, a summer fallow, a green or a Potato crop might put it right for planting the following autumn. Old trees might be spared to give the half loaf for a time, but the spot or spots selected should form the fruit garden in the future. The garden, if practicable, should be near the dwelling of the occupier or someone who might be appointed as caretaker. It should be well supplied with water and girdled round with wire netting to keep out those destructive rodents, hares and rabbits. The planting should be performed by the landlord, and the tenant should be bound by a clause in his lease to keep up the stock and manage the trees to his satisfaction afterwards. The question as to the percentage of land devoted to fruit culture is an open question, but on a farm, say, of 100 acres, I am inclined to think 5 acres would be enough to start with. This would be sufficient to keep a skilful working foreman employed, precisely as farmers now employ shepherds and cowmen, and in the event of his making it pay, the garden might be extended. This, as a matter of course, would depend upon certain conditions, such, for instance, as long leases, the certainty of a good market, a judicious selection of fruits, and last, but not least, the skill to manage and cultivate those fruits properly. It is all very well for Mr. Gladstone or any other loquacious speaker or writer to advise farmers and cottagers to go in for fruit farms, but would those gentlemen feel quite happy were all the elections now going on to result in the return of farmers and cottagers only as the future managers of our local affairs? I think not, and yet it is quite as reasonable to expect such men to start as perfect administrators as to find them overflowing with the practical skill so essential to success in hardy fruit culture. The cottager in this part of the country beats the farmer as a garden manager and cultivator, but were a score of the most energetic and intelligent of either class given the choice of any five acres in any large parish, not five per cent. of those men would know where to select or how to prepare the land for planting. A sharp labourer employed in a gentleman's garden might go the right way to work, but the farmer who ploughs 5 inches deep, leaving the wealth of the soil untouched, would make a very poor start. The selection of sorts, the form of tree, the proper planting distance, the best stock, and the mode of pruning would form a still greater enigma, and yet every country paper is now teeming with extracts from misleading lectures by men who pose as leading lights in the horticultural world. A profit amounting to £120 an acre is a tempting bait for buyers of trees, but it might be well to knock off the £100, and then fruit would pay better than corn. Meantime, gentlemen who wish to benefit their fellow creatures, instead of setting class against class, and trying to dismember the United Kingdom, might employ

themselves in starting training fruit farms for the rising generation.

ORCHARD PLANTING AT FARNHAM ROYAL.

THE excellent results which came during last season in the way of growth from Mr. James' experiment in orchard planting induced him to complete the entire six acres of Clover ley during the past winter. He has now planted 900 standard trees, Cherries, Damsons, Plums, Apples, and Pears, the last named in the least number. Although in a district where water is abundant and undrained soils are like morasses, yet this orchard, owing to good drainage and to natural character, having a good slope to the south, is so dry even in the wettest of weather, that not a drop of water remains in hollows on the surface. The soil also has in previous years been moved deeply, so that it is comparatively soft and yielding; hence the roots of the trees have every facility offered them to run freely. Judging by the good appearance of trees in other parts of the locality, canker is not in evidence, whilst many have lived apparently as long as the usual human span of years. This fact, one which intending fruit tree planters should not overlook anywhere, not only shows that the subsoil is sweet and good, but it also served to encourage Mr. James to plant. A tall wood of Larch and Oak on the northern side of the orchard affords the desired protection from the north, and the east side of Burnham Beeches shelters somewhat from fierce westerly winds. The trees are planted about 18 feet apart each way, being angled. The rows run north and south, and obliquely also in two other directions. If the trees for orchard standards seem somewhat close together, at least they will have ample space for the next twelve or fifteen years, and then kinds which do not thrive or fruit so well as others may be removed. The sorts planted are of a general character and are all on tall clean stems. Blenheim Orange Apple, which is both a favourite in the district and does remarkably well, is of course largely included in the young trees. Sweet Cherries also do well in the district. On some of the slopes and high lands which abound in this irregular part of Bucks, old orchards of Sweet Cherries may be seen, the trees being of great size and wonderfully clean, evidencing the fact that Farnham Royal is a Cherry-growing country. The now well-known Farleigh Prolific Damson is largely planted also. It will, however, be wiser to wait a few years and see what sorts of fruit seem to thrive best than to give a list of what are now planted, lest some should fail. It is as to what sorts succeed that planters desire to learn. Naturally in a locality where cover abounds rabbits are abundant, and to keep these vermin from attacking the stems of the trees presented a difficult problem unless the whole six acres were enclosed with wire netting. The coating of the stems of the trees some 3 feet high with various compositions of a deterrent nature hardly proved successful in all cases, and therefore a plan which was last year suggested at one of the meetings of the Apple and Pear Congress Committee by Mr. S. Ford, of Leonardslee, viz., enclosing the stem of each tree with a guard of loose wire netting, was adopted. Wire of about 1½-inch mesh and 30 inches in height, when cut into lengths of 18 inches and brought round the stem and the ends secured, furnishes a loose revolving guard 6 inches in diameter, which has proved to be absolutely protective against the rabbits, and will, if not injured, endure for twenty years. None of the trees are staked, neither, so far, do they seem to need support. If required, however, the locality can furnish stakes in abundance.

A. D.

Fine Newtown Pippins.—The Newtown generally is frequently a poor-looking Apple, though always, when true, excellent in flavour. This season, however, we have seen some very beautiful specimen Newtowns in Miss Solomon's shop in Covent Garden—the finest, we think, we have ever seen, and they have the true exquisite flavour which makes the Newtown the king of dessert Apples. There is a curious diversity about

the identity of the Newtown, because some of the cleverest people in the market were of opinion that these specimens were the true kind, and nearly as many held that they were not. We certainly believe in their being true, and the reason of this diversity of opinion is the fact that there are two forms of the Newtown in America, one yellow and another green, both equally good in flavour.

LATE PEARS.

THOUGH we have such an enormous variety of Pears to select from, we cannot complain of being overburdened with too many good late ones, and when these ripen weeks and sometimes months before their proper, or what is considered their proper season, it not only upsets one's calculations, but in some cases, the loss of superior Pears at a time when they are most appreciated, say from the present time onwards, is very serious, especially to those who are expected to meet large demands for dessert fruit. At the present time we have naturally a limited stock to work upon, and substitutes for good Pears are not easily found. Seeing that good late Pears are so valuable, I think no apology is needed for growers often referring to the subject of their cultivation, with the object of solving some of the perplexing peculiarities met with. Not the least of these is premature ripening. I quite agree with Mr. Barker in THE GARDEN of January 12 (p. 35), that great quantities of fruit are spoilt in this country by being gathered too soon or before they have fulfilled their proper function. In the autumn, when cold and sometimes wet weather sets in, the grower has naturally a strong inclination to see the fruit harvest safely stored away. After waiting patiently the whole summer, the very object that he has been working for may be destroyed by his anxiety to gather the fruit. A few days may not seem much, but I believe these are really the most critical during the whole season. Though not visible, the fruit is slowly, but surely perfecting the previous month's growth. To gather fruit before this is thoroughly completed brings about premature ripening, while the Pears do not possess the qualities which constitute a first-class fruit. This has been noticeable here during the past season with that good late variety Bergamot d'Esperen, which, grown against a wall, and though generally coming in very late, was ripe and over by Christmas. The same variety grown upon a pyramid was allowed to remain upon the trees much longer, in fact, as long as possible, with the result that the fruit will not be ripe for several weeks.

So long as we have to contend with a fickle climate, so long shall we be able to trace more or less its varying influence upon our fruit crops. This shows clearly how necessary it is to watch closely the different varieties in the seasons. By doing so, I believe much fruit may be saved which would otherwise be lost if left to chance. If Pears that develop kindly in a warm genial summer are ready for gathering the second week in October, I do not think the same would be ready till the end of the month in a season like the past. Fruit generally last season lacked the proper full flavour, and Pears did not escape. The best, I believe, we have had here were Fondante d'Automne and Winter Nelis; the former, of course, is naturally an early variety, though Winter Nelis followed close after it and was over weeks ago. No Plus Meuris and Easter Beurré, the last of which I have sent for your inspection, have served us through December up to now. They are a fair average of the whole crop as grown on a west wall. I am sorry to see Mr. Barker does not

speak very highly of Easter Beurré. Here it is generally appreciated, and, considering the past season, I think it very passable, if not first-class. Monarch, growing on the same wall, never fails to produce a full crop of very large fruit, and I do not find the fruit drop, as it does in so many gardens. The soil here is of a heavy marly nature, but the roots of all fruit trees are kept near the surface by heavy watering and mulching in hot, dry summers, with yearly dressings of loam and crushed bones.

Impney.

R. PARKER.

* * Good fruit of the Easter Beurré such as are often sold at a franc apiece in Paris. It is an excellent Pear when well grown, but nothing except good wall culture secures it in its best state in either England or France. But when good it is a true Pear in flavour—neither musky nor “washy.” From the above and other evidence it is clear that this noble Pear may be grown well in parts of England at least.—Ed.

FRUIT TREES IN POTS.

ALTHOUGH stone and kernel fruits of every kind do well in pots when judiciously managed under glass, the Peach and Nectarine hitherto have been awarded the premier rank, not that their produce is of more value than choice Pears or the finest varieties of forced Plums, but simply because the forcing gardener who starts a score or two of the earliest sorts in December can defer closing his first Peach house proper until after the turn of the year, whilst orchard house culture is the only course open to the amateur whose garden does not boast a good south or west wall. The detailed management of these fruits having been given over and over again in the pages of THE GARDEN, the few remarks I am now about to offer will be more of a general than a minute cultural character. Some fruits, as a matter of course, force better than others, but if properly prepared and treated upon rational principles, the capricious Apricot and the precocious Cherry may be induced to yield ripe fruit long before synonymous varieties can be obtained from the best of walls. Two of the cardinal points in pot fruit culture include light well ventilated houses, with at least one 4-inch hot-water pipe running round the interior, and healthy trees thoroughly established, that is with balls literally matted with roots at the time they are taken in for the mildest forcing. Once started, experienced gardeners with every convenience at command buy in maiden trees annually, pot and grow them on, and in this way not only maintain, but increase their stock to any extent. Amateurs lacking the conveniences need not despair, as any good nurseryman who devotes his attention to orchard house trees can supply them with the most perfect bushes and pyramids thickly studded with flower-buds at reasonable prices. Autumn, when the wood is ripe, is the best time to lay in a stock, but this is not the only period, as I have seen truckloads of trees sent hundreds of miles in perfect safety at different times from the ripening of the wood to the first movement of the buds in the spring. In the selection of trees, stout, but not over strong short-jointed shoots forming handsome well-balanced heads on bright, clean stocks, free from gout or gum at the working, should be preferred, and the pots, 9 inches to 12 inches in diameter, should be quite full of bright brown feeders ready to make a hearty meal upon fresh calcareous loam and bone-dust. The style of tree most in favour is the pyramid, as it exposes the greatest external area to sun and light, an important matter in laying on colour and putting in or bringing out flavour, but much depends upon the shape, height, and aspect of the structure. If low and flat the bush tree may predominate, whilst in the ordinary span-roof or lean-to built at fairly sharp angles, the arrangement cannot be made complete without the aid of the two, the pyramid for the centre and back rows, and the dwarf for those parts which offer least head room.

All orchard houses should be fitted with shelves along the front or over the paths for Strawberries in pots, and if properly ventilated the inside temperature should not exceed that of the outside air on the hottest day in summer. Where a separate compartment is devoted to each species of fruit and all are alike heated and ventilated, there can be no mistake in the arrangement of the trees, but assuming that a happy family is to have a home under one roof, why then, commencing at the warmest end, the heat-loving Fig or the pot Vine should stand first, the Peach and Nectarine second, choice Pears third, Plums and Cherries fourth and fifth, Apricots sixth, and Apples last.

Collections having given way to selections, none but the very best of their kind should have space under glass. Therefore, instead of choosing a great number of varieties, the grower will do well to confine himself to a few which may be duplicated to any extent until the allotted space is filled up. Taking the different fruits in the order named for giving a succession adapted to the daily requirements of a family, my selection would be—

Figs.—Early Violet, Osborn's Prolific, White Mar-selle, Brown Turkey, and Negro Largo.

Vines.—Black Hamburg, Black Frontignan, Madresfield Court Muscat, Royal Muscadine, Golden Hamburg, and Foster's Seedling.

Peaches.—Hale's Early, A Bee, Early Grosse Mig-nonne, Dr. Hogg, Stirling Castle, Bellegarde, Dymond, Alexandra Noblesse, Violette Hâtive, Royal George, Barrington, Raymaker's and Walburt Late Admir-able.

Nectarines.—Advance, Lord Napier, Rivers' Early Orange, Elruge, Pitmaston Orange, Violette Hâtive, Hardwicke Seedling, Pine-apple, Humboldt, and Victoria.

Pears.—Beurré Superfin, Marie Louise, Doyenré du Comice, Brown Beurré, Glou Morceau, Knight's Monarch, Winter Nelis, Josephine de Malines, Easter Beurré, Olivier de Serres, Bergamot d'Esperen, Jean de Witte.

Plums.—Coe's Golden Drop, Denniston's Superb, Green Gage, Jefferson's, Kirke's, Transparent Gage, Ickworth Impératrice, Late Rivers, Reine Claude de Bavay, De Montfort, Huling's Superb, McLaughlin's Gage.

Cherries.—May Duke, Black Tartarian, Bigarreau Napoleon, Early Rivers, Belle d'Orleans, Elton, Early Red Bigarreau, Governor Wood, and Late Duke.

Apricots.—Moorpark, Peach, Kaisha, Large Early.

Apples for dessert.—Cox's Orange Pippin, Ribston Pippin, Margil, Old Nonpareil, Adams' Pearmain, Cockle Pippin, White Calville, Newtown Pippin, Golden Harvey, Kerry Pippin, Re-nette du Canada, Northern Spy.

Apples for show.—Alexander, Peasgood's Nonsuch, Saltmarsh's Queen, Washington, King of the Pippins, Lady Henniker.

Figs, Vines, Peaches, and Nectarines are best adapted for the forcing orchard house, and Straw-berries of course can be grown with them. The first week in January is a good time to start the forcing orchard house, as a judicious selection of trees will keep up a supply of fruit until the earliest varieties in the general house are ready for use.

Plums and Cherries have been most successfully forced for a great number of years, and I question if any trees give more pleasure when in flower early in the spring or when the first dish of fruit finds its way to the table. The secret of success in forcing these trees rests in the avoidance of a high and close temperature when the weather is fine, and the prevention of a descent below 40° when very severe. In fact, all that is needed is the main-tenance of the fresh warm airy temperature so enjoyable in front of a south wall on a bright day towards the end of March. Anyone who can main-tain these conditions without letting the trees feel that they are in a close confinement will suc-ceed in forcing them successfully, but the steed must not be hurried out of its natural paces. Apricots are still more impatient of any attempt at coercion, but being naturally early, the shelter of glass alone with plenty of fresh air circulating through a moderately heated orchard house, whilst producing but a poor substitute for their native eastern home, protects their flowers from frost and

ensures crops of fruit in every way superior to the flavourless examples imported from the south. When in full leaf the Apricot under glass and against south walls evaporates a great deal of moisture; indeed, no fruit with which I am acquainted droops so quickly under a limited supply of water; hence the importance of mulching or, better still, of plunging prior to mulching and watering copiously.

Pears on the Quince stock are quite at home under glass, and produce fruit of enormous size and superb flavour. With many there prevails an impression that they will not stand heat at any period of their growth, but this is hardly borne out by facts, as the finest fruit sent from France and the Channel Islands is grown where the temperature ranges much higher than it does in this country, where, as a matter of course, the trees are grown in the open air, whilst with us, although the mean of our orchard houses is much lower, they fail under an excess of stagnant moisture and an insufficient supply of fresh air. A temperate house in which one can feel a volume of sweet fresh air moving suits Pears in good bright average seasons, and, notwithstanding the fact that all the ventilators are kept open day and night, the fruit will set and swell perfectly, but once the kernel is formed speed may be increased by closing for three or four hours on fine afternoons. Some gardeners in the north of England and Scotland plant and train cordon trees under glass and obtain exceptionally fine fruit from them, the main points in their management being gentle warmth from the hot-water pipes, good feeding, and a profusion of fresh air.

W. C.

RAISING FRUIT TREES AT MADRESFIELD COURT.

THOUGH notes have recently appeared in these pages on the gardening so well done by Mr. Crump at this place, very little has been said about the wholesale manufacture of fruit trees that is being made a special feature, not for sale purposes, but solely for the supply of the Madresfield garden and the tenant farmers on Earl Beauchamp's extensive estates that are wishful to commence or extend their fruit growing. This is a truly noble example which it is hoped other wealthy landlords will copy. At the time of my visit (end of November) Mr. Crump was busy lifting and sending trees off to several of the tenantry, not puny specimens, but trees three and four years from the graft, and with such a mass of roots ("wigs," Mr. Crump calls them) that I there and then insisted on his telling me how he managed to secure such a wonderfully fibrous mass of roots and which fully explained the unusual and remarkably clean growth, in some instances shoots over 7 feet in length, and those made in the unkindly season of last year. Before proceeding further, I ought perhaps to say that the soil at Madresfield is a rich loam inclined to adhesiveness, but it is made to work well by the constant addition of ashes, leaves, and other suitable manures. I saw the men lifting the trees, and the way in which the soil turned up made me envious. With such a soil and the attention given, it is not to be wondered at that fruit-tree raising and cultivation are so successful. Now as to the answer to my queries. How do you get your stocks? Where do you grow them? When do you propagate and how? by seeds, cuttings, or from the wildings of the hedgerows? Answers were soon forthcoming, for on walking some 300 or 400 yards into an adjoining plot of ground the men were busy planting stocks one year from seeds, and as Mr. Crump attributes a great part of the success to the manner that this first transplanting of stocks from the seedling bed is done, I shall describe it as nearly as possible in his own words. "These plants that you now see being planted

are from pippins obtained from the 'must,' or refuse from cider making, which we wash and then mix with sand to separate them one from another. They were sown here in shallow drills in December, 1887, and at once covered with netting to protect them from birds. This is imperative, otherwise when once the birds have discovered the pips, they clear the lot in a very short time. In lifting the plants, you will note that we are careful to preserve the tap-roots in their entirety, and in planting them we are just as careful to lay them in as perfectly a horizontal form in the drill; and it is by this procedure that we get such 'wigs' of roots as you just now saw in the nursery." Here, then, is the whole secret of the immense root-formation, namely, the preservation of the tap-roots, and their enforced production of small rootlets by the check they get owing to the horizontal form of bedding the seedlings in the drills. It should be added that the drills are 16 inches apart from each other. Twelve months hence these stocks are again lifted, and are then allowed a space of 30 inches by 18 inches, and the top shoots or growths are cut back to 20 inches. These plants are then ready for budding the following July and August, and any of the trees in which the buds fail to "take" can be grafted the following spring. Some of the stocks do not, of course, grow so freely as others, and the weak ones are therefore given a year's grace and are again lifted. There can be no doubt but that this frequent removal of the stock conduces to the formation of masses of fruitful rootlets, and to some extent renders root-pruning unnecessary. After budding or grafting, as the case may be, the plants are not again transplanted till ready to send out, most of them at three years old and some few at four years, according as the variety is a weak or strong grower. Of course, at that age, even if the trees are not in request, they are transplanted, and move all the better the following year. Referring to stocks made from cuttings, Mr. Crump observed that he had raised some in this manner, but they lacked the vigour of seedlings, though he sometimes used them for Plums. Mr. Crump, in reply to my question as to whether he gave preference to any variety of Apple or Pear pips over another for the raising of stocks, remarked that the choicer varieties of Apples did not make good stocks, being liable to mildew and making very puny growth—another of the many gardening puzzles that is difficult to solve, as naturally one expects the best trees from the best varieties of fruits. If clean, vigorous, healthy growth, not a particle of canker, mildew, or American blight, is indicative of success, then Mr. Crump, by the aid of a generous employer, a kind soil, and his own exertions, has attained the very highest degree of it.

All other departments of the gardens and grounds are well kept, the one and only blot of the place being the over-planting, or what I call meaningless planting, of shrubs, which hide beautiful views and prevent the many grand trees there are in the grounds being seen to advantage. The plant houses at the time of my visit were gay with Chrysanthemums. The vineries were also well stocked with fruit. Madresfield Court Grape, as a matter of course, does first-rate, as it ought to in its own home, "cracking" being unknown. Another Grapes grown largely, and which from appearance would pass muster as Madresfield, is the Kempsey Alicante, one of the parents of Madresfield. I tasted the two varieties, and I liked the Kempsey Alicante best. I was much struck by the grand appearance of one Vine carrying about a dozen fine bunches of fruit, and though I tasted and examined it closely, I could not

tell what it was. It was Alnwick Seedling grafted on Madresfield Court, but so totally changed had it been by the stock that it was quite unrecognisable. The bunches were long, like those of Madresfield, and the berries oval and just a little more pointed than those of the Madresfield Court variety, but not at all like those of Alnwick Seedling. The flavour was superior to that of Alnwick Seedling, and not so sprightly as that of Madresfield. I have never seen a greater change in any Grapes from grafting on another variety. W. WILDSMITH.

ROAD-SIDE FRUIT TREES.

SEVERAL articles have appeared in THE GARDEN on growing fruit trees on the highways. Having been a resident in a country where fruit trees, both in great orchards and also on highways, are grown and cultivated, a few notes regarding them may be interesting to some of the readers of THE GARDEN.

The country I speak of is the kingdom of Saxony. Fruit culture was started under one of Saxony's best rulers, Duke August the 1st, who ruled about 160 years ago. His habit was to drive through his country (then much larger than it is now), and distribute trees and give advice as to their cultivation gratis to peasant farmers and others. That was the beginning of Saxony's fruit-growing period, and since then the cultivation of fruit has been taken in hand both by the States Government and all landowners.

I will now give the kinds of fruit trees grown in certain districts that I am well acquainted with. In the vicinity of Dresden, the capital, mostly Cherries are grown, and further up the river Elbe the whole face of a hill is planted with Peach trees which both when in blossom and full of fruit are worth a visit. These are on private ground. In the neighbourhood of Lomatch, more commonly called Saxony's corn magazine, on account of its exceedingly fertile soil and high state of cultivation generally, there are fruit trees of every kind. Certain parts of the *chaussée*, or highway, are exclusively planted with Cherries, some two and three miles along the road. Other parts are devoted to Apples alone, and more often Pears and Apples are planted alternately, or opposite each other. Plums are seldom planted on the highway, but on the by-ways, or communal roads, which are, of course, narrower and owned by peasant farmers whose land adjoins, there are to be found Plums, or German Prunes, but seldom any other kind of fruit trees, as farmers, both large and small, have their orchard attached to their farm-stead. Some of the orchards are very extensive. As to the quality, I do not think the fruit grown there is behind the British grown, as Saxony, not being very large and over-populated, can spare no room for inferior fruit.

Cherry trees grow from 23 feet to 25 feet high; Apples the same; Pears often exceed that, and the lowest branches are so far up, that very few men could reach them, except by climbing the tree; and as to stealing fruit, the law in Saxony is very severe, and fruit being so cheap in the season it is never stolen. The trees, which are planted by the State, are under the control of the Minister of Agriculture, and under the supervision of the road-keepers. When the fruit has set, and the possible yield can be calculated, it is then let to, of course, the highest bidder, who has permission to cut out all dead wood and otherwise keep the trees in good order during the time they are under his care. Such men appoint helpers who guard and gather the fruit. Any chance wayfarer seeing fruit lying on the road may pick it up and eat it; no man will hinder him; but he is not allowed to put any into his pocket or otherwise carry away. The crop is generally very heavy (of course there are bad seasons) and is stored up in long pits, the same as farmers now store their Potatoes. All fruits that have fallen, and consequently will not keep, are peeled, quartered, and baked in large ovens built for the purpose. Women are employed for such

work. Pears and Plums are baked whole, and a great deal of jam is made from Plums.

The soil where the fruit trees are planted is mostly alluvial deposits, but I have seen Apples and Plums growing on soil almost gravelly.

C. T.

FRUIT NOTES.

STRAWBERRIES IN POTS.

ALTHOUGH a few Strawberry forcers introduce their earliest batch of plants before Christmas, the majority make their first start with the new year, and a bad time they have had, for notwithstanding the fact that we had eight sharp frosty mornings, the sun never once penetrated the fog. Londoners, of course, are used to a combination of black or yellow vapour, carbon and sulphur, which soon settles the account with the delicate inflorescence of their forcing houses, but a general fog which enshrouds the whole country and encrusts the trees with ice for days and nights together is so exceptional, that I cannot forbear chronicling the event. Dry fire-heat, as a matter of course, has played an imperative part in maintaining the very moderate temperature of 40° to 45° by night and a few degrees higher by day, but sweet moist heat, never more acceptable, from fermenting leaves, let us hope, has not been wanting. This ammonia-laden moisture, whilst gently stimulating the roots of the plants and sparing the syringe, will have prevented spider from moving, although the introductory bath of soapsuds and sulphur may have been neglected. The lesson, nevertheless, should not be lost, as we never know the extent of the damage which may follow the introduction of foul plants to Peach houses and vineries. Where the earliest plants are throwing up their flower-stems and young leaves are pushing freely, water of a slightly stimulating nature may be more liberally given, especially where the pots, 5 inches to 6 inches in diameter, are literally bursting with swelling roots. Many people have an idea that Strawberries cannot be over-watered, but this is a mistake, as I have seen very fine batches completely ruined by becoming waterlogged early in the year. The mischief, no doubt, generally proceeds from an opposite cause, and this fact strengthens the belief that a deluge when water really is not wanted can do no harm. An experienced person can tell by the appearance of the plants when they want water, and then, without wetting the crowns, the warm water should be given with a liberal hand. As the plants come into flower they should be placed rather thinly in the lightest part of the house, where fresh warm air can circulate freely amongst them, and in the event of minor blooms being numerous a percentage may be pinched off with great advantage before they open. Another important matter at this early season is daily pressure with the hand upon the growing foliage, as by this simple operation the scapes have the benefit of every ray of light and the petals are kept free from condensed moisture. This daily manipulation tends to the distribution of the pollen, but, independently of this aid, the camel's-hair brush or rabbit's tail should be lightly used when the temperature has reached the maximum. When set, complete the thinning, syringe well, and remove the plants to shelves close to the glass in Pine stoves or the hottest houses at command, and feed well until the fruit shows signs of changing, then resume plain water, and gradually reduce the supply when the berries are well coloured. As red Strawberries, like black Grapes, have not reached their best on the day the colour is perfect, they should be removed to a dry warm house for forty-eight hours at least before the most forward berries are gathered.

Succession plants of the leading kinds in somewhat larger pots should now be placed in light pits, the closer to the glass the better, where, aided by a solid bed of fermenting leaves, they can be kept at a temperature of 45° to 50° on mild nights and a few degrees higher by day, but on no account must they be hurried; therefore give them plenty of air whenever this element can be admitted without creating a cold or cutting draught. As early batches are moved forward, the most promising

may be drawn to fill up the shelves or Strawberry house proper, and in this way the succession, be it large or small, will be maintained until the plants in cold pits begin to ripen their fruit. Should any of the earliest forced plants of Vicomtesse Héricart de Thury or La Grosse Sucrée miss fruiting, as not unfrequently happens after a cold, wet, sunless summer, they may be returned to a cold house or pit to bide their time for planting out on a warm sunny border in the open garden, where they will flower and bear freely in the autumn. These plants, I may say, should be protected from frost in severe weather; they should never feel the want of water or fresh air, and the balls should be thoroughly soaked before they are turned out in the spring. A thoroughly good mulch at the outset, an occasional soaking through the summer months, and the removal of runners and weeds will form the sum and substance of their management.

THE HARDY FRUIT GARDEN.

The frost, which extended over a good working week, having favoured the wheeling or carting of rotten manure, advantage should be taken of dry weather for spreading it over the roots of fruit trees, either as a moisture-retaining mulch or for forking in so soon as the pruning is finished. As the roots of pyramids and bushes in well-cultivated fruit gardens are kept close to the surface, a good mulch spread over a radius equal to the spread of the branches and very slightly covered with a few spadefuls of fine soil answers much better than digging or forking in. The ground between the roots of trees, as a matter of course, must be deeply forked and left rough to pulverise, but before this finishing stroke is put upon the quarters, a good syringing with soapsuds and dusting with quicklime, whilst destroying the larvæ of insects, will free the branches from Moss and Lichen, often so troublesome in low damp localities.

The pruning and nailing of all fruit trees, Figs and Peaches excepted, being now finished, the materials for protecting the blossoms should be got ready for use when actually wanted, but not before, as it is questionable if non-protection in many cases is not preferable to forcing the flowers or rendering them tender by premature shelter. In this garden, where spring and autumn frosts are exceptionally severe, killing plants which a mile or two away escape altogether, we never hoist a thread until the flowers begin to open, and then our heaviest covering is a triple thickness of herring netting or a double piece of pichard netting, secured to the coping board at the top, but 3 feet away from the base of the wall. A covering of this kind does not perceptibly raise the temperature, neither does it injuriously impede light, but placed at such a very sharp angle the threads of tanned twine filter the moisture out of the air, whilst the broad coping boards check the upward draught, with the natural result that the flowers nestling against the wall are kept dry and hardy, two conditions which render a few degrees of frost harmless. Our work against walls during the past week has been the detachment of Peach trees, the removal of all shreds and nails, careful washing with soap and water, and making the branches and twigs secure from injury by wind or snow. The young wood produced by aged trees which are root-pruned every autumn is not so ripe as usual, but I do not despair of an abundant blossom, which must be retarded until the last moment by keeping the branches 6 inches away from the wall until they begin to open.

PROPAGATION.—Where prunings from Gooseberries and Currants have been selected and laid in for conversion into cuttings no time should be lost in getting them made ready for insertion when the weather is dry and open. Autumn is the best time, but the majority of gardeners who grow just a few bushes defer this work until after the pruning is finished. Short, firm, well-ripened pieces, 9 inches to 12 inches in length, taken with a heel or a bit of two-year-old wood answer best, and make nice little fruit-bearing bushes in about three years. Clean stems free from suckers, whilst giving proof of the master-hand, are secured by the removal of all the buds from the base upward to within about

3 inches of the top of each cutting, which should be firmly dibbled in to the depth of 6 inches where the soil is light, rich, dry, and open to light and air. We place our cuttings 6 inches apart, 12 inches from row to row, and, having a weakness for extra tall stems, a leader is trained upward from the point bud, the side shoots are kept pinched the first summer, and eventually cut away when the foundation of the head is formed 12 inches to 18 inches above the surface of the soil. This method keeps the young trees an extra year in the nursery, but this really makes no difference to the output, as we put in a given number of cuttings each autumn, transplant, trim and size them annually. Red and White Currants are treated in a similar way when the formation of bushes and pyramids is the object, whilst single, double, or triple cordons for walls are formed by training the requisite number of shoots in the way they should go, and pinching out the points when the strongest show signs of gaining the ascendancy. W. C.

Ripening of late Pears.—I wish to thank you for the prominent way in which for some time you have drawn attention to the sorts, culture, &c., of Pears. There appears to me, however, one or two aspects of this question upon which further light and guidance are needed by many of us.

Rules which should regulate the gathering, particularly of the late kinds.

After-treatment as regards the ripening process; how this can best be retarded; how hastened; what degrees of temperature will produce the best results.

On page 34, third column, fifteen lines from the bottom, in the article on late Pears, there are a few words: "How to prolong the season and improve the flavour of Bergamotte d'Esperen." These are suggestive, but a fuller knowledge of how to proceed on the points I have named would, I feel sure, in some instances at any rate, be very helpful.—A LEARNER.

Fruit tree buds.—So far as my observation goes, I fear that the long spell of dull, cold, sunless weather, associated, as it has been, with much rain or fog, is proving detrimental to the buds or spurs on hardy fruit trees. The wood is not being hardened or matured so well as could be wished, and, indeed, as would be the case were the soil drier and the air frosty with clear bright skies. We so often refer to the favourable conditions under which in the summer time Canadian fruit growers produce their crops of wonderfully finished and coloured fruits; we have not quite enough given credit to the maturing influences on wood and buds of the clear dry nature of the Canadian winters. Were it not that the atmosphere there during the winter is so dry and pure, it would be almost impossible for English people to exist through spells of some 50° to 60° of frost. But that dry exhilarating atmosphere renders winter life, if the frost be intense, yet comparatively pleasurable, whilst we at home with the thermometer possibly at 30° are shivering and miserable because of the fog and damp air. By this time the fruit-buds should be more prominent and stout. Of course, I do not mean thereby showing, as it were, impatience to burst, but a plumpness which indicates a good bloom-producing capacity, and gives hope for fruitfulness. In spite of the exceeding rainfall of last summer the trees nowhere made exceptional growth, and there was abundant bud or spur production. So far that should indicate a good crop of fruit next season, but if the buds be not stout now, it is difficult to look with certainty for very productive results later. It is better that buds should swell during the winter gradually than plump up suddenly in the spring.—A. D.

Treatment of old orchard.—I have recently acquired about an acre of orchard and kitchen garden which has been allowed to run wild for some years, and is a thick mass of Grass, Nettles, and weeds of all kinds. I have thought of ploughing in everything at once, and later on planting the orchard ground with Potatoes and trying to cultivate the garden. I should be much obliged if you would answer through your valuable paper what

you think of my proposal, and what I ought to pay per rod or acre for ploughing and planting with Potatoes, with or without seed, if done by the job.—D. W.

*** It is impossible to advise without seeing the ground, and if the trees or anything else are worth keeping, and without particulars as to what your future aims are as to the ground. It is hardly worth your while to give ground presumably of more than agricultural value to Potatoes. If you wish to make a good garden it will be best to trench it all well, but even how this should be done would be governed by the nature of the soil, of which you say nothing.—Ed.

FLOWER GARDEN.

SOLANUM ALBIDUM POORTMANI.

THIS magnificent species, which was discovered in Ecuador, about fourteen years ago, by M. E. André, and which has since then been grown by him in France from seed sent by M. H. Poortman, is thus described by him in the *Revue Horticole*:—

Both on the Cordilleras, where it is found at an altitude of from 4875 feet to 6500 feet above the sea-level, and growing in my grounds at Lacroix (Indre-et-Loire) the plants form actual little trees from 6½ feet to 13 feet high, with stout, smooth, green branches, tinged here and there with a metallic blue, and armed with strong broad-based spines. The leaves are of a handsome lively green colour, smooth on the upper surface and downy underneath, about 2 feet in length, and deeply lobed like the leaves of an *Acanthus*. The noble beauty of their contour and general aspect is well represented in the accompanying illustration. Towards the end of the season, numerous cymes of small white flowers make their appearance on the downy young branches. These flowers often do not expand unless the plant is brought into a house. The fruit, which is at first yellow and finally black, is about the size of a Madeleine Grape berry, and is neither ornamental nor edible. As a fine-foliaged plant, however, this *Solanum* takes rank with the finest. The treatment which it requires does not differ from that given to other ornamental *Solanums*, such as *S. macranthum*, *S. Warscewiczii*, *S. robustum*, *S. marginatum*, &c., that is, the plants should be propagated every year by winter-budding on a stock which has been housed before frost comes on. In the beginning of the following May the plants are planted out, either as single specimens in beds or in groups with a distance of about 5 feet from plant to plant in order to afford full space for their summer development. The soil should be light, deeply dug, and well manured beforehand, and the position should be a sheltered one, but not in the shade. A thick mulching of horse manure should be applied to the surface around each plant, which should also be staked as a protection against injury from high winds. Water should be given plentifully and liquid manure should be supplied during the period of most active growth. Under these conditions the plant attains the fullest development of its beauty.

Permanent beds.—The gradual abandoning of the geometrical garden for the freer and, to my thinking, preferable plan of bold isolated beds, scattered here and there at intervals over the lawn, has had the effect of greatly increasing the variety of plants used in the embellishment of the flower garden, for whereas with a formal design particular shades and lines of colour are necessarily used, the isolated beds are naturally not restricted in this way, and may be varied at the will of the planter. Thus it is that a class of plants is rapidly coming to the fore, which I may perhaps call herbaceous bedding plants, plants which both in flower and foliage seem to lend themselves as readily to the summer decoration of the flower garden as *Geraniums*, *Calceolarias*, *Lobelias*, and the like, and possess the merit wanting in the latter of being as useful for the indoor vase as the flower bed. I am gradually working this class of

plants into many of the beds, and find they are more appreciated than the short-lived and tender summer bedding plants, any of the last-named, if associated with the perennials, being used sparingly. As the selection of the permanent plants for a display in the summer of 1889, and the site they are to occupy, may be considered at any time when the weather is favourable, it may not be out of place to draw attention to a few useful things. *Hydrangea paniculata grandiflora* is a capital subject for a large bed, and makes a splendid show during the greater part of the summer. The whole of the bed may be filled with it, or perhaps the better plan is to have large clumps of the *Hydrangea* interspersed with smaller groups of some taller and lighter flowering plant, as *Galtonia candicans*, the Sweet Tobacco, or *Gladioli* in variety. The *Hydrangea*, which requires rather hard annual pruning, weakly growths cut clean out, and the stronger shoots

eyed or other variety of Pink, whilst other large beds can be treated in a similar manner with blocks of *Sisyrinchium californicum*, and a groundwork of Countess of Kintore Viola, or some dwarf *Veronica*. Irises, Phloxes, and summer-flowering *Chrysanthemums* are all amenable to similar treatment, and the planter will have no difficulty in finding plenty of dwarf herbaceous plants that will associate with them.—E. BURRELL, *Claremont*.

AURICULAS.

BORDER Auriculas appear to have grown all through the autumn, and not a few of my plants have made hearts of prodigious size, and consequently by Christmas the plants were leafy and soft. I have endeavoured to ward off the effects of frost by giving the bed a top-dressing of rough soil from the potting bench. So long as the hearts of the



A fine plant for sub-tropical bedding: *Solanum albidum Poortmani*.

headed back to a good bold eye, can be increased from cuttings of the ripe shoots firmly inserted in a cold frame in a mixture of leaf soil and sand. Another plant that makes a good bold bed and is very conspicuous in the flower garden is *Yucca filamentosa*, which should not be planted too thickly, and is seen to the best advantage in a dense carpet such as Stonecrop or Camomile. It can be readily increased from side shoots or suckers, and a supply should always be at hand in nursery beds to fill up any gaps that occasionally occur; indeed, these nursery beds are almost indispensable to the herbaceous flower garden. The blooms of the majority of the double *Pyrethrums* are highly ornamental, besides being very useful in a cut state, and a bold and effective bed can be formed with large blocks of these *Pyrethrums*, the intervening spaces being filled with the Pheasant-

plants are sound, one need not mind their losing a few leaves. My own plants in the open air stand frost much better than they do cold rain and fog in combination. If the soil and atmosphere are fairly dry, then frost carries with it no terror if the plants are well established, but if rain and fog are followed by sharp frost before the plants and soil have dried a bit, then the outdoor Auriculas have a bad time of it. My neighbour, Mr. Roberts, at Gunnersbury Park, tells me that he finds the cold, damp, raw fogs, which come across London from the east in dense waves, or rather in the form of a submerging sea, during the winter do more harm to plants, and especially to those in bloom, than do the frosts, and however close a house may be kept, they seem to find their way into it in some way or other.

Under glass, Auriculas are held fast in the grip

of winter. So long as the soil about the roots is pretty dry the plants can take no harm, and there is space for air to circulate above and below. In another month or so a change will commence and signs of growth appear, and it is then the florist begins to anticipate something of the blooming time that is not far distant. If the cultivator can get among his plants he can remove any decayed foliage and signs of damp and stir the surface soil, and so keep things as comfortable as possible about the plants.

Seeds sown in August as soon as ripe have germinated and the plants are above the soil, which is a decided gain in point of time as compared with sowing in spring. It is a plan that I have adopted for years, and by April and May the larger plants can be carefully lifted and pricked off into store pots, which, while it gives them a good start, affords space in the seed pots for the others to develop. Those who have a little bottom-heat and have seed to sow can do so at the end of the month, but on no account should seedlings be allowed to become drawn. Artificial heat can be employed as a help to germination only, the growing warmth of the spring-time bringing the seedlings on afterwards. Thin sowing should be followed. It is better to divide a pinch of seed over several pots than to sow it all in one and have the young plants so thickly together that it is difficult to remove any without doing injury to those which remain.

R. D.

NOTES ON HARDY PLANTS.

Heuchera sanguinea.—In some gardens this has a bad habit of turning black and going to decay in the woody parts of the root-stock, and it is reasonable to believe that this accounts for the continued scarcity of this desirable and brilliant plant, otherwise it is a most rampant grower, and it may be increased as readily as a Daisy. I have found the same kind of grubs in the crowns that one often finds in the hardy Primulas; but I have also found decay going on when the grub has not been present and when there were no cavities. It is always better when we can fairly make out a cause, but even when we cannot, to have a remedy ready, or at least a means of saving the plants attacked is desirable. It is mostly about September and October that the older parts suddenly turn black in the crowns, and the leaves curl and wither. As soon as these signs are visible, cut off the affected crowns with a part of the root-stock. The severed parts are rarely decayed in the immediate crown, and if the dead portions are cut away and the crowns inserted in fresh soil without any manure, they will make capital young plants before winter sets in.

Gentiana verna.—This is still in flower here (Jan. 12), as it has been since last April. I do not wish to convey the idea that a plant will flower for so long under any conditions, but where many plants are cultivated under various conditions and increased in different ways, especially by seed, some flowers are likely to exist nearly all the year round. We have not had much hard weather in Yorkshire yet, but still it has been of a trying character. So far as my experience goes, the vernal Gentian is not at all hard to grow when once it is properly set in a deep rich loam that cannot bake in summer, and its position cannot be too sunny provided it is flat and moist.

Narcissus corbularia.—The variety called citrina was in flower here in the first week of December. The bulbs were in the same pots that they flowered in last winter; then they were in a cold frame, but all the past summer they were plunged in sand fully exposed, in which position they have just done flowering. I find this flowers more regularly after the first year than the common form.

Nordmanniana cordifolia.—I wonder that such useful flowers as this plant produces for a long time in summer are not taken advantage of. Much could be said for it as a hardy plant, as it will thrive almost anywhere, and will certainly do well in the more open spaces of the shrubbery, where in both winter and summer the large cordate foliage in big patches imparts a verdant effect. It is dis-

tinct in habit from most of the large-leaved Borage-worts, in that the plant spreads moderately. The big leaves form neat spreading masses, among which the peculiar, but beautiful racemes of blossom nestle. I find I have a note made two summers ago about the charming effect of the rich blue flowers when cut. The stems and racemes may be about 8 inches or 10 inches long, the former of a succulent nature, the latter bending and one-sided. Mixed with Grass, bold leaves resembling their own, or almost anything, they are simply grand in bowls or glasses. When we remember that the plant will grow almost anywhere and look happy, and that it produces plenty of flowers of a class that cannot fail to please as cut blooms, I think one is justified in describing it as truly useful, and this is more than can be said for many more largely-grown plants. Plants which look cosy and verdant in January out of doors are not to be despised.

J. WOOD.
Woodville, Kirkstall.

PRIMROSES IN POTS.

I AGREE with "R. D." that when Primroses are exhibited in pots it should be in a way that gives the small growers a chance of competing successfully. This, of course, they cannot do if it is permitted to cram a number of plants taken up from the open ground into large pots, pans, or baskets. In this way it is evident that he who grows the largest number of plants has the best chance, but I do not see that "R. D.'s" proposal, that the plants should be grown in pots, is absolutely needful. Would it not be sufficient if exhibitors were restricted in the size of the pots? If it were required that say 6-inch or 8-inch pots should be employed, the small grower would get as good a chance as it is possible to give him. It is true that the large grower would have the greater quantity of plants to pick from, but he would have a similar advantage if he choose were they grown in pots. I hope that "R. D." will keep to his intention of showing how the double forms of the Primrose can be grown in pots, because under certain circumstances it might be advisable or necessary to keep them in pots all the year through, and I think that these charming hardy flowers are not nearly enough employed for indoor decoration. I should like to see them used more in windows, as there are frequently rooms with a cool aspect in which they would bloom admirably, and it ought not to be difficult even in a very small garden to find one cool spot where half a dozen pots of them would find congenial summer quarters. At the same time I believe that generally it will be found more satisfactory to plant them out after they have done blooming, and to repot them at the end of October. It is certainly a saving of labour to do so, and all know how much a free root run in good soil is helpful in counteracting the effects of an arid atmosphere, undoubtedly the greatest foe to the welfare of the double-flowered Primrose. That they can be grown in the south of England is proved by the fact that one of our large London nurserymen has during the last few years worked up a large stock of the Pompadour Primrose.

J. CORNHILL.

A black Tulip.—A writer in one of the daily papers recently stated that a black Parsee is as great a rarity as a black Tulip. As the great rarity, nay the almost impossibility, of a black Tulip is occasionally the theme of writers, I may remark that the presence of black in the Tulip is not unusual by any means. In the case of rectified bizarres and byblomens the edges of both are black, and especially so in the case of the latter. That beautiful feathered byblomen, Mrs. Jackson, has an edge of shining black—"Black as the raven's wing," says Mr. Samuel Barlow. But probably it is a self form in which the ideal black Tulip is to appear. There are some bizarre breeder Tulips that are almost black. I have seen Sir J. Paxton breeders of a dull dark mahogany colour that was almost black, and the colour is perhaps more manifest in some seasons than in others. Whether we shall ever see a Tulip with its petals completely suffused with the black-blue or almost black colour found in the base of *T. gesneriana* remains to be seen. If

we are ever to see a thoroughly black Tulip, I think it will be in the form of a bizarre, or possibly of a byblomen breeder. —R. D.

FLOWER GARDEN NOTES.

SURFACE-DRESSING SHRUBS AND TREES.—We have a large number of young trees and shrubs that were planted so that each should make the best specimen of their respective kinds that it is possible for them to make in such a light, hungry, sandy soil as this. Although the best of preparation—deep trenching and manuring—is made for the plants when first put out, the first dressing becomes quite exhausted at the end of three or four years. If the plants are expected to continue in vigorous growth, new soil or manure or both must be given as top-dressing at least once in three years; two years would be better. This being so, and having visions of the perfection we should like the various trees to attain, an open winter is always welcomed, because we can then make progress with such work without other departments of the garden being neglected. This winter thus far is therefore after our heart, there having been not more than one week when it has not been possible to continue open-air work; consequently favourite shrubs are having more than an average share of attention in the way of top-dressings of fresh soil, and in some instances of manure. The last-named is scarce with us, or most of the plants would have a supply. I am convinced that shrubs of all kinds relish manure, no matter what the nature of the soil may be. This was my expression to the workmen the other day on moving a moderate-sized plant of *Thujaopsis dolabrata*. The manure that was given when the plant was first put out had not been well broken up and mixed with the soil, but left in clods, these now being just a hard mass of roots, whilst in the soil—a peaty loam—the roots made were not nearly so numerous nor of such a vigorous character. I note exactly the same partiality for manure that we used mixed with soil as a top-dressing to a tree of *Picea Pinsapo* some three years since, and which we have again just renewed. I have mentioned these instances as showing the error that many fall into—myself once amongst the number—namely, that of supposing that to give manure to such kinds of trees is really a waste of material; whereas the contrary is the fact. But then, as was just now observed, manure is scarce with us; therefore the next best thing is to top-dress with such material as is available. The old soil from fruit tree borders, when these are renewed, is a first-class renovator for valuable deciduous trees, such as Maples, purple Beech, Thorns and scarlet Chestnuts. The chalk and lime that are generally present in such soil is not relished by any of the Fir tribe, except Yew and common Spruce, and for these, instead of manure, we make use of decayed leaves mixed with loam, or, indeed, any refuse garden soil. Specimen ornamental trees and shrubs are generally and, I will add, unfortunately planted on turf, this being allowed for neatness sake on pleasure grounds to grow right up to the stems of the trees, and in park lands, worse than that, coarse Grasses being permitted to rob the trees of part of the nutriment of the soil, the whole of which should be kept for them. In respect of specimens on the lawn, the evil is not so much the impoverishment of the ground by the turf, but the part prevention of air, heat and moisture to the soil, and, of course, in some degree a less vigorous growth than would otherwise result. Turf covering being inevitable, the next best thing is to top-dress the most highly valued specimens as frequently as labour and material are available, and in relaying the turf only beat it down sufficiently hard to make it smooth and even. We make it a rule that if the ground that has been top-dressed seems at all dry, not to lay the turf till there has been a soaking rain sufficient to have reached every root of the tree. With regard to small shrubs, such as *Rhododendrons*, *Azaleas*, and *Kalmias*, that seem in a poor state of health, the best way to renovate them is to take the plants entirely up, add fresh soil and manure and trench as deeply as the nature of the subsoil will admit of; then replant, working in and pressing

the soil well about the roots. This pressing is of the utmost importance, because of the minute character of the roots, which must suffer if there is the slightest cavity between the balls—roots of the plants—and the soil of the bed.

WILD GARDENING.—It is due to the editor that our first attempts at this were made, and, I am bound to confess, failed, not wholly so, but largely, not from lack of will, but from lack of labour, as wild gardening will not quite take care of itself—at least, it did not in our case, for the Bracken that we flattered ourselves had all been dug up, except plots that we wish to preserve, sprang up and smothered the Primroses, greatly damaged the Daffodils, and spoiled the effect of the masses of Foxgloves by killing some and intercepting the view of all. Only Snowdrops and wild Hyacinths managed to hold their own, and this the Snowdrops did by stealth, or rather by flowering before the Bracken had begun to grow, and as the summer advanced, Bracken, Brambles, and Thistles competed for the mastery. Thus ended our first attempt at wild gardening. Bracken is very well in isolated plots in the wild garden, but if allowed to ramble at will, it is destructive to all other vegetation. Recognising this fact by reason of this failure, a more successful attempt at eradication of Bracken and Brambles was made last year, and this season we are likely to be repaid for our pains, there being immense masses of Foxgloves (seeds sown broadcast last spring), Primroses, and Cowslips collected from the woods, Snowdrops in huge masses, and Daffodils and wild Hyacinths just peeping through, and later there will be good masses of wood Anemones and Buttercups. Our variety of plants is very limited, yet ample for a start, and we hope to add to them, as time affords us for collecting from the meadows, such plants as common Scabious, wild Orchis, Ajuga reptans, Poppies, and Chrysanthemum segetum.

GENERAL WORK.—The digging or trenching and manuring of vacant beds and borders, and also the forking over of beds containing herbaceous plants, and adding fresh soil to any plants, the roots of which are exposed to the atmosphere through the washings by heavy rains. Dig up Box edgings that have got too large or are otherwise in bad condition and relay, and next should follow the repair and re-gravelling of walks. As regards plants, propagation of scarce kinds should begin forthwith, and slow-growing kinds that are to be raised from seeds should be sown now. I prefer to sow all in small pots, because they are handier to shift about. Besides, as a rule, a small pot of seedlings is ample for all requirements. The weather for a long time past has been of the very worst description for the well-being of plants in frames, and as their safe preservation depends largely on the frequency of their being freed from damped-off leaves and abundant ventilation in suitable weather, no opportunity of using such precautionary measures should be lost.

W. WILDSMITH.

GLADIOLI IN 1888.

It is hardly possible to conceive two more opposite seasons than those of 1887 and 1888, and on nothing in my own garden has the effect been more manifested than on the Gladioli, and thus one can arrive at a tolerably fair estimate as to the effect of dry and wet seasons on the plants and bulbs. As the hybrids of *purpureo-auratus* and the early-flowering kinds have been recently noticed, a few notes on the more popular and numerous hybrids of *gandavensis* may not be out of place. I must premise that my beds were in both years in precisely the same situation and that the soil was alike. I have a good-sized piece of ground at the bottom of my garden where the soil is somewhat stiff and cool, but well drained; this is divided into four beds, and I use them in alternate years, giving them one change. I believe that this is nearly sufficient, especially as the beds which are not used for Gladioli are cropped with vegetables, and the bulb thus obtains a complete change. I think it is necessary to mention these things because very frequently comparisons are made which are mis-

leading. I might, for instance, have planted my bulbs this year in a portion of my garden where the soil is totally different from that I used last year, and any comparison between the two seasons would have been valueless. I am quite aware that it would be better in every way if I could give my bulbs a more complete change, but one cannot do impossibilities.

My judgment then with regard to the two seasons is that the dry one is more congenial to the flowers and better for the maturation of the bulbs, on which so much depends for their future well-doing; and, seeing this is what might be expected of natives of Natal, as were the progenitors of the present race, it is evident they have somewhat retained (however highly cultivated and improved they may have become) a little of their native character, and so revel in the drier seasons. This view is, I think, confirmed by the result of the culture at at Fontainebleau and at Mr. Burrell's, in both of which a somewhat drier climate is found than that which prevails in these parts, although all are drier than other parts of England.

The season of 1888 will be remembered by all Gladioli growers as one of a very disappointing character. The bulbs were put into the ground in good condition, and there were no heavy rains which would make one anxious about their safety, but then came that long cold, cheerless, sunless time which we endeavoured to persuade ourselves was summer, with the terribly wet July, and it then became evident that we should have a late season; still the plants looked beautifully green and healthy, but they pined for sun. I did not venture to mulch, for I felt that it would only tend to make matters worse, the ground being thoroughly soddened. The spikes were very slow in showing themselves, even the earliest sorts, and it was not until August 24—nearly a month after its usual time—that Shakespeare, which I have always flowered by July 26, showed its colours; while of those what are marked in Vilmorin's catalogue with C. and D.—implying degrees of lateness—some never flowered at all; they threw up flower-spikes, but these never got beyond the green state. I think that it is most probable, had it not been for that nipping frost on October 3, many of these would have bloomed under the influence of the fine weather that afterwards supervened; but that one night destroyed all one's hopes. I did indeed cut some spikes after that, but they were not in character, and few would have recognised them by the names they reputedly bore. The effect, too, on the bulbs was of course felt. It was very late before I could lift those of many of the varieties; the plants kept on growing, and these could not be taken up; consequently there was so much of vital force taken away from the bulbs. The result of this was, that the bulbs were, in many instances, neither so large nor so heavy as in former years. Some of the later sorts were, as might have been expected, very small, as they had less time to mature their bulbs, and I have found greater difficulty in the drying off this year than usual. I attribute this to the fact of the bulbs being so saturated with moisture, that when this dried up, by the water passing away in some form or other, the bulbs shrank accordingly. It cannot, of course, be seen until next year whether this affected the permanent vigour and flowering qualities of the plant, just as there is in many minds some doubt as to what will be productive this year owing to the immaturity of the seed, so we may regard our Gladioli roots with some degree of doubt.

I was at the Crystal Palace show in September last introduced to an American lover and grower of these beautiful autumn flowers. We had an interesting talk about the flower, and I could gather from him that their very fine dry autumn is very favourable for maturing the bulbs. He promised to send me a dozen bulbs of his seedlings; this promise he has since fulfilled. They are exceedingly fine and well ripened, but not finer than some I had last season myself and many that I have seen with Mr. Burrell, and it will be a matter of interest to see how they will compare at the flowering season with the best of the English and French varieties.

I have no sympathy with the complicated and troublesome ways of planting and storing which I have seen advocated. I have tried most of these and found them of very little use in warding off the losses which every grower of the bulb has experienced, for as I believe a malady for which there is neither prevention nor cure, and by neither potting in small pots before planting out or lifting them up with a large portion of soil attached to them, these plans, while very troublesome, are, as far as I can see, of very little use, except in very cold and backward districts where it may be desirable to give them a start before planting out. In such a season as the last mulching is out of the question, as it would have still more soddened the ground; I therefore did not attempt it. The experience of 1888 has confirmed me in two opinions: (1) that a dry season is more favourable to the successful culture of the Gladiolus than a wet one, and (2) that they very much prefer a stiff soil to a light one.

With regard to new varieties, I have been enabled to judge of a few, both French and English, in my own garden. The French growers let theirs out much sooner than they used to do, and charge much more for them. Nearly every year now we have one or two marked as high as 20s., and in some cases I think the price is not warranted by the quality of the flower. Take, for example, *Thérèse de Vilmorin*, one of these high-priced flowers. It is doubtless of a pretty creamy white colour, but the flower is small and the bulb has a tendency to send up several shoots, so that it is difficult to get a good spike, and it is in no way equal to *Cygnets*, a new flower of Mr. Burrell's, exhibited and awarded a first-class certificate at Bath in 1887. This high price prevents one seeing the newer French varieties as soon as one would wish, and I consequently have no notes of any later than those of 1886. Amongst these I think the finest are—

ENCHANTRESSE.—A very large flower of great substance, colour a creamy white, becoming clear white afterwards, and one who can recollect the size of the flowers cultivated years ago, the advance in this respect is very great, probably until lately not so great in white flowers as others. For a long time *Mme. Desportes* and *Norma* held the foremost places, but the former has such a bad constitution that it is as high priced now, although sent out twenty-five years ago, as some of those sent out a year or two ago, while *Norma* is so small that it is never seen now on an exhibition stand. *Enchantresse* is apparently of the same strain as *Thérèse de Vilmorin*, and while undoubtedly a fine flower, there is a question whether it will ever open a sufficient number of flowers at once to make a good spike.

MAGNIFICUS is a fine flower of brilliant colouring, and forms a grand spike of large, well-formed flowers; colour vermilion-red with large white blotch, and with violet markings on the edge. I think this is likely to prove a good exhibition flower.

POLLUX.—Another high-coloured flower, carmine, flaked with red, and brownish red on the edge; it has sometimes the fault of being semi-double, which spoils its symmetry.

PASTEUR.—Soft rose, large, round, well-shaped flowers, slightly shaded with orange, white blotch with scarlet lines; a very pretty and attractive variety.

SPLENDENS.—A deep vermilion-red flower, with pale yellow blotch on the lower divisions.

MINOS.—A salmon-rose flower, flamed and striped with vermilion-red, centre amaranth, edge marked with same colour.

MAGICIEN.—Deep rose centre, passing into pale rose and white.

Mr. Kelway sent out amongst his varieties some beautifully coloured flowers, the best of which seemed to me to be—

LORD CARNARVON.—A bright scarlet flower, with a white centre and scarlet feather.

CLARENCE.—Maroon streaked with purple, and shaded red; a dark flower.

ANER.—Mauve shaded and streaked with purple.

SILENUS.—Crimson with a violet stripe; a good spike of fairly sized flowers.

I received also from Mr. Burrell some of his seedlings which I believe he has not sent into commerce, but which have some of them obtained a first-class certificate, and I may here say that I think the finest white *Gladiolus* I have yet seen was a seedling exhibited by him and certificated at the Crystal Palace.

SNOWDON is of very good size and substance, and forms a good spike.

Of those which I have flowered I have been well pleased with the following:—

CYGNET.—I have already alluded to this flower as being superior to *Thérèse de Vilmorin*, and somewhat in the same style, creamy white, with large flowers, and forming a good spike; as exhibited by Mr. Burrell at Bath and at the Aquarium, it attracted much attention.

GARNET is another good flower, of a beautiful cerise-red and large ivory-white blotch on the side petals, streaked with deep crimson; a fine bold spike.

OLIVETTE is a beautiful soft rose-coloured flower with white throat and white lines on the centre of the petals; it forms a good spike and ought to be a good exhibition flower.

IOLANTHE.—Soft rose, with scarlet stripes, white throat; a very pleasing flower.

THE MIKADO.—Bright scarlet with white blotch; very pure and bright in colour.

CANTAB.—A very prettily marked flower, somewhat in the style of *Corquœunt*. **DELTA.**

STOVE AND GREENHOUSE.

CAMELLIAS ON TRELLISES.

THERE is another way of growing *Camellias* than in pots or as bushes, and that is training them on trellises (as shown in the accompanying illustration) in the conservatory or temperate house. There is no evergreen shrub more useful in its way than the *Camellia*. It is green at all seasons, the leathery leaves as lustrous as if varnished, and the growth of the plant regular. Within the past few years there has been a distaste for *Camellia* flowers, and so they have not come to the front so much as many things that have a greater elegance. But whatever the fashion is, it is a shrub that will always be grown, either as a pot plant—the least satisfactory method—or planted out to train over back walls or against a trellis. In the gardens of Syon House there are plants on trellises which are against the back wall of the Peach house. It might appear at first sight that such a position would be too shady, but the *Camellia* loves shade, and will not suffer even if it has but little or no direct sunlight, as may be seen from the robust, free-flowering, and noble specimens that adorn many corridors, passages, and conservatories in our large gardens, as at Chiswick House, the present residence of the Marquis of Bute. It is not usually found that the *Camellia* does well as a pot plant, but those at Messrs. W. Paul and Sons, Waltham Cross Nursery, are an exception to a general rule. The specimens are of different heights, some about 2 feet, others 15 feet or 16 feet, and in a large collection we can have an infinite variety, as the English, Italians, Americans, besides others, have had a share in raising the *Camellia* to the perfection we see it in at the present day. *Camellias*, when grown on trellises, as here advised, will need regulating so as to preserve an even surface of glossy foliage, or the plants will have a straggling, ill-cared-for appearance that will not tend to beautify any house. The best time for any pruning, if such is considered necessary, is when the plants are just going out of bloom, as then they commence to make

new growth, sometimes even before they have ceased flowering. Then go over the plants and trim in any shoots that spoil the neatness of the specimens. As for soil, it is found that they do well in turfy loam, peat, and sharp sand, and it is necessary to give plenty of water to the roots at all times, with sometimes a little soot-water to preserve the glossy greenness of the leaves. Of course, the plants will be in the border, and so there will be no shifting into the open air in summer, and as they remain in the house all the year round, it is essential to keep them free from insects, which not only injure the plants themselves, but will also do irreparable mischief to other things with which they are associated.

or indeed at any other season, as it is almost perpetual blooming. In many respects it resembles the Mexican *B. Lynchiana*, still met with occasionally under its original name of *B. Roezli*. *B. semperflorens gigantea carminea* is, however, more free in growth than *B. Lynchiana*—that is to say, it naturally forms a more bushy specimen than does the Mexican species, which is somewhat liable to run up tall and naked at the bottom. It is, however, a grand *Begonia* for the winter, producing its large bold heads of bright-coloured blossoms well above the foliage, remarks which also apply with equal force to the hybrid variety. A good form of the pure white *B. semperflorens* is also very useful at this season, and to those who do not possess it I would say, save a pod or two of seed from the plant



Camellias on a trellis.

As regards the best varieties, there is an almost unlimited range, but the old double white, fimbriata, the deep crimson *Mathotiana*, *Beali*, *Chandleri*, the crimson-scarlet *C. M. Hovey*, *Cup of Beauty*, *Marchioness of Exeter* (brilliant rose), and *Commandatore Betti* (rich pink) still remain the finest.

A useful Begonia.—This is a variety sent out by M. Lemoine, of Nancy, some few years ago under the name of *B. semperflorens gigantea carminea*, and though it is in general characters widely removed from *B. semperflorens*, it is a useful *Begonia* for flowering during the winter months,

whose blooms are the most promising, and it is very probable that when the seedlings flower you will be able to select one or two good distinct forms. This winter-flowering class of *Begonias* certainly seems to be gaining in popularity, and no wonder, for they are very beautiful throughout the dull days of winter, and by no means require any very great amount of care and attention. The remarkably free-blooming *B. Carrieri* with white blossoms is still in flower, while among others the curious *B. manicata* stands out conspicuous. The blooms of this are not particularly showy, being small and of a pinkish tint, but they are borne in large heads and in the greatest profusion. One good plant will push up a great number of flower-

spikes, but even in a mass they have a light and open appearance. *B. nitida*, with pinkish blossoms, and *B. odorata*, in which they are white, are also two of the very best, while the distinct *B. socotrana* is valuable, not only for its own winter-flowering qualities, but also from the fact that it is one of the parents of that beautiful variety John Heal, which stands forth as one of the most successful hybrids yet obtained.—H. P.

NOTES FROM GUNTON.

LILIES OF THE VALLEY, *Iris reticulata*, and *Lachenalia Nelsoni* make a very charming combination of colour at this dull period of the year. The *Iris* can be easily had in flower in January, a temperature of from 45° to 50° during December being quite sufficient. Bulbs so easily managed should be more generally cultivated. If they are potted up in August and plunged in a cold frame till the end of November, and then introduced into the above-named temperature, a nice display will result. Having a delicate perfume, something like *Primroses*, they are much appreciated. Some bulbs of this *Iris*, planted out with *Snowdrops* in the Grass three years ago in a sunny nook by the side of a shrubby walk, have established themselves well, and, unlike those of the *Crocus*, they are quite rabbit-proof, proving themselves in that respect fit companions for the *Snowdrop* and *Narcissus*. Also, before the *Snowdrop* has time to become snowy masses, this *Iris* is opening its purple and golden buds. The *Lilies* are what is known as the German variety, and are from home-grown roots. Having been told repeatedly on good authority that roots grown in this country would not force so early or so quickly as the imported, I resolved to give them a trial, and with the result I am perfectly satisfied. Having placed my first batch in a temperature of 80° on the 17th of November, I was able to cut my first bunch in three weeks, and was cutting freely before the month was up. They are equal in every respect to the imported roots, many of the spikes having thirteen and fifteen bells or flowers, a better average than I have had sometimes from imported crowns.

Nelson's Lachenalia gets the same treatment as the *Iris*, which accounts for its being in flower so early; although I am bound to state the finest I have ever seen are grown by Mr. Ocle at Bickling Hall. He grows them in a cold frame until the flower-spike is making its appearance, when they are removed to a shelf in a cold Peach house. They are marvels of good culture. The compost he uses to grow them in is somewhat unique. The pots are well drained, then filled three parts full with decomposed cow manure, and finished off with pure sand, in which the bulbs are placed. The result is so good that I think this is worth knowing. *Ixias*, *Freessias*, *Sparaxis*, &c., would, I have no doubt, like this generous treatment. WM. ALLAN.

Gunton Park.

The New Zealand Clematis (*Clematis indivisa*).—In any selection of climbing plants for the greenhouse this must certainly be included, for its beautiful pure white, star-like blossoms are borne not only in the greatest profusion, but at this season of the year, when the climbers in flower are very limited, being principally confined to this, the golden-flowered *Hibbertia dentata*, and the bright red *Kennedyia Marryatæ*. The *Clematis* is seen to the greatest advantage when draping the roof of a good-sized structure, as it is rather too vigorous for a small house, unless the root space is curtailed, though I have seen it grown and flowered well even in 6-inch pots; but it is when draping the roof or supports thereof in the same manner that the common Traveller's Joy festoons our hedgerows, that the beauty of this New Zealand *Clematis* is most marked. It may be propagated either by cuttings of the young growing shoots during the spring, or by grafting them on to pieces of the root of one of our native kinds in the same manner as the many beautiful summer flowering hardy varieties are increased. This *Clematis* grows readily in any good soil, and the principal enemies to contend against are aphides, which

attack the young growing shoots in the spring and quickly cripple them, while in some situations the foliage is often disfigured by mildew during the winter. I once had a plant lose the whole of its leaves from this cause, and of course the blossoms were thereby sacrificed, but I managed to prevent this occurring again by keeping up a circulation of air whenever possible, and checking by means of sulphur the first signs of mildew. There is a variety of this (*lobata*) in which the leaflets are lobed and somewhat undulated, but the flowers are much the same.—T.

NARCISSI FOR FORCING.

"T. B." alludes to the several varieties of *Narcissus poeticus* being as easily forced as the garden forms of *N. Tazetta*. The varieties of *N. poeticus* are excellent for forcing, and should not be hurried on too rapidly. The variety *ornatus* is certainly the best for forcing. There are many more kinds of *Narcissi* that may be forced quite as easily as the above, and which will come in much earlier. I have grown many species and varieties in pots, and have failed with none of them. They are apt to degenerate if grown in pots year after year, but if fairly well looked after they will do well for three years. I do not grow any of them in boxes. This is done probably by all or most of the growers for market. The bulbs are placed in very thickly, and when in flower are removed from the boxes and put in pots, and probably most of them are destroyed when the flowering period is over. This would be a very wasteful method with expensive bulbs. Most of the *Narcissi* do best if allowed to remain undisturbed for three years. The one I like best for pot culture is *N. bicolor* Horsfieldi, as it is both early and free-flowering. If grown in a frame and placed in an ordinary greenhouse it will bloom about the third week in March. I have more than once exhibited it at the Botanic Gardens, Regent's Park. My plan of growing it is this: five or six bulbs if planted in an 8-inch pot will flower well the first year, but we carefully repot them when they have done flowering into 10-inch pots, and they will bloom well the next year, but do best of all the third year, when they make a gorgeous display in 12-inch pots. After that time the bulbs should be separated and be planted out of doors. *Maximus*, with its distinct rich yellow flowers, also succeeds well in pots treated much in the same way. *Emperor* and *Empress* are now both becoming very plentiful, and may be grown as pot plants for early forcing. General Gordon (or *spurius coronatus*) is also a very beautiful variety. I might name other good varieties which I have not tried, but which will doubtless do well for forcing—*Ard-Righ* (syns., *Irish King* and *Yellow King*) one of the earliest; *moschatus* and its variety *tortuosus*, which would most likely do well, and would be very distinct. *Obvallaris* (the Tenby Daffodil) and the well known variety *princeps* I have grown for forcing and they do well. The *Barri incomparabilis* and *Leedsii* groups would be excellent, and I have no doubt they could be forced. Those belonging to the *Bulbocodium* group I grow in pots, and think very highly of them, but the yellow *Hoop-petticoat* I do not find so free in flowering after the first year, and they do no good out of doors, so it is necessary to purchase a few fresh bulbs every year, but they are not expensive. *Monophyllus* or *Clusi*, or the white-flowered *Hoop-petticoat*, does much better in pots, and improves annually; and I also raise plants of it from seeds saved from the plants grown in frames. I need not say that the Paper-white *Narcissus* should be grown in every garden. There is one variety which has larger flowers than those of the other, but both of them may be purchased annually. I do not find that they are so good from home-grown plants. In time all the most popular of the *Daffodils* will be imported from Holland with the Dutch bulbs. They seem to have the advantage of us in soil and climate; but no one in England seems to have taken the same pains to cultivate bulbs as the Dutch have done. The cultural requirements are most expensive, and cow manure, which seems to be the best in their sandy soil, is

much more expensive in Holland than it is in England. The ground is easily trenched, but no good results are obtained without painstaking cultivation. J. DOUGLAS.

WORK IN PLANT HOUSES.

STOVE.—BOUVARDIAS.—Where young stock has mainly to be depended on for flowering next autumn and winter, it is a matter of the first importance that the plants should be propagated as early as possible. Plants that were dried off, as advised in *THE GARDEN* some time back, should now have all the soft immature ends of their shoots cut away; the soil should then be well soaked with water, and the plants at once put in a brisk heat. Syringe overhead once or twice a day, and let them have plenty of light, so that the young shoots which will start immediately from almost every eye may not come drawn and spindly. It is well to bear in mind that though weakly cuttings will strike, still with the best attention that can afterwards be given them the plants will not overtake those that are raised from stout short-jointed cuttings. The shoots of *Bouvardias* when so treated come as quickly as those of *Fuchsias*, and in a very short time will be ready for putting in to strike. The cultivation of these plants has much increased in recent times, but they are not yet so much grown as they deserve to be. There are no plants that I know of which will give such an amount of bloom proportionate to the room they occupy, whilst the flowers, independent of their agreeable perfume, are not too large to admit of being used in bouquets, button-holes, wreaths, and the small specimen glasses that are now taking the place of the large cumbrous stands that used to be in fashion.

VINCAS.—The principal merits of the stove kinds of *Vinca* consist in their continuous habit of flowering, as from the time the plants begin to bloom in spring they keep on uninterruptedly all through the summer. The individual flowers do not last long, but when the plants are grown near the glass and not kept too hot, they come in useful for cutting. Plants that bloomed last summer should now be cut close in. Shorten the branches to within 8 inches or 9 inches of the collars before cutting them in, allow the soil to get into a half-dry state, and do not give much water until the young shoots have got 1 inch or 2 inches long, as the roots are somewhat impatient of moisture for a time after the tops are removed. When the young shoots have made a little progress the plants may be turned out of the pots, and have most of the old soil shaken away. Give them others several sizes smaller than those they have been in. It is better to do this, and then give them more room after the new roots have made some progress. Stand the stools near the glass, where they will get plenty of light, and syringe overhead slightly once a day. Young plants that were struck from cuttings towards the end of summer should have their tops pinched out to induce them to branch back, and as soon as the young shoots have got 2 inches or 3 inches long, they should be tied out horizontally; by this time they will bear putting into 6-inch or 7-inch pots.

BERRY-BEARING SOLANUMS.—To have these plants with their berries fully coloured early in autumn, when they come in so well for standing amongst the early-flowering *Chrysanthemums*, the cuttings must be struck during the present month, otherwise, despite all that can be done in pushing them on afterwards, the plants will be too backward in spring to flower early enough to give time for the berries to grow and ripen. These *Solanums* should always be propagated from cuttings rather than from seeds. When the stock is raised from seeds there will be a great difference in the freedom with which some of the plants produce berries as compared with others; whereas when cuttings are used only the freest berried plants can be selected to propagate from. Plants that had their berries coloured early in autumn will now have made sufficient growth at the extremities of the shoots to afford cuttings in right condition for striking, especially if they have been stood where

there was a little more warmth than in an ordinary greenhouse. Where room is not limited, it is best to put the cuttings separately in little pots, as then they need not be disturbed until after they have been stopped and the subsequent growth has made some progress. The cuttings will root best in moderate heat, keeping them close, as there is not usually much inclination in the leaves to damp. See that the shoots used are quite free from aphides, with which the plants are liable to be affected, particularly if they have been stood amongst other things of various kinds. When affected with these troublesome insects, it is better to dip the cuttings in tobacco water, as by this means the eggs as well as the living insects will be killed. But when dipped in this way the cuttings should be washed in clean water before being put in to strike. I have never found cuttings of any kind root so freely if any trace of the tobacco water is left upon them.

GREENHOUSE. — WINTER-FLOWERING CARNATIONS.—These flowers are now held in such general esteem, that they threaten to run Roses very closely, especially during the winter season. To have a regular supply through the winter and spring up to the time when they can be had out of doors requires a sufficient stock of plants, with the necessary amount of forethought in the treatment during the previous summer and autumn, so as to have them in the right condition for blooming at the time they are wanted. In the absence of this it is useless to look for flowers. These Carnations are less able to bear fire-heat than any plants with which I am acquainted. No matter how strong the plants may be, unless the flower-stems are well up and the buds far advanced in the latter part of autumn, there will be few flowers before spring. Plants that now have their earliest buds plump and showing colour may be kept in a temperature of 45° to 50° during the night, provided they are in a light house or pit and are stood with their tops close to the glass. It is better not to use more heat than this, as if kept warmer, the successional flowers will come poor and of little account. Where a light span-roofed pit can be devoted solely to the plants for winter blooming, there is a better chance of having an unbroken succession of flowers. Where this cannot be done, the next best thing is to give them one end of a house or pit.

SUCCESSIONAL PLANTS.—Plants that were stopped later in the latter part of the summer and are only now pushing up their flower-stems must be kept cooler; 40°, or 2° or 3° more, is warm enough for them. Give air every day, except during severe frost, and keep them close to the glass. See that the stock is quite free from aphides, for though the insects do not increase so fast or thrive so well on Carnations as they do on things of a more succulent nature, yet they are much more difficult to kill than when they feed on plants that are more suited to their tastes. For this reason it requires stronger applications of tobacco smoke than ordinary to destroy them. If a good look-out is kept, and the insects are taken in hand when only a few plants are affected, it is best to dip them in strong tobacco water, as this will kill the mature insects and their eggs as well. In the matter of water, it is necessary to be more careful in using it with Carnations than in the case of things that grow quicker. During the winter months especially no more water must be given than will keep the roots in a healthy moving condition. At the same time, the soil must not be allowed to get too dry. Plants that have been flowering through the last months of the year and have yet some buds to open will be benefited by the application of manure water once a fortnight. If a little soot is added it will be better, particularly if the plants are in pots and have any worms in them. Keep a good look-out for mildew, on the detection of which, dust with flowers of sulphur.

T. B.

Epiphyllum truncatum as a basket plant.

—Not the least effective manner of cultivating this Epiphyllum is as a basket plant. Plants upon their own roots grown from cuttings answer well for this method. The plants should be grown to a good size before being transferred to the baskets, which are

best made with galvanised wire and of the size of the plants to be grown in them.—S.

Oyster shells for Gloxinias.—Having a quantity of oyster shells pounded ready for mixing with Chrysanthemum soil, I should be glad to know if a little mixed with the soil for Gloxinias would be beneficial.—CONSTANT READER.

Eucharis amazonica.—Beautiful as are some of the smaller-flowered kinds of this genus, they all fall far short of the beauty of this grand species, especially as seen in the splendid condition in which I recently saw it with Mr. Brankstone, St. Germain's Place, Blackheath. I think I am right in saying there are ten plants in all. These ten plants were carrying eighty-five spikes, each bearing five flowers, so that we have here upwards of 400 flowers, and all extra fine in quality—truly a grand sight, and one of the finest which has come under my notice. This, I was told by Mr. Hall, the gardener, was a successional crop. I was told that the plants had bloomed in October. Mr. Hall took them in hand in November, and he, noticing that the plants had made younger bulbs than those which had produced the former flowers, gave them a fresh start, and soon new spikes began to appear. From this time the plants were fed with liquid manure from the stable (which is here accumulated in a large tank—a happy store for those who know how to use it) in a weak state at first, gradually increasing the strength until the supply was heavy. I shall watch these plants with some interest to see how they behave after such a heavy crop. Some say the Eucharis will not continue to produce a double crop of blooms annually, but I have had plants do so for several years, and I am of opinion they require to be somewhat short of pot room, or what is called just nicely feel their pots. I do not think a heavy supply of liquid would suit them in a quantity of unused soil.—H.

BOOKS.

LES CYPRIPEDEES.*

UNDER this title has just been published by M. Godefroy-Lebeuf, of Argenteuil, near Paris, part I of a work exclusively devoted to the beautiful and deservedly popular genus *Cypripedium*. The appearance at the same time of Messrs. Veitch and Son's eminently practical treatise on the same subject fully testifies to the favour in which these plants, as curious as they are beautiful, are held at the present time. Although the two works appeared almost simultaneously, they are so totally different, that the one does not in the least interfere with the other. Messrs. Veitch's book, described in these columns last week, requires no further comment. The present publication is of an international character, being in French and in English, besides retaining, whenever practicable, the original Latin description given by Reichenbach or any other authority at the time of the introduction of each kind. The scientific description in English, which is the work of Mr. N. E. Brown, of Kew, has been made as clear as possible, and in the main coincides in the description of the plants with that of Messrs. Veitch's work.

We, however, notice an innovation in the new publication which consists in the total suppression of the sub-genus *Selenipedium*, for in it, *Selenipedium caudatum* has become plain *Cypripedium caudatum*, a classification which, we remark with satisfaction, the authors intend retaining throughout their work. The cultural directions attached to each species are preceded by historical notes, in which the discovery, origin, &c., of the plants are treated at great length, and with all the accuracy possible under the circumstances. The principal attraction, however, of this new addition to Orchid literature undoubtedly consists in the beautiful set of coloured plates, in which the details not only of the flowers, but also of the foliage and the habit of the plants are most care-

fully worked out. Anyone acquainted with each species or variety cannot fail to recognise it at first sight. With a view to future classification, and so as to enable subscribers to this highly finished and most interesting work to ultimately arrange the illustrated and described species and varieties either in alphabetical order or by sections, as they may prefer, neither plates nor pages have been numbered. This mode of procedure is all the more necessary when it is mentioned that these plates can only be prepared as the plants flower. The idea of showing side views as well as front views of the flowers is excellent, and the interest in the work is further enhanced by the black illustrations representing the sectional divisions of each flower.

SOCIETIES.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE meeting of the general committee called to consider the subject of the president's resignation was held on Monday, Jan. 14, at Anderton's Hotel. Mr. E. C. Jukes was, in the absence of the president and vice-president, elected as chairman for the evening's proceedings.

The hon. sec., Mr. W. Holmes, stated he had communicated the resolution passed on the previous occasion of their meeting to Mr. Sanderson, who had replied, regretting he could not alter his decision. It was thereupon moved that the office of president, subject to the approval of the annual January meeting, be offered to the vice-president, Mr. Ballantine, who had for many years worked earnestly and well for the society's good, and in case of his refusal that a sub-committee, consisting of Mr. B. Wynne, Mr. E. C. Jukes, and Mr. Castle, be formed to draw up a scheme revising the constitution of the society.

Mr. Holmes reported that the provincial show committee recommended that he be empowered to accept the invitation of the Hull Society to hold the provincial show for 1889 in that town, provided the under-mentioned terms can be arranged with them, viz.: That the N.C.S. provide a sum not exceeding £50, and that amount to be expended in prize-money in the open classes, the Hull Society to contribute a like sum. In the case of all the prizes not being awarded the amount not expended shall be equally deducted from the guarantee of each society. That the N.C.S. shall allow the Hull Society to fix all prizes in the local classes as they may think best. The National to be entitled to one-third of the profits on the whole year's working of the Hull Society, and a sum of £10 from the joint account to be allowed the N.C.S. for printing and other expenses in connection with the preparation of the schedule for the provincial show. The show to be styled the Provincial Show of the National Chrysanthemum Society. The judges are to be appointed half by the National and half by the Hull Societies, the judges to appoint their own umpire. All members of the National to be allowed to compete free of charge, and free admission to be allowed to its members. Prizes will be paid by the secretary of either society as may be found most convenient. Any further questions to be referred to a joint committee consisting of the secretary and one member of each society. In the case of the refusal of the conditions by the Hull Society it was moved that the offer be made to the society at York for consideration by them.

Applications from the Devon and Exeter Botanical and Natural History Society and the Lewes and District Chrysanthemum Society for affiliation were agreed to.

Seven new members were elected, making the total now 618.

With regard to the Dahlia classes at the September show, it was resolved that in consequence of the wishes expressed by some of the competitors for a re-arrangement of the schedule, the matter be referred to the National Dahlia Society for adjustment. Lists of special prizes were read from Messrs. Webb and Son and Mr. Fidler, of Reading,

* "A History of the Cypripediums." By A. Godefroy-Lebeuf and N. E. Brown. France: A. Godefroy-Lebeuf, Argenteuil. England: Juncos Veitch and Sons, Chelsea.

for vegetables. Mr. H. Cannell also gave notice that he would offer £5 for prizes open to amateurs in the Primula classes at the next January show. The appointment of judges for the November show was then considered, the following being the result: Messrs. Donald and Prickett for plants, Messrs. Douglas and Gordon for incurred blooms, Messrs. Molyneux and Beckett for Japanese, Messrs. Castle and Head for miscellaneous classes. Reserve judges in each class were also elected.

NOTES OF THE WEEK.

Chrysanthemum Fleur de Marie, sometimes also called *George Hock*, although generally looked upon as an early rather than a late flowering variety, is now producing some lovely pure white blooms.

Royal Horticultural Society.—We learn that the committees will recommend awards to be made to very superior seedlings or novelties, or to recently introduced, re-introduced, or very rare objects, or to highly decorative plants, according to their merits.

Chrysanthemum Mons. Astorg is at the present time pure white and most useful in a cut state. Its flowers, with the graceful drooping habit of the petals, and yet having a full centre, are now very useful. This variety is worthy of extended cultivation where late blooms are desired and appreciated.

Snowdrops at Southampton.—On Jan. 19 the first Snowdrops burst into bloom. The past few days, which have been very mild, no doubt tended to promote an early growth. Flowers of *Galanthus Elwesii* appeared here quite a fortnight ago in a sheltered nook on the rockery. —E. MOLYNEUX.

Blue winter Windflower (*Anemone blanda*).—This earliest of all alpine has been very beautiful during the past week, although some of the growths have been destroyed by birds in quest of food. A piece of wire netting would no doubt protect it, but it would also lessen the beauty of this charming deep blue Windflower.

Crocus nivalis.—This is one of the best early blooming species and is now in full flower. It is of vigorous growth, in this respect resembling *C. vernus*. The flowers, of a rosy lilac colour, are freely produced. It and *C. imperati* now form bright patches of colour in the borders. *Iris reticulata* opened its first flowers on the 11th inst. —T. SMITH.

Chrysanthemum Bijou is one of the older varieties of the large-flowered *Anemone* section and very valuable for producing late flowers; the colour when in its proper character is really rose-purple, but as late as the present date (Jan. 19) it is much paler—in fact, a deep lilac; the flowers keep fresh a long time, and altogether it is one of the best late flowering *Anemone* varieties we have.

Veitch Memorial Fund.—At a meeting of the trustees, held on Wednesday, the 16th inst., Dr. Robert Hogg in the chair, it was resolved that three Veitch Memorial medals be awarded at the Temple Gardens show on May 30, 1889; that two medals be placed at the disposal of the Royal Caledonian and the Newcastle-upon-Tyne Horticultural Societies, and one each to the Northampton, Tibshelf, and Chiswick Horticultural Societies respectively. Dr. Maxwell Masters was elected a trustee, and Mr. A. H. Kent was elected secretary in place of the late Mr. Thomas Moore. All communications should be addressed to the secretary, 13, Kempson Road, Fulham, S.W.

Benthamia fragifera.—With this note I send fruit and also a spray with flower-buds of the above-named shrub. The fruits will show how mild the season is, as the birds have not yet touched them, although we have tens of thousands of the feathered tribe around us, and which generally take most of the ornamental fruit before this time. Like many other fruit-bearing trees of last year, the crop on the Strawberry trees was very thin, and consequently they have not been so ornamental as usual, but the wet and cool season of 1888 was most favourable to their growth, as I never remember having seen them so healthy as now. I have seen this *Benthamia* growing in Cornwall and the Isle of Wight, but nowhere have I seen it half so flourishing as here, and yet it has no special care or culture. Locality, I am certain, plays a far more important part in the successful growth of

plants generally, and especially edible fruit-bearing trees, such as Apples and Pears, than soil or any other thing.—W. H., *Fota, Cork*.

Lilium giganteum hardy in Roxburgh.—In your account of Indian Lilies in THE GARDEN (p. 54) it is mentioned "*Lilium giganteum* is hardy only in the southern counties of England." It may interest some of your readers to know that it is quite hardy in this county. It has for five or six years been growing in my open border, and I have seen it growing quite freely under similar conditions in another garden. I enclose a photograph I took last summer of this Lily as it flowered out of doors with me, the stem being 8 feet high and bearing eleven flowers.—ROXBURGHSHIRE.

Dipladenia amabilis.—I send you a photo. of a specimen of *Dipladenia amabilis* which I exhibited last year at the Sevenoaks Horticultural Show, as I am sure you will appreciate it. My gardener, Mr. Gibson, tells me that the plant commenced to bloom on May 9 last year, and on August 21, when it was exhibited, it had 147 trusses of bloom. Between May 9 and August 21 he had picked from it 582 expanded blooms, and the plant still continued to bloom till October, when it was cut down to 18 in. The plant is twelve years old, and is as vigorous as ever it was. During the whole twelve years it has always been in continuous growth, never being allowed to rest.—T. F. BURNABY-ATKINS.

* * An excellent photograph of one of the finest of the *Dipladenias*. We hope to present an engraving of it at an early date.—ED.

Araucaria imbricata in fruit.—Mr. A. D. Webster sends fruiting branches of the *Araucaria imbricata*, a familiar tree in many gardens by reason of its striking character. It is not uncommon for it to bear cones in this country when it is favourably placed, and several instances have been recorded from time to time in THE GARDEN. When the tree is bearing heavily it has a tropical aspect, which cannot be said of the poor specimens that struggle for existence in many small suburban gardens. An aged specimen stands on the Grass-turf near the greenhouse at Kew. It is one of the original seedlings brought home by Mr. A. Menzies. There is an interesting history attached to its introduction. Mr. Menzies was dining with the Governor of Chili, when *Araucaria* seeds were brought in for dessert. Instead of eating the luxury, Menzies obtained permission to keep his portion. He sowed the seeds, five germinating on the voyage home, and one of these is the now historic plant at Kew. It is fast decaying and a positive eyesore, but its interesting associations prevent its destruction. This *Araucaria* forms immense forests on the slopes of the Cordilleras of Chili, and there the tree attains a height of 150 feet.

Crocus imperati.—This is one of the earliest spring-flowering species and is a native of Italy, being perfectly hardy in the open air. It increases with more rapidity than most of the others, and may be left in the ground almost indefinitely. A few placed in pots in a cold frame in autumn are now in full flower, making a lovely picture on clear days, and something unusual at this time of year. The flowers are very variable in their markings, the outer surface of the three outer segments being of a rich buff, suffused with purple markings, the inside lilac. They are attractive whether open or half closed, as they usually are on dull days. A self-coloured white variety is said to occur near Ravello, but we have never seen it in cultivation. When used for the rockery, a sheltered position (especially from east and north) should be chosen, where it will bloom much earlier and with less chance of being hurt by the spring winds, which now become prevalent.

Cotoneaster Simonsi and C. frigida.—These two charming plants are very ornamental at the present season, as the berries have been untouched by the birds; whereas the greater portion of the Holly berries were destroyed before Christmas. *C. frigida* makes a splendid standard or single specimen, and when well developed cannot but attract admiration. *C. Simonsi* should be planted in a clump of shrubs, as it is a more straggling grower. The plants are now one mass

of scarlet, and the small ill-placed shoots are very useful for cutting and filling large vases in the house, &c.—W. A. COOK.

Damage to plants by fogs.—At a recent meeting of the Royal Botanic Society the secretary reported that the recent fogs had done much damage to the plants in the conservatories, causing many of them to shed both leaves and flower buds; more especially had this been the case with Australian plants, which, from enjoying in their own country a large amount of sunlight, were found less capable than any others of contending against the vicissitudes of London weather. Mr. G. J. Symons, F.R.S., said he believed that fogs were increasing, not only in London, but generally. Plants, however, suffered not only from the absence of light, but from the pores of their leaves becoming filled up with the sulphurous, sooty matter contained in London fogs.

Yellow Fumitory.—How rarely one sees this lovely plant now-a-days, and yet we know of few plants so readily established or so charming when allowed its own free will. Old walls would seem to be the spots it affects most, and when once established it will increase rapidly by means of its seeds, which are shed in all directions, germinating in the most unlikely spots. To establish it, in the first place we simply mix a few seeds with stiff soil and pack firmly on the old ruin, wall, or other likely spot, and leave alone, when a good crop will be almost sure to follow. It is also an excellent subject for poor bare slopes, and even where the chances of a supply of moisture are limited we have seen it in the greatest luxuriance. It should never be allowed to associate with alpine or where there is much good soil surface, as here it will be found troublesome, not unusually smothering plants of low growth. The tufts or masses of much cut Fern-like foliage from which the numerous yellow-spurred flowers appear are very effective. Its botanical name is *Corydalis lutea*.

Soldanellas.—These minute plants are now beginning to throw up their flowers in cold frames, and in sheltered places outside they will doubtless be just as advanced. As this is the stage when they suffer most, a word of warning may not be amiss. We have tried them many years in the open and failed, because they were always caught with spring frosts, the young flower buds when beginning to uncurl being very tender, and unless protected they invariably get destroyed. This may be remedied by protecting with squares of glass now. If the protection, as is usually the case, is commenced in early winter, they throw their flower-buds much earlier and with less chance of success. The plants should rather be kept back as much as possible, using glass or other protection only when absolutely necessary. We find less trouble and certainly much advantage by growing them in pots in cold frames. As soon as they show signs of growth they are watered freely overhead twice a day, and this is continued with rare intervals until they are in flower. I believe that many of our alpine suffer more for want of sufficient water in the growing season than anything else.—D.

BOOK RECEIVED.

"*Chrysanthemums and their Culture*" By Edwin Molyneux, gardener to W. H. Myers, Swanmore Gardens, Bishop's Waltham. 171, Fleet Street, or from the author.

Names of plants.—*J. L.*—1, *Dendrobium luteolum*; 2, *D. Wardianum*, fine form; 3, *D. formosense* giganteum; 4, a pale form of *D. nobile*; 5, a form of *D. aureum*.—*J. M. B.*—1, *Cochlostemma Jacobianum*; 2, *Peperomia arifolia* variegata; 3, a very pale *Lapageria rosea*, not a desirable form; 4, *Adiantum Paucottii*; 5, *Asplenium cleburnianum*.—*G. D., Brighton.*—1, *Adiantum pedatum*; it is quite right for it to lose its leaves in winter; 2, *Cyrtomium falcatum*, is evergreen, but the frost causes it to hang its head; 3, a form of *Asplenium thacidianum*; 4, *Lomaria discolor*.—*J. B.*—A very fine form of *Cattleya Trianae*, which comes near to the variety figured under the name of *splendissima*.—*J. Marshall.*—1, a good *O. Pescatorei*; 2, *Cymbidium Devonianum*; 3, *Saccolabium bellinum*, pale coloured form; 4, *Dendrobium cucupum*.—*Constant Reader.*—The fruit is *Psidium pomiferum*, one of the Guavas. It is a native of Tropical America. Treat as for Oranges.—*G. W. H.*—1, *Asplenium viviparum*; 2, *Adiantum formosum*; 3, *A. Paucottii*; 4, *A. decursum*; 5, *A. cuneatum*; 6, next week, please send better specimens of the others.—*G. Morton.* 1, *Epidendrum* sp.; 2, possibly a *Masdevallia*, but if you wish us to name Orchids properly, you must send fresh, carefully packed flowers, not dried traps.

WOODS & FORESTS.

PLANTING CLAY LAND.

WHEN large plantations of newly-planted trees are thrown out of the ground and killed by the frost, one is naturally led to investigate the case in order as far as possible to point out a remedy. Clay land in its natural condition absorbs and holds water to a large extent and parts with it slowly, and as the rain water in many cases lodges upon the surface the ground cannot be easily drained, air is excluded, and the whole mass is naturally cold and waterlogged. The first step in preparing such ground for planting is to have it drained as well as the circumstances of the case will allow. In addition to the common drains I have found it of great advantage to cut small tracks a few inches deep, to run off the water from surface pools and hollow places into the principal drains. If this class of ground is planted during autumn or winter, as soon as a spell of frosty weather sets in the wet adhesive clay gradually swells, becomes loose and pulverised, and when fresh weather sets in the roots of the newly inserted plants are apt to be left bare and exposed on the surface; hence the great failures which we often see recorded in the formation of such plantations. In order to counteract this state of things the planter should be on the alert, and when the ground becomes soft and free of frost, he should send all hands that can be spared to set up the plants, draw a little fresh soil over the roots where necessary, and have it pressed firmly in order to keep the plant in its proper upright position. Young trees planted in this class of soil are never safe until the roots take to the ground. Young trees newly planted in nursery rows are frequently loosened in the ground by frost in the same way, and I have often found it necessary to make the ground firm around the base of the stems as soon as fresh weather set in. When this is attended to at the proper time very few failures take place, and when numbers of young trees are thrown out of the ground and killed by frost, I cannot help thinking that a good deal of blame is attached to the planter. Prevention is, however, better than cure, and for many years my practice, as far as possible, has been to plant this class of ground in spring after the severe weather is past, and thus the roots of the plants have time to take hold of the soil by the following winter, and the risk of damage by frost is lessened to a large extent. Owing to the press of other spring work it sometimes occurs that the planting cannot be conveniently put off till that time, but, at any rate, such should be the aim of the planter. Another advantage to be gained by planting clay land in spring is, that it can be prepared for the reception of the plants in a superior manner. No class of ground is so much benefited by the influence of frost as heavy clay soils; consequently the pits for the plants should be dug in autumn or winter, and the soil excavated left upon the surface to be broken up and ameliorated by frost till spring, when it will then be in a better condition for the roots. Some planters have tried deep planting as a means of keeping the plants in their position and from being brought to the surface by frost, but I have never seen the system turn out a success. I have always found the best results to follow by keeping the roots as near the surface as is consistent with the stability of the plant, and in place of deep planting I prefer having the ground at the spots where the trees are inserted a little above rather than below the general surface level. In order to do this the surface sod should

be broken up and placed in the bottom of the pit, which will not only be the means of raising the ground a little higher, but likewise rendering the clay porous and adding to the fertility of the soil. Scotch Fir and Oak are very suitable trees for this class of ground, as both are hardy and attain a good profitable size. The plants used should be stout and stocky, free of bug, scale or the coccus insect, which sometimes appears on the leaves, branches, and stems in the shape of small ticks of a whitish colour. Trees that have been once or twice transplanted are the best, as they are generally well furnished with fibrous roots, and if properly planted scarcely ever fail to prove satisfactory. In cases where the surface herbage is of a close, rank character, plants about 18 inches high should be used, but in ordinary cases they may be about a foot high. J. B. WEBSTER.

The Corsican Pine for timber.—I strongly recommend extensive planting of the Corsican Pine in woods and plantations with a view to profit, for, unquestionably, it is one of the most valuable of all the Coniferae, and succeeds well where many others would fail. Near the sea-coast, for instance, it grows with a vigour equalled by few, but in such situations there should be plenty of other things planted with it to assist in breaking the force of the winds, and, when thinning is done, it should be gradual, as those left get cut about through sudden exposure, and sometimes completely uprooted. It seems a pity that so much ground should be occupied throughout the country by the growth of so many trees that are quite worthless for their timber, and more particularly so as we are dependent, in a great measure, for our supplies from abroad. Somehow or other, Spruce appears to have been the favourite with our foresters, but why this should have been so I am at a loss to conceive, as it has no special merit beyond its symmetrical shape; while in other respects it is almost worthless, except for fuel.—D. S.

Time for timber felling.—Often the inferiority of timber, such as its tendency to decay and dry rot, is wholly due to the timber having been felled at improper seasons, and to its subsequent injudicious treatment. To fell trees in March, April, and even in May, as is now often done, is absolute folly. Timber intended for builders, or for the use of coopers and wheelwrights, should never be cut except in December or January, when the circulation of the sap is arrested. November, even, is too early, and February too late to ensure its durability. Its subsequent treatment, too, greatly influences the quality of the wood. The tree should be freed from all branches and shoots immediately it is cut down, and sawn into planks as soon as possible, so that these may at once be seasoned by exposure to the air. In this way alone can we obtain wood that will keep well, and every purchaser of timber should insist upon its being prepared in accordance with these directions.—X.

Raising seedling Oaks.—Acorns should be gathered as soon as ripe, which is determined by their hold on the tree. If readily shaken off, they must be collected at once, and placed in comparatively dry sand, that is, with a very slight amount of moisture. They germinate more easily than those of almost any of our native trees, especially in some instances, where I have noticed them sprouting while attached to the limb of the parent tree. When this is the case, the acorns must be cautiously dried somewhat before being placed in sand. It does not matter about the end of the young root becoming either shrivelled or decayed, as the fibres will start out fresh from the base of the seed-leaves. In the spring prepare level beds, say about 4 feet wide, and after sowing the seed thinly over the surface, cover slightly with sand, when a few warm days will bring the young plants through. The plants should be left in these beds for two years and the ground kept very clean. The first year they make but little top, but plenty of roots, and

afterwards the top grows rapidly. The rare forms not propagated from seed may be increased by means of grafting, as the Oak is not difficult to work. Side-grafting is preferred close to the ground, and then the soil is drawn up and pressed around the whole, allowing only the top bud to be uncovered.—J.

The Pine beetle.—When it is desired to plant immediately after a crop of Scotch Fir is cut down and cleared away, it should be proved whether the ground is in a foul state or not. This can be done by keeping a quantity of the branches when burning up all the brush, and spreading them over the ground in spring, when it will soon be seen if Pine beetles are there, and if they are, they should be gathered and destroyed during the spring and autumn.—J.

Spruce Fir timber.—The Norway Spruce will thrive and produce useful timber on boggy ground, where few other trees will succeed. In Scotland and in Ireland the thinnings of Spruce sell as readily as those of Larch for fencing purposes and for pit props. For roofing farm buildings, Spruce has long been used in Scotland. I need hardly speak of the value of imported Spruce timber for scaffold poles, spars, masts, &c.—C.

Shelter and shade.—Shelter in winter and shade in summer are important points for consideration. Evergreen trees and such deciduous ones as retain their foliage until a late period of the year—the Hornbeam, Beech, and some varieties of the Oak—afford much greater shelter in winter and the early spring, when it is most required, than those which lose their leaves early in autumn, and should be planted wherever shelter is desired. Shade is best afforded by trees, such as the Oak, Beech, Chestnut and Elm, which rise with naked stems to a considerable height, and then send out a profusion of branches, which can be readily trained by a little pruning, while their spreading branches and umbrageous foliage are greatly superior for this purpose to those of the Ash, Sycamore and Plane.—B.

Spruce for hedges.—The common Spruce makes an excellent hedge. The gracefulness of its habit may perhaps be doubted, but in brightness of colour and denseness it can hardly be surpassed. I have seen it much used in France, Bavaria, and Austria for forming garden hedges, screens, and railway fences. To ensure the success of a Spruce hedge, care should be taken to select thriving plants, say 2 feet high, that have been several times transplanted, and have branches at the base of the stem. They should be planted in a double row on well-trenched soil. In the annual pruning or trimming of the young plants it is requisite that the top of the hedge be left narrower than the base for an even admission of light; neglect of this particular invariably checks and eventually destroys the under branch growth—an irremediable evil in the case of all evergreen Conifers. I should say that a period of five years is too short in which to expect the full growth and perfection of any Conifer hedge.—E. D. T.

Pinus insignis.—Rich and beautifully green as is the colour of this Pine where it succeeds, it is in many places one of the most disappointing of Conifers, and should never be planted unless in sheltered situations, as, where the wind gets at it, or it is exposed to severe cold, its foliage gets very much browned and its growth stunted, a condition in which it is anything but ornamental. No doubt it will do well in the southern or south-western counties of England. S.

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London: 87, Southampton Street, Strand, W.C.

No. 898. SATURDAY, Feb. 2, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

FLOWER GARDEN.

THE TULIP—THE BLACK ONE!!

I WONDER how often I have been asked whether I have got the black Tulip or not, as though it were an imperfection to be without it. It is, alas, hopeless to ask the rosarian and the Dahlia grower for a sight of their queen of flowers in blue; and it is only in dreams and visions yet that the Chrysanthemumarian (!) sees a blue sport. But the black Tulip is expected of us, and the question about it is popularly supposed to be the proper "poser" to put to any professed Tulip grower. To him it is counted as certain discomfiture and abasement not to produce it; and while he loses by the admission that he has it not, the inquirer feels exalted at what must appear a symptom of his own perfect knowledge of that which the Tulip in her most consummate loveliness should be—black! Scarlet and white, crimson and gold, feathered and flamed, are well as far as they go, but where is your black Tulip?

It is refreshing to say that there is no black Tulip, and that even if there were, it would not be worth a fig as a classical florist's flower. It would take but the rank of a fancy thing, like the white or yellow selfs we sometimes raise among our seedling Tulips, and that either never break at all, or only pass into some form of toy Tulip streakiness.

Black, true and glossy, does occur in the florist's Tulip, but never as a ground colour. There is no black breeder—that is, no black self. When a breeder breaks or rectifies into the finished and permanent state, the breeder or mother colour in it is bound to go out; and where the black would go to, and of what rectified colour black could be the breeder state, is past imagining.

This wondrous breeder form is, so far as may be, the analogue of the larva stage in insect life. It must pass through it and beyond it. The seedling Tulip may do this in the bloomless years of its childhood (five to seven years), and so appear rectified at its maiden bloom, when we say it has no breeder, because we never shall have seen or shall ever see it. The breeder is truly the larva (mask) condition in the Tulip's life. By the ground colour, and that of the base, we know to what class the perfected flower will belong, though we cannot foretell the new modification that will arise, for no two Tulip seedlings are alike, or the exact image of their parents. But such a floral black beetle as a black Tulip has not yet come within the range of practical floriculture. If it ever does, no doubt there will also come the anxious inquirer again, asking to see it, while he has already a bloom of it in his button-hole!

In the perfected Tulip the ground colour is either of the purest white or the richest yellow; and then our black, in feather or flame, in pencilling or beam, constitutes one of the highest types of colouring upon that ground.

"R. D.," however, does not mention the darkest flowers we have in the breeder state. Very much darker than Paxton is William Lea; and several of Hepworth's seedling bizzarres, known only by the late raiser's private numbers, are darker than Paxton too. Neither

have seasons anything to do with breeder colours, which are always the same tint, unless the flowers have been unduly shaded. Colours, however, are stronger in a good locality than in a bad one, but they do not change in any one locality, unless it first change for better or worse. The lovely lavender of Alice Gray, in her seedling form, is always the richer in a pure air and light.

Breeders are not wanted except in their full natural colours, but in the rectified form I have seen one variety do duty in two distinct classes, and colourably in character for each. Lord Denman, in the natural light of day, is a flamed byblömen, but, under a flower-pot extinguisher, may be produced as a rather clever "rose," especially in a feathered strain. Mrs. Pickeril, in her youthful days, has been shown as a feathered bizzarre, and at another show, the same individual bloom, in her old age, has come forth as a feathered byblömen—in the one case as a yellow ground, in the other as a white ground flower! Of course, she was not very strong in either character. Such versatility is but weakness in the Tulip.

I never saw the breeder form of this variety, but it can be a flower of no worth, having a base colour belonging to the bizzarres, and a ground or body colour related to the byblömens. This is an inadmissible combination, resulting either in two ground colours in the rectified flower, with its markings in one of the two classes, or confused between them, or, as in the above variety, an ever-changing blend, from a thin bizzarre yellow to a poor byblömen white.

Among bizzarres true black occurs as the feathering of Masterpiece (which breaks from a brimstone-and-treacle coloured breeder!), and also in Commander, William Lea, and William Wilson.

In the byblömen class it appears in David Jackson, Mrs. Jackson, and in Talisman. I do not know whether black be lovelier on a golden or a lily-white ground, but it is rarer on the white ground byblömens, and so the more prized. Colours are densest on the petal edges, and hence the wondrous beauty in the character of the purely feathered flower.—F. D. HORNER, *Burton-in-Lonsdale*.

—The black Tulip which "R. D." in THE GARDEN of Jan. 26 (p. 82) supposes will appear exists already in a great variety of forms in my new collection of breeder Tulips. These all belong to the byblömen class, and vary from brownish black to bluish black, while some of them swamp up in blackness all that formerly was seen in Tulips, and of which can be said, "black as the raven's wing." These Tulips will flower about the second week in May, and can then be seen at my nursery. A certain number of these are also planted at the Trocadero Park of the Paris International Exhibition, and will be in flower there about the same time. The black in broken Tulips, even if it is very dark, does not always prove that the breeders from which they originated are equally dark. It seems a rule that a pale colour in breeders becomes much more intense in the broken variety, and darker in the same proportion as the pure white or yellow in the ground colour increases.—J. H. KRELAGE, *Haarlem*.

Double perennial Sunflowers.—We appear to be threatened with quite an inundation of these (*vide* the advertising columns of various horticultural journals). For some weeks "a new plant to English gardens, *Helianthus multiflorus grandipennis* (Hartland's double quilled)," has been offered. This, so far as the description goes, is no other than the old plant, pretty common in these parts, having some of the central florets quilled, of a deep yellow colour, and without guard petals. This week sees the advent of another "new plant to English gar-

dens"—Hartland's golden quilled Sunflower, *Soleil d'Or*. This is illustrated by a woodcut, but, by a curious omission, the florets are not quilled at all. There can be no doubt about this being a valuable and most interesting plant, inasmuch as its introducer states that it has taken him twenty years to work up a stock. A plant of such slow growth must be quite unique amongst the Sunflowers, as from a single specimen of any form I know in the same time a girdle might be planted round the earth. What treasures there are existing in Irish gardens, no one really knows!—T. SMITH, *Newry*.

SEED SOWING.

RAISING flowers from seed has become such an important operation to the gardener, and is, moreover, so generally adopted as the best and quickest means of obtaining a good stock of many tender and hardy plants, that perhaps a few hints relative to the mode of sowing and after treatment, so as to secure their successful germination, may be of service at the present time.

By means of careful selection, combined with the persevering labours of the hybridist, many plants have been so greatly improved, both in the habit of the plant and the quality of the blooms, that seedlings may confidently be relied upon to yield a large percentage of good flowers of their respective kinds. Therefore, propagation by seed is almost entirely depended upon now, in the place of raising plants from cuttings, as seedlings invariably possess a more robust habit and constitution than the stock propagated by the older methods.

Seed growing, too, is now quite a fine art, being so carefully carried out in all its details, that it is a rarity to find a bad or inferior sample sent out by our seedsmen. Notwithstanding, thousands of packets of seed are annually sown from which not a single plant ever appears, the seedsmen being frequently blamed for their non-appearance. The soil may be carefully prepared, the pots or pans filled, and the seeds sown according to the instructions which usually accompany each packet, and yet the seeds fail to germinate. This lack of success often occurs through placing the pots in unsuitable positions, where the atmosphere is either too damp or too dry—usually the latter.

Now, assuming the soil to be in a proper state as regards moisture when the seed is sown, the character and composition of the seeds are very soon entirely changed; they commence swelling, and also undergo radical chemical changes. When in this stage, if the soil becomes dry, it is almost sure to prove fatal to the seeds. When failure results from too much moisture, it is often brought about through insufficient drainage, as the soil, having no roots to keep it in a sweet condition, soon becomes sour and brings about the decay of the seeds, more especially those of slow growth.

Before sowing any seeds which are not well known or which have previously proved difficult to raise, a knowledge of the plant should be acquired, and the probable length of time that will elapse before germination takes place. Each kind of seed requires some special attention to raise it successfully. It therefore follows that, when the practice, so often adopted, of sowing a quantity of different seeds at the same time and treating them afterwards in like manner, many fail; whereas, if a little thought were exercised in treating the different kinds according to their natural requirements and placing them in positions best suited to their germination, a greater amount of success would follow. For the purposes of sowing, seeds may be divided into two classes, those that succeed

best when sown upon the surface of the soil, and those which require covering more or less according to their size and shape. Surface sowing should be adopted for all very minute seeds, such as those of the Begonia, Lobelia, Gloxinia, &c., also scale-like seeds as Dianthus and Lilies; in fact, many seeds which fail to germinate when covered can, if very carefully managed, be raised successfully when sown upon the surface of the soil. In preparing the pots for this mode of sowing, they should be nearly half filled with crocks, over which a layer of partially decayed leaves should be placed, the remaining space being then filled to within an inch of the top with fine sandy soil, which may consist of either light loam, leaf-mould, and sand, or peat and sand, according to the kind of seed to be sown. After making the surface level and smooth, give all a good soaking, either by dipping the pots into a tub of water or applying it through a fine rose water-can, immediately afterwards sowing the seeds thinly upon the wet surface.

Whether the seeds be those of a hardy plant requiring cool treatment, or belonging to a tender subject of the stove, they are best placed in a position where the atmosphere can be kept moist, as germination depends more upon the moisture contained in the air than that in the soil. A sheet of glass placed over the pot is of great assistance—in fact, it is almost indispensable. It is not, however, sufficient, unless the pots are placed in a moist atmosphere.

For seeds that need covering, much the same preparation of pots and soil is necessary, only the latter need not be so fine; sufficient covering only should be used to just bury the seeds under the surface, as numerous failures can be attributed to deep sowing. Watering in this case can follow sowing instead of preceding it; if then the seeds are visible, a little more soil can be sprinkled over them.

Darkness promotes germination, and it is well to shade the pots with brown paper for a time, which must be removed upon the first signs of life; in fact, with seeds that appear in the course of a week or so, if daily attention cannot be given to them, they are better without it; the sun, however, must not be allowed to shine upon the glass. Seeds that are known to remain a long time in the ground before germination takes place are best placed by themselves in a position naturally shaded if possible, where, if they happen to be overlooked at times, no harm will come to them, as, independently of the fact that age makes a great difference in the period of germination, many kinds are naturally of slow growth. Never be in a hurry to throw seed-pots away, as patience will often, when least expected, be rewarded for retaining them.

A. BARKER.

Asparagus decumbens.—The mention of this trailing *Asparagus* in THE GARDEN, Jan. 5 (p. 19), recalls to my mind a collection of this family of plants which I saw in the Jardin des Plantes, Paris, in the early part of last June. In the collection was the above variety trained on a low framework of wire, pillar fashion, and very beautiful it looked. But as a pillar plant it paled into insignificance beside the more robust Caucasian variety (*verticillatus*), which completely covered a tripod framework of iron some 14 feet high, and formed the most beautiful pillar of gossamer-like drapery it is possible to conceive. Its graceful and drooping feathery-like branchlets glistened in the sunshine, and at a little distance away appeared more like the misty spray of water from a fountain than a pillar of living vegetation. Its beauty was, however, a good deal marred by being necessarily confined in the narrow strip-like borders with a

great many other varieties of the genus. As an isolated plant on the lawn it would form a most beautiful and interesting object. Being a deciduous species, it should not, however, be planted in sight of windows, as the trellis on which it should climb would be bare in winter. We have planted several strong plants of it in our wilderness garden, and hope in time to have a grand pillar of it. We are doubtful though if it will do so well in our cold soil as it does in the much lighter and warmer soil of the Garden of Plants.—J. KIPLING, *Knebworth*.

*** We shall be glad to hear the result of your experiment.—ED.

NOTES ON HARDY FLORISTS' FLOWERS.

THE flowers of the florist are that interesting class of hardy garden favourites which have been improved through many years of careful culture and selection from seeds. The treatment of the *Auricula* depends much upon the weather during the first and second months of the year. Those of us who have been attending to our plants year after year for a quarter of a century know for a fact that no dependence can be placed on the weather. It may be quite mild one day, and the next a cold east wind, enough to destroy any new growths exposed to its influence. The *Primula* is one of the earliest of these favourite flowers to claim attention, and to obtain perfectly developed trusses it is necessary to ventilate carefully. It has been found almost impossible to do this when the plants have been grown in unheated frames; we therefore remove our plants from frames not later than the first week in February into a house sufficiently heated to keep out frosts at least. The plants are quite close to the glass, and the lights are arranged so that they may be drawn quite off if necessary. In mild calm weather, the plants are all the better for being freely exposed to light and air. They must also be fumigated at this time as a preventive. Some of the plants may have become unduly dry at the roots, and may require to be watered many times before the soil is sufficiently moist. It will be necessary to see that all the plants are uniformly moist at the roots. Some growers have asked me when they ought to sow their seeds. I have sown the seeds at various periods, but perhaps it is best to sow them when the seeds ripen in July. Failing that, they may be sown in January or very early in February. Sow them in 5-inch pots or pans, using light sandy soil, and place them in a shady corner of the *Auricula* house, laying a square of glass over each pot in order to prevent evaporation. The plants will appear in three or four weeks. If the flowering plants have to be grown in frames, it is not safe to leave them without the protection of mats over the glass at nights, and in severe frosts the mats should be double.

We carefully look over the *Carnations* and *Picotees* in frames to remove decayed leaves and brush off green-fly. I have noticed that some growers of considerable experience allow their plants to become rather dry at the roots in winter; this, I think, is an error. I do not overburden the plants with water, but none of them are allowed to become dust-dry before water is applied to them. They are treated, as regards watering, much as *Pelargoniums* are. We are now getting the soil ready for potting them. This, composed of good loam of a holding character four parts, one of leaf-mould, one of decayed manure, and a good sprinkling of clean sand, is mixed up well together a month before being used. Plants out of doors require looking over after the alternate frosts and thaws we have had. The seedlings planted out in June and July have a firm hold of the ground, and cannot be moved by climatic influences, but those planted in October become loosened, and in some cases are thrown quite out of the ground. Press the plants down firmly with the fingers, afterwards stirring the ground lightly with a Dutch hoe. It is better not to disturb the ground when very wet. *Pinks* require much the same treatment as *Carnations*, and they are quite as liable to be attacked by what gardeners call the leather-coated grub, because of its tough skin. It eats voraciously, feeding on the leaves of *Pinks* and *Car-*

nations by night and concealing itself by day under ground near the plants. Sparrows have already attacked our plants, but we keep them at a distance by stretching rows of crochet cotton overhead. This seldom fails to scare them completely. Some of the most successful growers of *Pinks*, *Carnations*, and *Picotees* do not use any pots, but trust entirely to out-of-doors culture. Under those conditions it is difficult to avoid losing some of the more tender and often choice varieties by the inclemency of the weather. In Durham there are some good cultivators amongst the working classes, and I find that they preserve their more tender *Carnations* by placing a bell-glass over them. This, of course, involves considerable trouble, and also expense. In the case of the above, and including *Pansies*, I plant one or two specimens of each variety in pots or boxes and shelter them in cold frames for the winter.

The *Pansy* is one of the choicest of our favourite flowers, and the plants have up till now stood well out of doors; even yet we may have a decided change, as frosty winds do much mischief. Our collections of *Pansies* in boxes will be planted out about the end of March. The plants like a rich deep soil, and cow manure gives a rich depth of colour to both flowers and foliage. Those who have never planted a bed of *Pansies* raised from good seeds should try one. I once planted a bed 60 feet long and 6 feet wide; all the classes of what are termed show and fancy varieties were mixed up in it, and the display of flowers was gorgeous in the extreme. The seeds were sown in August, and the ground where they were planted was deep and rich. The *Pansy*, amongst all our favourite flowers, exhausts the soil most quickly in the immediate vicinity of the roots, and continues longest in vigorous condition where the ground is well enriched with manure and worked up to the depth of 18 inches. When the plants show signs of exhaustion by the production of inferior flowers, place about 2 inches of a compost composed of half loam and half decayed manure over the surface. Peg the shoots into this and the stimulant will soon take effect by producing a better growth and finer flowers.

The *Polyanthus* seems not to have had even a short period of inactivity this winter. The laced varieties are difficult subjects to deal with in the south of England. In Durham some of the best growers, at least the most successful competitors, grow two sets of plants, one set out of doors and another in pots. The object in planting them out of doors is to give them a chance to recover after having been grown for a season in pots. The old Pearson's Alexander succeeds well under this treatment in that county, while after several trials I have had to give up the attempt even to get it to live. Last year was cold and moist; therefore our plants did better than I had ever seen them do before. They are growing very vigorously in pots in a cold frame, and have been more or less in flower since October. I might add here that one of the most successful growers in the midlands is Mr. Brockbank, of Brocksbury, Didsbury, who, instead of potting up his *Polyanthuses*, plants them out in prepared soil in a frame, or at least a simple arrangement of glass lights.

The weather being fine, we have prepared a bed for *Ranunculuses*. The soil of our garden is a retentive loam, which suits these gay flowers admirably. They not only flower profusely, but increase at a very rapid rate. We merely double dig the soil, giving the ground a good dressing of partly decayed stable manure. We are not very particular about the time of planting. I used to fret a little if the weather was such that they could not be planted before the advent of March; but I have planted them in April and had an excellent display. If the weather continues fine we shall plant out the *Anemones* on the 21st of the present month. These are so easily raised from seeds that it is not worth while to cultivate named varieties, but we continue to grow a few old sorts. What are termed the French double *Anemones* are the best; they have large distinct outer petals, while the *Chrysanthemum*-flowered kinds are quite as double, but they

lack this distinct outer row of guard petals. Another interesting group we have grown for some years is the single *Anemone* of the Riviera. This is *A. stellata*, the flowers of which are very pretty and varied in colour. *Anemone fulgens* has established itself in the rock garden, and formed compact masses, the dazzling vermilion-scarlet flowers having an excellent effect on a bright day in spring.

The Tulips are not above ground yet; but there are no instructions to offer, except that we shall probably cover the bed over with a dressing of short stable manure as soon as the plants are seen distinctly above the surface. Our Tulips have always been grown quite hardy, and they have never failed to flower well. The continual covering with mats, straw hurdles, &c., is a great trouble, and even in the period when the Tulip was fortune's favourite it had to be banished from the flower garden because of the continual covering and uncovering; and the untidiness of laths placed lengthwise and crosswise, or iron hoops bent over the beds, or other paraphernalia which the ingenuity of the cultivator might devise. Plant out in the open flower garden and let them take their chance; never mind about exhibiting them. If this is thought of, shading must be used.

J. DOUGLAS.

NOTES ON HARDY PLANTS.

THE nomenclature of hardy Cyclamens, which are always admired when seen in good condition, seems to be very mixed, as everyone appears to have a standard of his own, and at various places we have lately visited different names are applied to identical plants. The coum section appears the most confused, and one has often a difficulty in getting this species pure. The Atkinsi varieties, raised by Mr. Atkins, of Painswick, resulted from crossing *C. coum* with *C. ibericum*, or rather allowing these two species to grow together in the same patch. If kept separate, they can be raised from seed perfectly true; but when brought together, the result is a series of seedlings of the Atkinsi breed, all, however, affecting the stronger parent, *ibericum*, with large marbled leaves and large flowers. The true *C. coum* has very small leaves, of a plain dark green colour on the upper side, and deep purple underneath; flowers small, reddish purple, darker at the throat or mouth, where there is also a whitish ring. *C. hederifolium*, or more properly *C. neapolitanum*, is perhaps the most useful of the hardy species. It flowers just before the foliage appears, about the end of August, the leaves, which are variously shaped and beautifully marked, being very effective all through the winter months. It is naturalised in various places in England, from one of which we have seen tubers over 1 foot in diameter. If the surface is kept free from weeds, the seedlings will be found coming up in great abundance, and in a few years will flower if left undisturbed. A near ally is *C. repandum*, verum of some growers. It is quite distinct, however, as it flowers in spring instead of autumn. *C. europeum* and the numerous forms of *C. hederifolium*, such as *græcum*, *grandifolium*, &c., many with beautiful marbling, are all worth a place on the rockery, and rarely fail when given plenty of lime débris and coarse gritty soil.

The Alpine Toadflax (*Linaria alpina*), from the moraines and débris of the Alps and Pyrenees, is a handsome plant for a small rockery. Treated in the same way as the ordinary class of alpine, we have found it do very well, but to see it at its best, establish it on a piece of old brick wall, and you at once get the glaucous tint to the foliage so peculiar to these plants at home, and the flowers are also brighter coloured. In such positions it rarely grows more than 4 inches to 6 inches high, with a neat, not spreading habit, and it will also be found to flower more freely. Cuttings taken off in autumn and kept in a cold frame will be ready for planting out by the end of March. It ripens seed freely. This may either be sown in pots, or out of doors where intended to remain. The plant should be thoroughly exposed, shade of any kind having a tendency to cause weakly growth.

The Pyrenean Madwort (*Alyssum pyrenaicum*), we are glad to see, has been again introduced to our gardens. It is a gem amongst alpine, and one of the easiest to cultivate. It was shown at the Drill Hall last spring from the York Nurseries, and was greatly admired. Its scariness hitherto may be accounted for by the difficulty with which it is procured in the Pyrenees. It grows in crevices of inaccessible rocks, and the only way to obtain seeds or cuttings is, we are told, to shoot them off with a fowling-piece. It forms dense tufts of woody stems and plenty of hoary grey foliage, surmounted by large bunches of fragrant white flowers, resembling May blossom. We grow it in open strong soil, and find it flowers more freely when fully exposed. Readily propagated by cuttings or seeds.

D.

HERBACEOUS PLANTS AND SHRUBS FOR THE SEASIDE.

IN THE GARDEN of 29th December (p. 606). "A. W. N." asks for a list of hardy herbaceous plants and low-growing shrubs which would be likely to flourish in a rock close to the sea on the west coast of Inverness-shire, the spot in question being well sheltered from the north, and peat easily obtained. The list of plants and shrubs suitable for such a place is by no means a short one, and includes some of the most distinct and desirable of our hardy garden subjects. Amongst low-growing shrubs we have the pretty and distinct

BACCHARIS HALIMIFOLIA (the Groundsel Tree), a plant that will succeed admirably down even to high-water mark and where fully exposed to the salt-laden wind. Usually it does not exceed 6 feet or so in height, with coarsely toothed, roughish leaves, and abundance of small yellowish flowers.

THE DOUBLE-FLOWERED GORSE (*Ulex europæa flore-pleno*) has few rivals as a bright and hardy plant of small and neat dimensions for the seaside garden. It wants a warm and light soil and to be placed in a sunny site, and then its golden flowers will be produced in rich abundance.

HYDRANGÆA HORTENSIS when planted in good bold masses is a most effective and desirable shrub for the seaside. True enough it will not succeed in all parts of the country, but along the sea-coast in most parts of England and Wales it does admirably, and soon forms good masses of rich foliage and flowers abundantly. It should have a shady nook and where cold, cutting winds are not allowed to enter. Of the

ROCK ROSE (*Cistus*), several species grow with the utmost freedom along the sea-coast; and then they are highly ornamental when in flower and require but little care or attention after becoming thoroughly established.

THE SEA BUCKTHORN (*Hippophaë rhamnoides*) can ill be spared from the list of seaside plants, for it is not only one of the most accommodating, but grows stout and strong even where its branches are at times lashed by the salt spray. The silvery tinted foliage is at all times inviting, while the neat habit of well-developed plants never fails to give satisfaction. As a berry-bearing shrub, too, the Sea Buckthorn is not one whit behind some of the choicest that we possess in this way, the thickly set fruit being of a distinct and pleasing orange-yellow. It will succeed in very poor soil and where this is mainly composed of sand.

THE MINORCA HOLLY has few equals as an evergreen seaside shrub, for it grows with the greatest freedom, and that even in cold and wind-swept situations. On the seashore in various parts of Yorkshire are many noble examples of this particular Holly, all of which clearly point out that it may with the utmost confidence be relied upon as a suitable subject for windy and cold maritime situations.

ACCUBA JAPONICA is another excellent shrub for the seaside; indeed, it may well be considered as one of the best. Then it thrives well in the shade, grows with great freedom, and is highly ornamental.

ESCALLONIAS of various kinds are undoubtedly

of great value for the marine garden, as they all start away freely and soon form dense, thickly-leaved specimens. They are not very particular about soil if it is not too stiff or wet.

THE LAURUSTINUS and Box, too, we have used with every success in the ornamenting of the seaside garden. Both grow with great freedom, even down to the seaside, and can battle with the cold winds and ozone-laden atmosphere in a remarkable way.

VERONICAS are excellent maritime shrubs, they taking but little harm however exposed and cold the situation may be. Then, both in foliage and flower, they are highly ornamental.

THE BOX THORN (*Lycium barbarum*) is largely used as a seaside shrub, and, indeed, few plants seem to thrive better or have the same recuperative powers after being subjected to a storm. It forms a tall, straggling bush as usually seen, but may, by an annual trimming, be made of more pleasing contour, and soon spreads about to a considerable extent. Both foliage, flower, and fruit can well hold their own with those of any individual shrub, the leaves being a pleasing, glossy green, the flowers many and of an uncommon lilac or violet hue. Few situations come amiss to the Box Thorn, and it succeeds in soil that is of the poorest description.

SOLANUM DULCAMARA (the Bitter-sweet), a nearly ally of the *Lycium*, may often be found bravely holding its own on the wind-swept crag beside the seashore. Like the *Lycium*, it is of a free, straggling growth, and delights to clamber amongst the branches of some stronger growing shrub or tree. The flowers are quaint and pretty; indeed, the whole plant has a decidedly taking appearance.

THE TREE PURSLANE (*Atriplex Halimus*) has proved itself to be another excellent shrub for planting along the sea-coast. It is totally indifferent to the salt spray, and soon forms a bush of great beauty with bright silvery foliage.

HALIMODENDRON ARGENTEUM we have used with perfect success in the seaside garden. This shrub has a most distinct and very pleasing appearance from the conspicuous silvery down with which the leaves are thickly covered.

THE BLADDER SENNA (*Colutea arborescens*) seems to be quite indifferent to the cold winds and saline atmosphere of the seaside. If only for the curious bladder-like pods, which well-established plants produce thickly enough, and pretty yellow flowers, the Bladder Senna is well worthy of extended cultivation.

To the above list may likewise be added the White Broom, Lilacs of various kinds, the Barberry (*Berberis vulgaris*), Mountain Ash, White Beam Tree (*Pyrus Aria*), the Myrtle, Pittosporum, and the lovely *Fabiana imbricata*. To see the latter at Rhianva, on the Menai Strait, where it grows stout and strong and to fully 6 feet in height and as much in spread of branches, does one good, and makes him wonder why so hardy and free-flowering a plant is so seldom seen. Then *Buddleia globosa* does remarkably well in the seaside garden, which may also with equal force be said of various species of *Ribes* and *Spirea*, *Spartium junceum*, species of *Ephedra*, *Coronilla Emerus*, the Dogwood, *Rhamnus*, and many others.

Amongst herbaceous plants that have been found to be well suited for planting within the influence of the sea, particular note may be made of the Phlox and Pink, Tree Peonies, *Chrysanthemums*, *Polyanthuses*, and *Lobelias*. *Alyssum saxatile* does unusually well along the coast, as does also *Arabis alba*, *Saxifragas*, and *Sciums*, and the Thirt and Statice. Various species of *Eryngium* might also be mentioned, they being plants of stately proportions and of great beauty.

In planting any of the above-named plants or shrubs preference should first be given to such as are of a tough, wiry nature for placing in direct contact with the first blast of the blast; after that there is scarcely a limit to the number of species that may be safely planted. Should the soil be of poor quality, it is advisable to substitute other and better, for the plants have quite sufficient to cope

against, particularly if the coast be bleak and cold, without being handicapped with poor, worn-out soil. A. D. WEBSTER.

NOTES OF THE WEEK.

Vanda Amesiana.—This rare and beautiful species is now flowering in the Studley House collection, Shepherd's Bush.

Rhododendrons and Snowdrops from Scotland.—Dr. Paterson, Bridge of Allan, sends flowers of hardy Rhododendrons and Snowdrops from the open to show the mildness of the season in Scotland.

Garrya elliptica is blooming more freely this season than I ever remember having seen this useful shrub. Standing singly among Mahonias, Retinosporas, Boxes, and Laurels, kept dwarf, the Garrya has a most pleasing appearance, and as an ornamental hedge plant it is striking, and being very hardy it can be grown in any position.—SCOT, *Stirling*.

Flowers at York.—Owing to the weather being so mild the spring flowers are already beginning to push forth. As an illustration of this we noticed a few days ago in the York Nurseries a number of blossoms of the pretty Cyclamen-flowered Daffodil fully expanded in the open nursery beds. This little Daffodil is a most welcome addition to our choice spring flowers.

Odontoglossum leopardinum.—This is a very handsome form of *O. crispum*, which was recently flowering in Mr. Pollett's collection at Bickley. It is a large, well-formed flower, and profusely and heavily spotted. It is one of the many rich forms which have been first flowered in Mr. Pollett's collection.

Odontoglossum hebraicum.—A very pretty form of this supposed natural hybrid comes from Mr. Buchan's garden at Southampton, where it is highly esteemed for its fragrance. This form was originally introduced by Mr. Bull, of Chelsea. The flowers are pale yellow, spotted and marked on the sepals and petals with reddish brown; lip bright yellow at the base, streaked with red.

Royal Horticultural Society.—We understand that the fruit and floral committees will recommend awards to be made to very superior seedlings or novelties, or to recently introduced, re-introduced, or very rare objects, or to highly decorative plants according to their merits. In the case of plants commonly grown from seed every year, the award will be made to the strain and not to individual plants.

Chrysanthemum striatum perfectum is a good late blooming variety. At this late season this Japanese kind is almost wholly white, with a few faint splashes here and there, just enough to show what a variation can be had in blooms of this variety under various methods of culture in different localities. Vigorous side shoots produce neatly shaped blooms, which are extremely useful at this season of the year, even if they do not come up to exhibition size.

Berried shrubs in Scotland.—Among the shrubs bearing bright berries, Cotoneaster Simonsi is fruiting very freely this winter. We have it doing well trained against old buildings and standing singly in borders among other shrubs. It is not particular as to position, as behind a very high wall the shrubs are loaded with bright berries. Hollies are a dense mass of scarlet berries, and plants of them which have been cut well in, lifted and planted in rather poor soil, are pictures of bright scarlet. The variegated Silver Holly is well adapted for this purpose, and does not fail to be admired when in full fruit.—SCOT, *Stirling*.

The Fiery Thorn (Cratægus Pyracantha).—Some specimens of this Thorn growing against villa residences in this district are laden with berries to such an extent that the foliage is quite hidden by them. Here we have a deep bed of fertile loam resting upon the gravel which appears to suit this plant exactly, and it flowers and fruits very abundantly. The most striking specimens are on a full south exposure. A south-east or south-west aspect will also suit it, but, as far as my own experience goes, the more north or east the plant is placed the less probability is there of fruit. The birds do not appear to touch the berries; the result is that they hang on for a very long time. In this district the birds cleared away the haws, Mountain Ash berries, and others that they take for food long ago, but those of the red Pyracantha remain. I

know one garden near here where there is a tall west wall 12 feet in height covered with plants of the Pyracantha, and for some reason it is each alternate one only that fruits. This is curious, and I hardly know how to account for it.—R. D., *Ealing*.

Chrysanthemum Duchess of Albany.—The bronze-yellow variety which is best known as Jackson's, although naturally of a late-flowering habit, is especially so this season. Medium-sized flowers, quite full in the centre and very fresh, are valuable throughout the month of January either for cutting or conservatory decoration.

The Tenby Daffodil is about the first to appear in the London markets, and always finds plenty of customers. This is not to be wondered at. There is no trumpet-flowered Daffodil that has a better and neater shape and more decided colour than this early variety. It is used with the best results in bouquets, owing to its exquisite form. It has as large a sale as the Paper-white Narcissus, which is now plentiful in the markets.

Blue Primulas.—There is no such thing as a blue Primula, although one might, from the descriptions in catalogues, suppose that the hybridist's highest hopes had been realised. What the florist or whoever he may be calls blue and what is strictly that colour are two different things. The flowers that are called blue are invariably of a mauve shade, sometimes pale lilac, never self blue. That we are approaching closely to the long-wished-for shade we cannot doubt, and the hybridist, if he perseveres, will doubtless attain his object; but to call those Primulas blue that go under that name is misleading. When we do have a blue Primula we shall have a prize indeed, such as will justify high praise and commendation.

Primroses have been very beautiful this season. Long lines of them forming edgings to walks, borders, and herbaceous beds have been for weeks flowering freely, and dense clumps of them placed among shrubs to cover vacant spaces have had a cheering and pretty appearance. Polyanthus of the various types have bloomed more or less since autumn, and some very useful spikes have been out for glasses. These are well deserving a place in a greenhouse or other cool structure, and when they are well attended to and not coddled they give due reward for labour. Double Primroses in pots along with Primula obconica are blooming very freely and are very valuable.—SCOT.

A marvellous new Orchid.—This is the heading to a note on a new Miltonia in *Le Moniteur d'Horticulture*. The writer says: "M. Bleu, of Paris, our clever French raiser of Orchids, has accomplished a veritable *tour de force*, which up to the present English Orchid lovers have not been able to do. He has obtained and flowered a hybrid Odontoglossum, a cross between O. Roelzi and O. vexillarium, two species now grouped with the Miltonias. It is intermediate between the two parents, and the seed was sown four years and nine months ago. The flowers are large, white, with the centre of a violet colour. This superb novelty is named Miltonia Bleueana."

Capture of winter moth.—Mr. G. F. Wilson informs us of an effective method of catching this moth. He observed that the *Agricultural Gazette* of Oct. 15, 1888, recommended that in neighbourhoods where the winter moth was abundant, a ring of cart grease and Stockholm tar, or of cart grease alone, should be daubed round the stems of fruit trees near the base. Last year his Apple trees at Wisley had their leaves eaten by caterpillars; he, therefore, tried tying a strip of the green scrim of the Willesden Paper Co. round the bottom of the stems, and smeared this with cart grease. This was done in November and December. The strip was covered with wingless females interspersed with several winged males, proving the effectiveness of the method adopted.

Chinese Primulas from Chelsea.—A boxful of Primula flowers is sent by Messrs. Veitch and Sons, Chelsea, who have a varied and remarkably beautiful strain. The pinks, crimsons and whites

are clear and strong, especially the flowers of The Queen, which are somewhat rough in form, but have a true pink tint. Chelsea Blue is not blue, nor have we any true blue Primula. It, however, approaches almost as near that colour as any we have seen. Double White and Double Crimson are two beautiful kinds, and the single alba magnifica is pure white, broad and robust. We have in this strain a rich assortment of colours that tells of the great strides made with this easily grown and showy greenhouse flower.

Crocus Imperati.—This Crocus was started prematurely into growth by the wet of last summer, and, encouraged by the mildness of the autumn, it began to flower in my garden in the open air about December 20. It is now in full flower in many parts of the garden, having suffered no damage even from 10° or 12° of frost for several nights in succession. Whenever a few gleams of sunshine come the flowers open wide and show their full beauty. The bulbs of this lovely species may be bought so cheaply, that it may be recommended for all gardens. It multiplies very fast, both by increase of the bulb and by seed, which may be left to sow itself, and germinates in that way better than if stored and dried. Mr. Maw mentions and figures a variety with rose-coloured petals and another with pure white flowers; of this I had a fine bunch which flowered beautifully last year, but soon afterwards some malignant influence—I never could discover the cause—destroyed nearly every bulb when the leaves were about half grown.—C. WOLLEY DOD, *Edge Hall, Malpas*.

St. James's Park is undergoing improvement. Much of the ground has been raised, flower-beds abolished and green turf substituted, with groups of shrubs and trees in some instances. It has been carried too far where large deciduous trees have existed previously, as these have a half-buried appearance, the result of the raising of the ground. The lower island is apparently to have a kind of rockwork, but the masses of artificial rocks are ugly and out of place. Hardy flowers were plentiful throughout last summer, and pretty effects secured by the use of subtropical plants. A bed of blue tufted Pansies and Fuchsias last season was the best thing of the kind we have seen in a London park. It is a break away from the stereotyped carpet-bedding. Early-flowering Chrysanthemums, Sunflowers, tufted Pansies, Carnations, and other hardy flowers were exceptionally good last year. The clumps of old Clove Carnation in the Embankment gardens at Charing Cross were magnificent. Nothing in a country garden we have seen has ever eclipsed them for size of flower, colour, or freedom. This is only one example of what may be done with hardy flowers even in the heart of the great metropolis.

Sport from Chrysanthemum Lord Alcester.—Mr. J. Lambert, Onslow Gardens, Shrewsbury, with whom this sport originated, and which I spoke of when writing on the Queen of England family lately in THE GARDEN, says "the colour is similar to that of Golden Queen of England in the lower half, the remainder being like its parent." He also adds, "it has a splendid constitution, being more robust than its parent. So far, it is quite constant, as I have had it two seasons." No doubt a variety of this description will prove a decided acquisition, especially as it comes from a stock so good as Lord Alcester.—E. M.

Chrysanthemum Mme. Desgrange.—Instead of throwing away the old stools after sufficient cuttings are taken, they should be planted out of doors in an open space, as such plants will supply flowers freely the following autumn. Allow from six to ten shoots to grow from each, and these in time will multiply into numerous growths. Remove any other shoots beyond the number named. During the summer tie the growths loosely to stakes, and when the flower-buds are formed dig up the plants, and either pot them or place them on the bed where Cucumbers have been growing during the summer. An abundance of blooms will be produced by this method.—E. M.

Carnations sporting.—Will some reader of THE GARDEN who has had experience in the cultivation of the Carnation kindly give his opinion as to the cause of some sorts sporting back to self, and whether such will in course of time come true again?—YORKSHIRE.

STOVE AND GREENHOUSE.

SOFT-WOODED HEATHS.

THE family of Heaths (*Erica*) is a very large one, all being natives of the Old World, and found mostly at the Cape of Good Hope. For many of the kinds which have enlivened and beautified our plant houses we are indebted to a collector named Mason, who sent vast numbers of these plants to England, and who is deservedly commemorated in the species named *Masoniana*. These plants were eagerly sought after by everyone some years ago, and English gardeners established a reputation for themselves in their successful management of this family of plants, and the hybridisers found it to their advantage to produce quantities of seedlings. The majority of the kinds raised in our gardens were of far greater excellence than those varieties which had been introduced from the Cape. During the last two or three decades, however, these beautiful plants have not been grown, so that at the present time the cultivation of Heaths is confined to a few of the large trade growers round the neighbourhood of London. These plants appear in the various flower markets, and ultimately pass into the hands of amateurs who cannot resist their beauty, but who have no means of keeping them in health after the flowering season, and consequently have to purchase annually when in flower from the emporiums already quoted. A few kinds only of those easiest to manage are grown in these establishments, some kinds being cultivated by tens of thousands in one place. I do not think it now possible to find a good collection of *Ericas* in a private establishment in a day's march through the country. I have heard it said that the atmosphere of the London district has become too bad to allow of *Ericas* being grown, but in the few places in which they are to be found they do well enough, so this can be but a poor excuse. I believe the only home these plants still have with us is in the famous nurseries of the Messrs. Low and Co., of Clapton, an establishment in which fine plants have been retained for years after they had lost their popularity, with the hope that English plant growers would return to their old loves. One by one, however, these plants have passed away to make room for more fashionable things, but the Heaths appear to remain the longest, the last relic of an almost forgotten art in the gardener's profession. From time to time, however, of late there appears to be a reactionary feeling going on in the gardening world, and many of the trade round London begin to work up stocks of these plants, and I myself should much like again to see Heaths grown as they were in the palmy days of Chiswick. To this end, then, we introduce the subject here, beginning with the easily grown kinds, for with these most of the gardeners of the present day will need to commence before they can expect to achieve the success which attended the efforts of those who in the past days devoted themselves to the culture of *Ericas*. These plants are not more difficult to grow than many others, but they require a greater amount of care and attention than any other plants with which I am acquainted; their wants must be anticipated, and their wants must be supplied at the proper time, and it is this attention which requires to be cultivated in the young British gardeners of the present day.

Ericas require good peat earth to grow in, with a fair admixture of sharp sand, and the drainage must be thorough. The peat for Heath growing should not be of the kind which finds favour with Orchid growers, but fibrous

gritty peat; this should be chopped down from the stack with a spade, so that the fibre is mixed with the soil. The degree of fineness must be determined by the size or sizes of the pots for which it is intended, but a sieve must on no account be used. In potting, the soil should be made very firm, as the fine roots of Heaths work more freely into the firm soil than they possibly can when it is loose; moreover, if not made very firm, it retains the moisture too long, and soon becomes unsuitable for the roots of Heaths to live in. It is often said that Heaths do not like much water, but having had considerable experience with these plants for a number of years, I have found that they require a great deal of water, but it must be fresh and soft, and the drainage must always be kept open and free to enable it to pass rapidly away. In potting, a sufficient space should be left to hold a good quantity of water, as a ball of peat made very firm cannot be wetted thoroughly with a small quantity of liquid. I do not advise the use of liquid manure of any sort whatever to Heaths. I know it is used by some, especially growers of soft-wooded Heaths for market, but plants that have been brought up on such treatment are not long-lived, and having had under my care some of the finest and the oldest specimen Heaths in the country which never had anything but pure water, I am perfectly satisfied they do not require it. During the summer months Heaths should be grown in the open air fully exposed to the sun, but in the case of specimens in large pots it is well to use some contrivance to shade the pots, which otherwise become heated, to the detriment of the young roots which are on the outside of the ball of earth. During this period they will require looking over twice in the day to prevent over-dryness; especially is this necessary in dull, moist weather. In the winter season, after their removal to the house, keep them cool and the atmosphere of the house as dry as possible; fire-heat applied to Heaths is ruinous, and I would much prefer a degree or two of frost in the house at night to using artificial heat. After a spell of dark, heavy, moist weather, however, I use it in the daytime, and at the same time give plenty of air, as this dries up all moisture and prevents the attack of mildew. I have found mildew occasioned by want of air and drought at the root with a moist atmosphere more than from any other cause. This drought arises from gardeners being afraid of watering their plants in dull weather; thus the plants suffer, and whilst they are in this temporary unhealthy condition the germs of the mildew find a suitable resting place, and the mischief is done. Soft-wooded Heaths were



Flowering shoot of *Erica Wilmoreana*.

not very frequently grown into large specimens, and at the present time I think certainly less frequently is this the case, but if properly treated they make handsome bushes. In order to achieve this, the plants, after flowering, require hard pruning, and when this is not done they soon become lanky and unsightly. Heaths are propagated by cuttings, but this is a difficult operation; indeed, it is almost an art by itself, and I would not by any means advise gardeners to attempt it. Buy your plants as young as you like and grow them to suit your own fancy, but leave the striking business to those who are adepts in the art. The following kinds are amongst the easiest to grow, and produce handsome plants in small pots:—

E. COLORANS produces long spikes of tubular flowers, which are red and white; late spring and summer.

E. GRACILIS.—This and its variety autumnalis flower through the autumn, winter, and early spring months; the foliage is deep green. It produces long dense spikes of small reddish purple flowers.

E. HYEMALIS.—One of the prettiest Heaths grown, producing long elegant spikes of tubular flowers; the bell-shaped blooms are rosy pink at the base, white at the mouth. Within the last few years a pure white form of this plant has been obtained. At first I supposed, with others, that this would be a grand variety, but upon further acquaintance it has, however, somewhat decreased in favour with me. *E. hyemalis* usually flowers from about the end of the year up to the end of February.

E. INTERMEDIA, as will be seen by our illustration (p. 108), is a large-flowered and dense-spiked kind, the flowers being of the purest white, and produced through the early autumn months.

E. PERSOLUTA.—A somewhat small-flowered variety, but what it lacks in size it makes up in quantity, for it produces spikes a foot or more in length and densely covered with elegant little bell-shaped blooms of a deep blush. Another form of this plant, named *alba*, has snow-white flowers, and another, named *rubra*, has red flowers. All these forms flower through March and April.

E. PROPENDENS.—This plant is similar in habit to *hyemalis*, but it blooms at midsummer, its flowers being open, bell-shaped, and soft purple.

E. PYRAMIDALIS is a lovely spring bloomer, its very long racemes being laden with long, bright rosy pink flowers. I think this plant requires a little more warmth than the majority of Heaths.

E. REGERMINANS.—Somewhat similar to *persoluta*, yet quite distinct, producing long racemes of globular pale red flowers in the late spring months.

E. SCABRUSCULA.—A handsome free-growing plant and a profuse bloomer. The flowers are campanulate and pure white, appearing during April and May.

E. SCARIOSA is a summer-blooming plant, producing its flowers in great abundance; these are pure white, with the black stamens exerted.

E. SULPHUREA.—This is rather a rare plant, but I cannot understand why it kept so when Heaths were popular. It is a free-growing plant, but I think rather shy in flowering; it forms long racemes of flowers which are tubular and slightly curved, and of a clear sulphur-yellow. It blooms in summer.

E. WILMOREANA.—As will be seen from the accompanying cut, this is a noble plant, and when well grown with numerous spikes, such as are here shown, it is extremely handsome; the flowers, about half an inch long, rich purple at the base, the upper half white, are produced during the early spring months.

W. H. G.

Iris fimbriata.—This Chinese species of *Iris* is a most beautiful flowering plant for the greenhouse at this season of the year, yet it is quite rare, and one that might in vain be sought for in many trade

establishments. It is essentially a greenhouse plant and evergreen in character. It succeeds best when grown in large masses, such as may be seen in the Cactus house at Kew, where it flowers finely every year. The flowers, which are of a beautiful pale mauve colour, blotched with yellow, are about 4 inches across. The specific name *fimbriata* is derived from a kind of fringed crest, which forms a conspicuous feature of the flower. Its cultural requirements are simple, the principal consideration being in potting it to use only such soil as will stand for some time without renewing, as, like many similar things, such as the *Agapanthus* and the pretty New Zealand *Arthropodium cirratum*, it flowers best when pot-bound.—H. P.

EUCHARIS AMAZONICA.

THOUGH the Amazon Lily is more easily managed and gives the best results where it can have the advantage of stove culture or a fairly high temperature all the year round, yet a good crop of flowers may be obtained from plants grown in ordinary vineries if early and late Grape-growing be carried out, and one house at least is kept warm enough in winter to carry tender bedding plants through safely. In this case, however, the cultivator must not strive to emulate growers who have well-heated houses to work with, and who by judicious management can produce three crops of flowers a year from the same plants. He must content himself with one good crop, which will come in just when the dull days of November make them very valuable, and if there are about a dozen 10-inch or 12-inch pots of bulbs, there will probably be some good flowers left to welcome Christmas or even new year's-tide. I will give a few of the most essential points of management, attention to which will command success.

As the plants go out of flower, or say from the middle to the end of December, remove them to the warmest house at command, and put them on the pipes nearest the boiler, with just a thin plank or a few slates under the pots if the pipes are likely to get very hot at any time. Allow the plants to become as dry as they can bear without injury, and let them remain here till the early vinery has a night temperature of from 58° to 60°, when they can safely be taken into it and started into growth. Assist them with occasional doses of manure water to grow as strongly and rapidly as possible. They will take plentiful supplies of water when growing, and should not be stinted. When the Grapes begin to colour and the house is freely ventilated, remove the *Eucharises* to a successional or late vinery—if a Muscat house, so much the better—selecting the least draughty position for them. About the middle of August reduce the supply of water somewhat to assist the ripening of the bulbs, when, if the progress during the summer has been satisfactory, the earliest flower-spikes will soon show. When the first buds are about to open, the plants may, if desired, be taken to the conservatory, where they will be grateful for a little fire-heat on cold nights, and with careful treatment they will last in beauty for a long time. If the house gets too cold or the plants are stood in a draught, they will resent it by producing undersized flowers, the crowns or cups of which will be pencilled with yellow instead of the lovely green markings seen in well-grown flowers. This comparatively cool treatment of the plants gives more trouble and necessity for care than the ordinary stove-grown specimens need, but good *Eucharis* flowers are worth having, as there is no substitute for them.

With regard to potting the bulbs, it is time enough to think about that when the plants show signs of poverty, for they will do well in the same pots for several years, provided they get plenty of manure water in the growing season. If, however, the necessity arises for potting them, get at them soon after they have done flowering. Drain the pots well, use good soil, the bulk of which should be good fibrous loam, with plenty of sand added; put the bulbs in deeply, and do not be in too great a hurry to start them afterwards, but keep them going when they are fairly on the move.

Though I have grown *Eucharises* on this cool system for years, I have never had an attack of the *Eucharis* mite—for the advent of which cool treatment has been often blamed—nor any other form of ill health; on the contrary, the plants have always looked healthy, the leaves have been large, robust, and leathery, and the flower crops good.

J. C. TALLACK.

STOVE AND GREENHOUSE FLOWERING PLANTS.

THE novelties of the past year, with very few exceptions indeed, are almost exclusively due to the untiring exertions of the hybridiser. The enumeration of novelties in stove and greenhouse flowering plants will no doubt serve to stimulate the energies of all engaged or interested in their production. In the greenhouse *Rhododendron* class of the Japanese type, which has been treated extensively by Mr. J. Douglas in THE GARDEN of January 12, we note some very important additions. These beautiful plants most deservedly increase in popularity every year, their comparatively easy culture and the beauty of their flowers being sufficient qualities to render them popular; but when it is added that their flowering takes place naturally in the duldest season of the year, and also that the flowers are unharmed by fog, it is not surprising to find them grown on a larger scale every successive season. In the section with white flowers we have in *R. Purity* a most marked improvement on all the white-flowered kinds already known, as besides being of the purest white and not showing when fading away the least tinge of pink, the corolla is large and the lobes are rounded and substantial. It is also interesting on account of its parentage, since there can be no doubt of its being the result of a cross effected between a rosy-carmine variety, *R. Tylori*, and a yellow-coloured species, *R. Teysmanni*. The section with yellow flowers has also received several additions, the most valuable of which are *R. Primrose*, a beautiful variety with large, well-formed flowers of a clear yellow colour, distinct from all other javanicum hybrids; and *R. Yellow Perfection*, one of the best of all varieties artificially produced, and the result of a cross between *R. Teysmanni* and *R. Lord Wolseley*. In this instance the flowers, which are of a pure transparent yellow, deeper in the tube, measure nearly 3 inches across; they are of great substance, and their lobes are particularly round and broad. Among many other novelties of various tints there are also *R. Imogene* and *R. Souvenir de J. Mangles*, the latter of which has bold, brick-red flowers disposed in handsome and massive trusses; the tube is purplish, while the broad and round lobes make up a flower as perfect in form as could be desired. The former is remarkable for the unusual dimensions of its bold flowers, of excellent shape and good substance, with the lobes of the corolla broad, rounded, and showing also a new departure in colour, which is of a lovely clear buff, on which the stamens, of a pinkish tint, are most conspicuously shown, and form a most agreeable contrast. But the most distinct of all the new *Rhododendrons* is undoubtedly the one called *R. Ruby*, a most appropriate name, since its flowers, though somewhat smaller than in most kinds, are of a very rich crimson colour. In this case the character of *R. multiflorum* Curtisii has been substituted for that of the purely *jasminiflorum* or *javanicum* types, and with the most encouraging results, for, besides the brilliancy of colour, the habit of growth has been greatly improved. It promises well to be the forerunner of a race of dwarf, bushy, and extremely free-flowering *Rhododendrons* into which various other colours will no doubt be infused by cross-fertilisation in course of time.

Very bright-coloured forms of the popular Flamingo Plant (*Anthurium Scherzerianum*) have made their appearance under the respective names of *sanguineum* and *atrosanguineum*, while in *Anthurium De Smetianum* we have a new form in the way of *A. Andreanum*, in which the comparatively small dimensions of the spathes are compensated for by the very deep crimson colour. In the *Azalea indica* section we note particularly *A. Louise*

Vervæne, Theodore Reimer, Ami du Cœur, and especially Vervæneana, a very good habited, double-flowering variety, with substantial, well-formed petals striped and suffused with pink and spotted with crimson on the upper half, the ground being white. The Gloxinias Madame Bleu, Meteor, Rose, and Nabis, white spotted with purple, also form a small, but most welcome contribution to the list of new flowering plants of 1888, while in the production of the gorgeous Amaryllis we also note some marked improvements on the older forms and additional new ones, foremost among them being A. Conqueror, a variety of great beauty and which fully deserves its name. Its extremely handsome flowers, which, though measuring nearly 9 inches in diameter, are neither rough nor gaudy, are of perfect shape, the colour being of a bright uniform crimson, rendered more brilliant still by the greenish white centre with which it is ornamented. A. Finette is almost a white flower, with just a suspicious tint of green and some slight scarlet venations on the upper segments. These are undulated at the edges, and although the whole flower is not so open and spreading as in most of the finest types, it is, however, sufficiently so to show its great beauty. In A. Rodney we have a bold, striking and particularly well expanded flower of excellent form and of a bright crimson colour, whose broad petals are ornamented with a white band extending their whole length; mottlings of the same colour are also elegantly disposed on each side. The variety Miss Roberts is thoroughly distinct and novel through the curious mottled colour of its large open flowers, which are of excellent shape. These are white slightly tinged with green, deepening towards the centre and covered all over with a close network of rich scarlet veins; while A. Emperor Frederick is a robust variety with scarlet flowers showing a broad white longitudinal band extending down the lower half of the segments.

The hybridiser has also been busily at work lately among Cannas, and his labours have resulted in the production of an entirely new race of plants deserving general cultivation on account of the beauty and brightness of the flowers. Cannas had hitherto been grown exclusively for the decorative qualities of their foliage when planted out of doors, but this new French race will undoubtedly prove most useful, as it contains plants with purple as well as with green foliage and with flowers of various colours, which are particularly bright in autumn, when specimens in pots are of service for the conservatory. Among the many varieties which have been sent out during the last two years, the following six are about the most handsome, as also the most distinct, and form in themselves a very effective group. C. Ulrich Brunner is a very handsome and beautiful variety, through the deep reddish tint of its foliage, and on account of the brilliant scarlet-crimson colour of its flowers which, like those of several others, are of large dimensions, and produced in finely developed spikes, which are produced in succession, the lateral branchlets gradually developing into fully grown flower-spikes. C. Capricieux is an exceedingly beautiful form with fine orange-scarlet flowers, with the edge of the petals bordered and fringed with deep orange. In C. Francisque Morel the deep crimson flowers are very effective; those of C. Mme. Just are orange-yellow, of very large size, and produced abundantly. The variety Admiral Courbet has handsome foliage and large spikes of bright yellow flowers with brownish markings, while the very large flowers of C. Geoffroy St. Hilaire are of a very deep rich scarlet.

Among the few new flowering plants which we owe to the exertions of the collector, Oxera pulchella ranks first. This plant, which is a native of New Caledonia and was recently figured in the *Botanical Magazine* (t. 6938), is closely related to the Clerodendron, and its naturally climbing habit, as well as the beauty of its Camellia-like foliage would be sufficient to make it a valuable plant. But it is essentially a winter-flowering subject, as has been proved by the plant in Pendell Court Gardens, Bletchingley, which flowered in December, 1886, and again in December,

1887. The flowers are of considerable substance and ivory-white. Individually, they are somewhat similar to those of a Clerodendron, with a bell-shaped, but deeply-cut corolla, and with stamens protruding from the body of the flower. It requires the temperature of the intermediate house or warm greenhouse, and will be found a most valuable addition to flowering plants. It may be grown with greenhouse Rhododendrons, Lasiandras, Monochaetons, Linum trigynum, &c., and will be found most useful for covering unsightly rafters, pillars, &c., producing in abundance its white flowers at a time when these are most needed. In Ardisia mamillata we have a stove plant introduced from Hong Kong, and belonging to a large genus of very widely distributed habitats, as representatives of it are found in America, on the islands of the Indian Ocean, and in India. Its deep green elliptical leaves, 4 inches to 5 inches long, by 2 inches to 3 inches broad, are covered with stiff hairs. It is not, however, for its foliage that this pretty plant deserves cultivation, but on account of the clusters of deep red, Holly-like berries, which are produced in profusion and hang below the crown of leaves, against the dark green colour of which they form a rich and most pleasing contrast. The list of the most meritorious of new flowering plants closes with a pretty little gem called Haberlea rhodopensis, a very interesting plant of dwarf and tufted habit, with pretty, Streptocarpus-like flowers, bright purple outside, but slightly tinged with lilac on the lip. S.

Rogiera gratissima.—As a cool house shrub to associate with *Luculia gratissima*, *Daphne indica*, and similar subjects, this *Rogiera* is well suited, and when in a healthy state it will flower throughout the winter, at which season its Laurustinus-like clusters of soft pink blossoms are especially welcome, not only for their attractive appearance when on the plant, but also for use in a cut state where flowers in this form are in request. It is a plant for whose welfare pure air is very necessary, as it suffers greatly around London from those dense fogs so prevalent during the winter months. Apart from a pure atmosphere, the other conditions necessary to its well-doing are thorough drainage, a good open soil (such as a mixture of fibrous loam, peat and sand), with, if possible, a good sprinkling of nodules of charcoal in the compost. Besides this the plant must not be grown in a close structure, but rather in a light airy house. If the plants are kept too warm, thrips are very liable to effect a lodgment on the leaves, and when once established they are difficult to get rid of.—T.

Chorozemas in bloom.—The Chorozemas stand forth among the most robust of New Holland plants, or rather, I should say, some of them do, for such kinds as *C. caudatum* and its variety splendens are of quite a vigorous habit of growth. This last is seen to great advantage when employed as a pillar plant trained up the end of a greenhouse, or for a similar purpose. In any case they should not be stiffly tied, as if this is done one half of the beauty of the plant is lost. The same remarks apply with equal force to specimen plants, which are often spoilt by too rigid a mode of training. If medium-sized plants are trained around a few sticks, and after that allowed to grow at will, the slender branches arrange themselves in a loose and graceful manner, while a well-flowered specimen grown in this form is vastly more pleasing than one tied into a stiff and formal shape. The pretty little Chorozema Henchmanni, with its deep green Holly-like leaves and bright coloured blossoms, is more particular in its cultural requirements than are the others. For this, good sandy peat is a very suitable compost, while the others will do well with the addition of some fibrous loam. Like most of the hard-wooded class, they need to be potted firmly, given good drainage, and must not be allowed to become dry. If the atmosphere of the structure is too close and warm, the leaves are liable to be attacked by red spider, which soon destroys their beauty. In addition to those above mentioned there are others, viz., *C. varium* and its variety *Chandleri* and *C. flavum*, which differ from

all the others in their blossoms being yellow. Besides their effective appearance when on the plant the blossoms of the Chorozemas are very useful where flowers are required in a cut state, as they can be employed for button-holes and similar purposes.—H. P.

RHODODENDRONS IN FLOWER.

THE article on p. 40 by Mr. Douglas relating to the many beautiful hybrid Rhododendrons that flower at this season leaves little to be desired, unless it be to refer to a few additional words in favour of one of the parents from whence some of the earlier hybrids were obtained, viz., *R. javanicum*, which we have now flowering together with many of the better-known varieties, and even though all are beautiful, the original species certainly attracts the greatest share of attention. In this the leaves are of a rich glossy green hue, as much as 6 inches long, and about 3 inches in width. The flowers, which are borne in clusters, are of a beautiful rich reddish orange colour, and in some blooms the entrance to the throat is heavily suffused with crimson, which imparts to the plant quite an additional feature. The individual blooms are almost 3 inches in diameter, so that even when sparingly produced they make a goodly show, and at this season of the year remain in beauty much longer than in the warmer weather. The specimen now in bloom was last May equally as free, and after the blossoms were over it started rapidly into growth, the shoots then produced being those now bearing flowers. That it is unnecessary to attain a large size before flowering is shown by a small plant struck from a cutting and now about a foot high, which has divided into three branches, each of which is terminated by a cluster of blossoms. A great merit possessed by these Rhododendrons is, that in the temperature of an intermediate house they will flower more or less throughout the year, some varieties, however, being in this respect more noticeable than others. The most prominent as far as I have observed are the oldest of these hybrids—Princess Royal, as well as Princess Alexandra, Maiden's Blush, Prince Leopold, and, above all, Duchess of Edinburgh. This last is generally one of the most unsatisfactory when growing on its own roots, and consequently the better way is to graft it on a more vigorous variety, a good kind for the purpose being the blush-coloured Princess Alexandra, which, claiming as its parents *R. jasminiflorum* and Princess Royal, is, singularly enough, more vigorous than either, besides which the long Willow-like foliage is very distinct. Next to this Princess Royal itself is a very good stock, or seedlings may be raised and employed for the purpose. So freely do these Rhododendrons flower, that I have often had to pick off the buds in order to save the life of the plant, and this is especially noticeable in the case of Prince Leopold and Duchess of Edinburgh when on their own roots. It was this that led me to try the experiment of grafting them on to more vigorous stocks, and with perfectly satisfactory results. Grafting may be done at almost any season provided stocks and scions are in a suitable condition for the purpose.

The scions selected should be shoots of the current season when about three parts ripened, and the stocks must be established in small pots and in a good healthy condition. Whip or side grafting as close to the ground as possible is the better method, and if tied securely in position, all that is then necessary will be to keep the plant close till a union is complete. Raising these Rhododendrons by means of seeds is a very interesting process, and though it is probable that one may not get a single plant equal to those which represent the selection of years, as carried out by Messrs. Veitch, still, the interest of watching the development of the different individuals is very great, added to which there is always the hope of something good. I recently saw a large number of seedlings, and that it is not necessary to wait so long before the character of some of them can be determined was shown by little plants only three years old, and in a few cases not much more than 3 inches high, which were bearing a cluster of blossoms. On the other hand,

some were mounting upward, and promised to reach double the age and more than treble the height above mentioned before they would flower. These plants were the product of the intercrossing of many of the best-named varieties, and the progeny was as variable as the parents from which they had sprung. One thing to be particularly observed where the raising of seedlings is attempted is, that when the seed-pods are ripe they often with little or no warning burst, and scatter their contents to the winds. So light are the seeds, that they are almost certain to be lost if this happens, and to guard against such a thing they should be examined occasionally and surrounded with a bit of muslin if this appears likely to happen. One point greatly in favour of these *Rhododendrons* is the fact that they seem to be quite impervious to the fogs that overspread the neighbourhood of London, of which there have been several visitations lately, for while nearly all blossoms either expanded or in the bud state were destroyed and their relatives, the Indian *Azaleas*, have lost their leaves wholesale, owing to the baneful influence of the atmosphere, these *Rhododendrons* have continued to flower throughout the whole period, and neither the blossoms nor the very youngest leaves seem to have suffered in the least. Of course, in towns occasional sponging is necessary in order to remove the sooty deposit from the leaves.

H. P.

CUT FLOWERS OF ZONAL PELARGONIUMS FOR MARKET.

A VISIT to Messrs. Hawkins and Bennett's nursery at Twickenham enables anyone interested in the matter to see the work done, not only thoroughly well, but also very extensively. The process of marketing commences as early as possible in the year, and is carried on all through the spring and summer according to the demand. As a matter of course, thousands of plants have to be cultivated, and they are grown on in relays so as to afford a succession. It is worthy of note that single varieties are much more largely grown than double ones, and the latter are almost entirely represented by one variety, *F. V. Raspail*, deep scarlet, with fine large pips, and an excellent compact habit of growth. This is a variety largely grown by gardeners generally for a supply of cut blooms, especially during the winter and spring months.

The single varieties must have bold symmetrical trusses of attractive shades of colour and stout well-formed pips. One of the most popular is *Henry Jacoby*, scarlet shaded with crimson, a variety that is as useful and extensively grown as was the old *Tom Thumb*, and one that will be grown for years to come, because of its adaptability for bedding and pot culture. *De Lesseps* is another most useful scarlet, and so is *Vesuvius*; both are very free, and produce large numbers of trusses of bloom; and notwithstanding the introduction of so many fine pink zonals, anyone visiting the Lily Nursery will find the old *Christine* and *Master Christine* largely cultivated there, because they are so free, and the ready manner in which they sell proves they are favourites in the market also. White flowers seem to be in great demand, and the leading varieties grown are four in number—*Eureka*, *Queen of Whites*, *Jeanne d'Arc*, and *Niphetos*. The well-known Ivy-leaved variety, *Madame Crousse*, is also largely grown.

The trusses of bloom are carefully gathered, then they are carried into an apartment where young girls deftly place in the centre of each flower a drop of gum, which serves to keep the petals in their place. The trusses are then put up in bunches of a dozen or so, carefully placed in shallow boxes, and sent away to market.

Messrs. Hawkins and Bennett have a double zonal which is in all probability a selection, or something in the way of a sport, from *F. V. Raspail*, the flowers being of similar colour, but both larger and fuller; the habit is especially good, and it is very fine in all respects. It has received the name of *Jubilce*.

R. D.

Salvia Heeri.—On December 31 last I saw a capital plant of this *Salvia* flowering freely at the base

of a south wall in the gardens at Rooksbury Park, Fareham. It had stood all through the past severe frosts without any protection except that afforded by the wall, and seemed none the worse for it. The growth was short-jointed, the flowers especially of good colour and produced in abundance.—M.

WORK IN PLANT HOUSES.

GREENHOUSE.—GRAFTING CAMELLIAS.—Where there happens to be any large plants of inferior varieties of *Camellia*, provided they are in a healthy state, it is worth while to re-graft them with good sorts. There are no flowering subjects that can so easily and in such comparatively little time be made into fine specimens by re-grafting, if, as already said, they are in vigorous health. Plants that are defective at the roots or are in any way weakly, are better left until they have been brought round into a satisfactory condition, otherwise it is more than likely the work will not be successful through the new growth not making headway. Where the operation in question is to be carried out, there should be no time lost in heading the plants down. Plants that are turned out in beds or borders can be grafted in this way as easily as those that are in pots or tubs. As will be readily understood, the more vigorous they are the sooner they will form handsome heads, provided the stopping is duly carried out. This is necessary, as when the scions begin to move freely they will make shoots much longer and stronger than are produced by plants in an ordinary condition. Plants that are to be grafted should be headed down to within 8 inches or 10 inches of the collar; afterwards they should be kept cool, so as to discourage any disposition to make growth for six or eight weeks.

CAMELLIAS of good varieties, sometimes, through the balls below the surface getting too dry for the roots to keep up their wonted activity, get into a straggling state, thin of foliage, and with often a disposition to drop their buds. When in this condition, the best way is usually to head them down. The tops should be removed low enough to admit of the future specimens getting fully furnished down to the base, without which they will be defective in appearance. Plants that are to be thus treated should also be headed back at once. Before heading down, the soil should be allowed to get drier than under ordinary circumstances is necessary, and afterwards until the stools show signs of breaking it should be kept in that condition.

EPACRIS.—The early-flowering varieties of *Epacris* that bloom during the autumn up to the end of the year are all more or less erect in habit of growth, with little disposition to branch out. On this account it is necessary to cut them back freely each year when they are out of flower; this should be done as soon as they have finished blooming. If this is not attended to regularly, the plants get too tall and have a straggling appearance, as however long the shoots are left, only a few eyes at the top will break. Plants that came into bloom early will now have about done flowering; last year's shoots should be cut back to within 6 inches or so of the base. *Epacris* are at all times impatient of any excess of moisture at the roots, and at this season in particular, when both the top and root growth are dormant, it is requisite to see that the soil is not too wet. Before shortening the shoots the plants should be allowed to get half dry and no more water be given till some new growth has been made than will keep the roots in this state. If the plants when cut in can be stood in a house or pit that is kept at a little above an ordinary greenhouse temperature, say about 45°, it will help them to break more readily, and there will be less danger of the roots feeling the effects of the tops being removed. The late-blooming kinds, of which *E. miniata splendens* and *E. grandiflora rubra* may be taken as representatives, are much stronger growers than the early flowerers and more bushy in habit, and though they require to have their shoots shortened after blooming, they need not be reduced so much. The time these late flowerers bloom can be regulated so as to have

them in succession from the beginning of March up to the end of spring by keeping those that are wanted to come in first 6° or 8° warmer than those that are to flower the latest. The latter will do with no more heat than will keep the house a little above the freezing point. One of the advantages attending the cultivation of *Epacris* over most hard-wooded greenhouse subjects is that they do not suffer from mildew if kept in a low temperature during winter. *Epacris*, even when their tops are not in any way reduced, should be watered carefully through the winter; the soil ought to be allowed to get drier before water is given than most plants require it to be.

NEW HOLLAND PLANTS.—Several species of hard-wooded plants that come from this part of the world are liable to suffer from mildew during the winter months if they are kept cooler than they like, though they will not take harm under such conditions in other ways, provided the roots are not too wet. Amongst the different species that are most affected in this way are the *Boronia*, *Hedromas*, *Leschenaultias*, *Gompholobiums*, *Pimeleas*, *Roella ciliata*, and others that are somewhat tender in their leaves. The parasite is the most likely to put in its appearance on plants that were not exposed in the open air long enough to admit of their leaves getting hardened up sufficiently before the time for taking them indoors in autumn arrived; and even where the necessary ripening process has been secured, the plants mentioned will require to be closely watched. Those who have not had much to do with these things often do not notice the pest until the leaves are so much affected that they afterwards fall off in quantities. When this happens, it induces a delicate condition of the roots, which not unusually causes the plants to go off during the following summer, and under any circumstances the loss of the leaves spoils the bloom and weakens the ensuing season's growth. As soon as a plant is at all affected with mildew, it ought to be well dusted all over with flowers of sulphur, for though the parasite may not be detected all over the leaves, it is still more than likely to be present in the incipient stage, so that if only the part where the parasite in a mature state is visible is dusted, the remedy will only be partial and the work will have to be repeated. As has before been stated when speaking on this subject, the plants should be laid down on their sides and turned round as the sulphur is applied, so that it may reach the whole of the leaves on their under as well as their upper surface. It should be allowed to remain on for several days, and great care must be taken that none of the sulphur gets down into the soil, as if this occurs to any extent it will destroy them and kill the plants. To prevent this, when the powder is washed off they must be laid down on their sides so as to admit of the whole being syringed away, at the same time, whilst the plants are in this position, removing carefully all that has reached the surface of the ball, and scraping away any of the soil that has got affected with it. The plants must then be let remain laid down until the leaves are quite dry. When plants that are affected with mildew are dipped in or syringed with water that is impregnated with sulphur, or water to which any of the preparations of sulphur sometimes recommended have been added, it is necessary to be careful that none reaches the soil, or the roots will be more or less destroyed.

HEATHS.—Heaths suffer greatly from mildew. The dull, moisture-laden atmosphere, with its long-continued fogs, that has prevailed through the latter months of the year, following a summer more than usually moist, consequent on which the growth was insufficiently matured, has made the plants more than ordinarily susceptible to the attacks of the parasite. Heaths should be looked over every week, so as to discover the pest before it has time to get much hold, or more injury will be done than can be set right. It is necessary to use the same amount of caution in applying sulphur to these plants as to the New Holland kinds already mentioned.

GIVING AIR.—An idea often prevails that unless greenhouse plants, New Holland and Cape species

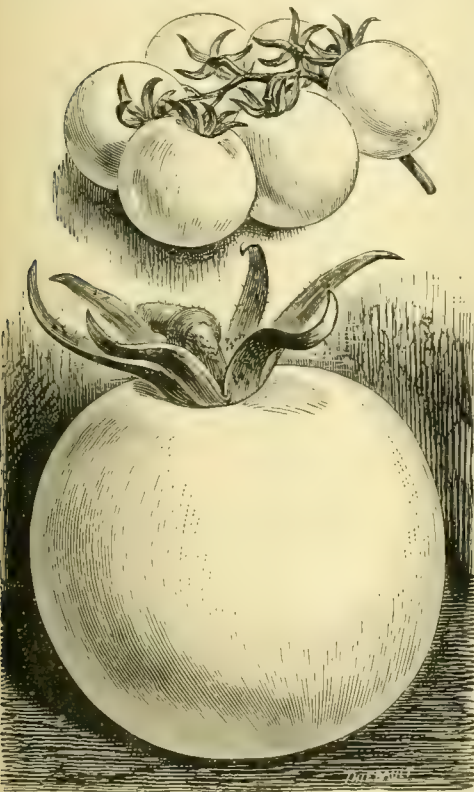
as well as Heaths, have the air blowing freely through them every day when it is not freezing they will not do well, and on this account it is allowed to reach them in full force when the state of the weather is such that it will not absolutely freeze them. It would be difficult to make a greater mistake than this, or to follow a course that is more certain to end in failure. Even the hardest wooded varieties of Heath will not stand a current of cold air coming directly in contact with them without their feeling its effect, and also showing it after a time in the discoloured leaves that turn brown and ultimately die and fall off long before they otherwise would, leaving the lower branches bare and unsightly, and, what is still worse, reducing the strength of the plants proportionately with the premature loss of leaves. Plants of all kinds do not require nearly so much air in the winter, when they are more or less at rest, as they do in the summer. In every plant house there should be the means of giving air on both sides, so that the lights or shutters through which it is let in can be opened on the opposite side to that from which the wind is blowing, and in winter, unless the weather is calm, side lights that are on a level with the plants should not be opened at all. Enough air can then be given at the roof ventilators.

T. B.

KITCHEN GARDEN.

TOMATOES, NEW AND OLD.

DURING the year 1887 Tomatoes simply grew anyhow, the crops both under glass and in the open being exceptionally heavy and good, or much as they are annually obtained in America. The exactly opposite happened last year, the crops under glass failing to set properly, disease also being rampant; while the plants grown in



Tomato Yellow Plum, or Greengage.

the open air were in most instances a complete failure. In spite of this serious check to the wide-spread and rapidly-increasing love for this fruit, there is little likelihood of any falling off

in the numbers who cultivate either for sale or home consumption, and not a few will now be studying the catalogues before deciding which of the old or new varieties to order. In this they ought to be guided either by what will prove most profitable, or which will best meet the requirements of private establishments. As a rule, however, the class of fruit that most readily finds a market is also the best for private growers. The ordinary rule with market produce is somewhat inverted in the case of Tomatoes, as it is not extra fine fruit, half a pound and upwards in weight, that is in most demand, but rather medium-sized to small fruit, six to eight of which scale a pound. The woodcut given of Gilbert's Surpasse may be said to be an admirable illustration of a typical or model fruit, being large and handsome enough for any but exhibition purposes. Judging from the reports I have received from different sources, including the extreme north of England, this variety is likely to become very popular, especially for pot and house culture. Apparently it is the result of a cross between either Nisbet's Victoria or The Queen and Perfection, and unites the good qualities of both. It is of moderately strong growth; the fruit sets freely, being usually borne in clusters of six to



Tomato Gilbert's Surpasse. Engraved for THE GARDEN.

eight in number, and no fault can be found with the colour or quality. Horsford's Prelude, recently certificated by the Royal Horticultural Society, is also a comparatively small-fruited variety. Dedham Favourite, which I consider a good form of Acme, is perhaps the heaviest cropper under glass I have yet tried, and this also is much praised by various friends who have favoured me with a report of trials. The fruit is of good size, form, and quality, but the colour (cornelian-red) is not in its favour. Dwarf Orangefield, identical with Vilmorin's Dwarf Early, is of neat habit, a sure setter, and the fruit of excellent quality, but much corrugated and light, and not, therefore, so attractive and profitable as either of the foregoing. Sutton's Abundance grows rather too strongly, but if not very liberally treated at the roots at the outset, will set large clusters of handsome medium-sized fruit; colour rich crimson, and quality good. The old Hathaway's Excelsior, which was, I believe, the forerunner of quite a new type of Tomatoes, is still one of the most generally serviceable. It is well adapted for culture either under glass or in the open, rarely failing to produce profitable crops of handsome fruit of good quality, and also of the right size for home use or for marketing. Trentham Fill-

basket has not become popular. If supplied true it should prove a heavy cropper, the fruit being of medium size, firm, and of good quality. When last I tried it the packet of seed contained quite a mixture of varieties, the result being most disappointing. Chiswick Red, King Humbert, Vick's Criterion, Nisbet's Victoria, and other somewhat similar varieties produce numerous clusters of fruit, usually egg-shaped, but they are too small and the quality rather inferior; they belong to the more ornamental section in fact, and are not recommended for general culture.

Large-fruited sorts may be divided into two classes, one including those that produce a good proportion of handsome fruit, and the other principally very coarse and ugly fruit. Perfection, perhaps the most popular of the smooth round-fruited varieties, is largely grown for exhibition purposes, and the quality is also superior. It was raised by Mr. R. Philips, Meopham, Kent, and from whom I had seed twelve years ago. Hackwood Park Prolific varies slightly from Perfection, but Livingstone's Perfection and Mayflower are nearly or quite identical with it. In each case if the extra large and much fasciated bloom is early removed from each bunch, the rest will become much stronger and be followed by fine handsome fruit. Exhibitors therefore may safely select either of the four last named, and if still heavier, though less handsome, fruit are acceptable, Trophy, or Stamfordian, as it is called, may be grown. In a Continental catalogue this is said to be "large, early, and sweet." Large it certainly is, but it is neither early nor sweet. Sweetness in a Tomato would be objectionable, as it is a want of acidity in some varieties that militates against them. The Mikado also produces some exceptionally large and ugly fruit, but if these are prevented from forming, the rest will be very fine, of good form, and the quality first-rate. The colour, pale red, is somewhat against it, and in time most probably the old form will be superseded by a selection from it, known in America as Turner Hybrid. The latter succeeded with me capitally under glass last season, but Mikado failed, and it is only suitable for open-air culture. Dedham Favourite, previously mentioned, does well in the open air, where it produces much larger fruit than under glass. Conqueror, another pale red and somewhat ribbed variety, is a heavy cropper, but it is not needed. Large Red may be included in either category. When a good selection is grown and the first ugly flowers removed, the remainder set very freely and the fruits are medium-sized and, though corrugated, by no means ugly. The colour is good, the quality fairly so, but the fruits do not weigh well. With me it was the only variety that did not fail either early or late under glass or totally in the open. Large Yellow is equally as productive in the open especially, but it is often very ugly and the quality is wretchedly bad. For coarseness and ugliness the palm must be given to General Garfield, although the quality of this monstrosity is by no means despicable. Hepper's Goliath is also coarse and ugly, and I fail to see the necessity for including either of them in any lists. These extra large varieties seem to please both the Canadians and Americans, but they enjoyed a comparatively short run in this country, smaller, perfectly shaped fruit being more to our taste.

A few yellow-fruited varieties have been recently introduced, but as yet none of them have given general satisfaction. They are either not sufficiently productive, or else they are flat and insipid when eaten. Carter's Green Gage (see illustration), though by no means a novelty, is the best I have yet tried as far as flavour is concerned, but it is not profitable. Golden Queen is handsome, but of little value compared with red-fruited varieties, while Golden Nugget is more remarkable for its productiveness and ornamental appearance than for any other good qualities. None of the yellow-fruited varieties will sell, and that is a bad sign. W. I.

KITCHEN GARDEN NOTES.

CELERY.

A SHORT spell of frosty weather acted as a deterrent to early bolting, but this will only be temporary, and the best course to pursue with any plants that are beginning to run up in the centre is to completely lift and bed them in closely in a convenient and cool position, or say on a north border. All the blanched portion of the stems should be again well covered with soil, this being made very firm about the roots. In the event of a severe frost being imminent, the Celery ought to be lightly covered either with mats, dry straw, Bracken, or Fir branches. An early clearance of the ground is also frequently advantageous, this admitting of its being well prepared for successional crops. It is a common practice to follow Celery with Onion and other root crops. In this case no fresh solid manure is used, and in many instances the only preparation needed is merely the levelling of the surface prior to the seed being sown. This will not be sufficient where the soil is of a heavy or clayey nature, the frequent trampling on the ground during a wet autumn and winter leaving it in a somewhat pasty condition. Under such circumstances advantage should be taken of a dry time to well fork over the ground. Those who need early Celery, or say in August, whether for exhibition or home consumption, must sow seed now, and for these early crops either Sandringham Dwarf White, White Gem, or Wright's Grove White are suitable, the last-named being the best for exhibition purposes. Seeing that Celery obtained by sowing thus early is liable to bolt prematurely, it is unwise as a rule to raise a large batch of plants. Sow the seed in a pan of fine soil, cover lightly, and place on a gentle hotbed till it is germinated, when a shelf near the glass, still in heat, is the proper position for it. The seedlings should eventually either be potted off singly into small pots and given a shift before they are badly root-bound, or else be pricked off about 4 inches apart in boxes of rich soil. They must be kept growing without a check in heat for a time, and subsequently in a cool house or frames, in order to have strong plants ready for the trenches about the end of May.

LEEKS.

These usually keep very late, not running to seed till hot weather sets in. They ought to be reserved as much as possible, as there will be a demand for them when Onions fail, which they most probably will do much earlier than usual owing to their ripening badly. Leeks may also be lifted with a ball of soil about the roots and bedded in closely and deeply, but there is no necessity for this unless the ground they now occupy requires manuring and digging. If extra fine Leeks are needed for exhibition, a pinch of seed ought now to be sown as advised in the case of early Celery, the seedlings being also similarly treated. Leeks require very liberal treatment and a rather long period of growth if they are to weigh 4 lbs. and upwards when lifted. The Lyon is perhaps the most popular variety for exhibition.

BROAD BEANS.

Should the weather continue open and dry, those who have to deal with warm light soil may venture to sow seed on a warm border, or on a sunny open position. Such early sowing is not advisable in the case of heavy soils, as, should it be attempted,

there is every probability of much of the seed perishing. For the earliest crops either Early Longpod or Beck's Dwarf Green Gem are suitable, the last named being of compact branching habit, prolific, and good in quality. Sow the seed thinly, either in double drills 3 feet apart or in single lines 2 feet apart. If preferred, the seed may be dibbled in, but in any case it ought to be covered with about 3 inches of soil, and allowance made for failures, the plants being eventually thinned to 6 inches apart. The middle of February is quite early enough for sowing on heavy soils, but if Beans are wanted extra early it is a simple matter to raise a batch of plants under glass and plant these out when sufficiently hardened off. Sound seeds being placed singly into 3-inch pots and set in gentle heat soon germinate, and strong plants result in a few weeks. Transplanting the extra fine-podded, but moreshe-bearing Seville Longpod and Leviathan from pots to the open has the effect of making these more prolific, and it is also advisable to raise plants in pots to make good any blanks there may be among the thin rows of autumn-raised Beans. When the latter are thick in places, the vacant spaces may be filled by transplanting some of these with a trowel.

PEAS IN PITS AND FRAMES.

Where rough pits, with or without glass coverings, can be spared, these answer well for forwarding dwarf early Peas, and large frames can be similarly utilised. Large gatherings must not be expected from the few short rows grown in this way, but if only two or three early dishes are obtained these are always appreciated. The best results usually attend the practice of raising the plants either in small pots, turves or boxes of fine soil, the slight check given in transplanting causing them to be dwarf and prolific. We find shallow boxes such as are used for bedding Pelargoniums serviceable in preparing Peas for planting out either in pits or in the open ground, the seed being sown not too thickly in these, and set either in very gentle heat or a cool house to germinate, the aim being to have a number of sturdy plants ready by the time the site is in a fit condition to receive them. A pint of seed should yield ample plants for a three or four-light pit or frame, and a quart be enough for furnishing sufficient plants for a sunny border. A shallow hotbed should be formed in the pits or for the frames, this being faced over with a thin layer of short manure, finishing off with not less than 9 inches of good loamy soil. If this is prepared a fortnight hence, all will be warmed through by the time the Peas raised in heat are fit to transplant. The best way to put out the plants is to open deep drills with a spade, and the Peas, being duly and carefully shaken out of the light soil in which they are rooted, may have their roots laid in to their full depth, these being rather firmly covered with soil. As a quick crop is most needed, the plants should be put out rather thickly in rows about 15 inches apart. Between these may be planted a single row of Early Paris Market or some other quick-growing Cabbage Lettuce, or, if preferred, Radishes may be sown. If glass coverings are available, these ought to be put on after a gentle watering has been given and kept rather close for a time; and it is also advisable to cover the lights with mats or litter every night. Thatched hurdles and other contrivances by way of substitutes for glazed lights are necessary, but the latter ought to be afforded where possible for at least a fortnight. When the Peas are growing strongly they ought to be lightly staked, and in warm weather receive plenty of air, the lights being eventually dispensed with. Occasional waterings are all that is further needed. Either Chelsea Gem or American Wonder are suitable for frame culture, the former being the most productive of the two.

PEAS ON WARM BORDERS.

As pointed out in the case of Broad Beans, there is always a risk attending the very early sowing of Peas, especially on heavy soils. This season, owing to the unfavourable character of the summer of 1888, the seed is not well ripened, and is therefore more liable to decay rather than germinate in cold ground. Especially careful ought all to be with

the wrinkled Marrow varieties, these being more delicate than the round-seeded sorts. The surest way of obtaining strong even rows is to sow the seed, as just advised, in boxes at once, and to set in a cold house, pit or frame, where most of the seeds will germinate strongly, and better plants result than would be the case if raised in heat. Where the soil can be got into good working order thus early, the first or second week in February is found to be a good time for sowing seed of Earliest of All, Selected Extra Early, Dickson's First and Best, First Crop, and Sangster's No. 1. Either of these are slightly in advance of William I., but it is not advisable to grow more than one of them, a good sowing of the last-named being made at the same time; the drills to be drawn with a broad hoe, 3 inches deep and not less than 42 inches apart, and the seed sown rather thickly, none of the varieties named being of a very branching habit. Very dwarf early varieties may be either sown at the foot of sunny walls or raised under glass, and eventually planted in such favoured spots. These would closely follow those in frames and keep up the supply till the taller varieties were ready for use.

SPINACH.

The weather hitherto has been favourable to the growth of winter Spinach, and there is little likelihood of a scarcity before the spring or February sown crops are available. At the same time, the first opportunity should be taken of sowing a few rows on a warm border. There is no necessity for devoting a breadth of ground specially to Spinach, as it succeeds admirably between the rows of early Peas. Sow the seed rather freely in a shallow drill drawn midway between the drills intended or already sown with Peas, and if this is repeated as often as successional sowings of the latter are made, a constant supply should be the result. The summer or round-seeded Spinach is the most suitable for these early crops. W. I.

PROPAGATING.

BEDDING PLANTS.—The stock of all kinds of bedding plants that have to be propagated during the spring should now have attention. The stock plants should be cleaned and placed in a little extra warmth. By commencing early, the first batch of cuttings will give extra stock, and the cuttings obtained from the young plants are often more satisfactory than those obtained from the old ones. Verbenas often give some trouble, but if the stock plants are placed on a shelf close to the glass in a good growing temperature and only a few good cuttings obtained, these, if rooted and grown on freely, will provide plenty of stock, and thus the trouble of looking after the old plants, which are liable to die off, is avoided. Alternantheras should have the warmest position available, both for starting the plants into growth and for rooting the cuttings. A good, light position is more essential for Lobelias than much warmth. Harrison's Musk, which is now so much used for bedding and window-box work, and which is also a valuable plant for the conservatory, may be propagated freely under similar treatment to that adopted for Lobelias, but may have a little more heat for starting the stock plants. Cuttings of Marguerites, if now propagated, will make good plants for bedding purposes. The cuttings root freely where there is a little bottom-heat, and should be kept close, for if allowed to get rather withered they will be much longer in making a start. All the Pelargoniums of the zonal section may be increased at this season of the year, and will make good plants in time for planting out, though of course most of the stock will have been propagated in the autumn. Cuttings should not be allowed to get withered, for although those taken in the autumn will be rather benefited than otherwise by letting them become a little dried up, at this season of the year it is better to keep them quite fresh. It will be better not to water them directly they are put in, but they should not be left long enough to wither, and the soil should be kept fairly moist until the cuttings are rooted. They will

strike best where there is a good brisk bottom-heat, but they should not be put into a close case. Although good varieties of both single and double Petunias may be obtained from seed, yet it is advisable to propagate some from cuttings, especially of the best double varieties, which are useful for the conservatory as well as for bedding. Petunias like a rather moist place, and will root best on a cool bottom, or they may be transferred to where there is a moderate bottom-heat after they have stood on a cool bottom long enough for the cuttings to get well callused. Ageratums, Heliotropes, Tropæolums, &c., should also be looked to, but if the stock plants are in good condition, there will be no need to increase the stock until later on, when most bedding plants may be propagated on hotbeds. It is rather early for hotbeds yet, as it will be difficult to give proper attention, especially if we get cold winds and frost, but the material for making them may be prepared. I like to use good stable manure and leaves in equal parts, shaking them well together and turning them over two or three times before the beds are made up. However, leaves are not always to be had, and if the beds have to be made of all stable manure, care should be taken that it is not too new, or the heat will be too virulent.

SUB-TROPICAL PLANTS that are propagated from cuttings require early attention, as they should be grown on to a fair size before being planted out. Plants of *Polymnia grandis* should be placed in warmth, and as soon as they have made a little growth the tops or side shoots may be taken off. The cuttings, cut off quite close to the joint and none of the leaves taken off, should be put in singly in small pots; the base of the cuttings should be only just below the surface, and each should have a stick to keep it firm.

SOLANUMS.—Several species belonging to this genus are very desirable in the sub-tropical garden, and most of them may be obtained from seed, but such sorts as *S. marginatum*, *S. macranthum*, and other sorts of similar habit may be propagated from cuttings, which, if put in now, will make good plants. Cuttings from side shoots, taken off close to the old wood, will strike best. Light sandy soil should be used, and the cuttings must not be crowded or they will be liable to damp off. The cuttings from plants of *Wigandia caracasana* of moderate growth are better than those from plants that are growing vigorously, as they will not take up so much room and are not so likely to damp off. This beautiful foliage plant may also be propagated from roots in the autumn when the plants are taken up from the ground.

The above and other vigorous-growing subjects suitable for the same purpose generally require similar treatment, viz., the cuttings should be taken before the plants have made too much new growth. Short cuttings fairly firm at the base are the most desirable. When the cuttings are taken off, a little dry sand should be applied to the base to dry up the juicy sap. In most instances it is better to put the cuttings in singly in small pots, and in plunging them in the propagating case the leaves should be kept free from the plunging material. Provided the cuttings have not been allowed to get withered during the operation, they may remain for a day or so without being watered, and thus they will not be so liable to rot off as when water is given directly they are put in. A.

Anthracite coal.—When we come to the question of whether the same fire-stove that is used for burning coke in and where you can hardly have too slow a draught is the best fireplace for burning anthracite, I should then doubt the advisability of using it without making a wider space between the bars. Naturally if you have a high chimney with a good draught you can easily regulate the influx of cold air underneath the bars. Another point is that the less anthracite coal is stirred once it is put on the fire in a thin layer the better; in fact, it wants no raking about at all. Your correspondents admit that they find no clinkers; then why is there any necessity for raking it about as inexperienced gardeners invariably do? I know of some amateur

gardeners in my neighbourhood who make up the fire only once a day, and when they come home at night they put some coal on. They hardly have any refuse, and if it is coming on a cold night they give more draught underneath the fire.—THOS. CHRISTY, *Sydenham*.

My experience of this coal is that by the use of half coal and coke a good steady fire is maintained for a longer period than with coke alone, especially when the damper is partially closed. I have burned all coal with good results in some boilers. Here we use with but little attention coke and coal in equal proportions in the Trentham and Gold Medal boilers, these two together or separately heating from 1800 feet to 2000 feet of 4-inch piping, including houses that require forcing temperature and others comparatively cool. A supply put on once after the men leave work is sufficient to keep the temperature right till 7.30 next morning. I think in many cases more depends upon the stoker than the fuel he has to burn.—W. A. COOK.

ORCHIDS.

W. H. GOWER.

EPIDENDRUM AMABILE.

A LARGE quantity of this plant has recently been sold by auction by Mr. Sander, of St. Albans. The plants were in excellent condition, and appeared to me like those of *E. dichromum* amabile of Bateman, which was imported by the Messrs. Low, of Clapton, somewhat extensively about twenty-four years ago, and many beautiful varieties flowered from amongst that importation. Since then, however, very little has been seen of the species, the fact being that this Orchid is one of the few which are difficult to manage. It has not been lost through keeping it too hot, for this plant requires a great deal of warmth. I have not ascertained from whence Mr. Sander's plants were obtained, but Lindley, in "*Folio Orchidaceæ*," p. 25, gives Pernambuco as the habitat of *E. dichromum*, whilst the Messrs. Low's plants of amabile and dichromum were derived from near Bahia, or at least they were shipped from that port, the plants having been found growing low down on straggling bushes on the river banks. Their long roots hang down and penetrate the sand beside the stream, and the tops of the plants are much exposed to the sun. It appears to grow well and flower freely in its native habitat, and I cannot but think, with a little care in its management, we ought to be successful with this last importation. Its pseudo-bulbs are some 3 inches or 4 inches long, in large examples about 6 inches, oblong, round and smooth, bearing upon the top a pair, sometimes three ligulate leaves, which vary from 6 inches to 9 inches in length. In the case of those received by Messrs. Low the spike is erect, some 3 feet high, and bearing a raceme of many flowers, these being 2 inches across, and varied very much in colour. But all the varieties were exceedingly beautiful; in some the sepals and petals were soft clear rose and others were pure white, whilst others again were rich deep rose, the form more particularly designated amabile having a border of white to the dark rose, the large three-lobed lip being rich deep crimson with a rose-coloured border, the side lobes white outside, the reflexed tips pale purple. From this it will be imagined it is a beautiful species well deserving a permanent position in our collections. This plant requires very strong heat during the growing season, with full exposure to the sun, and an atmosphere heavily charged with moisture. At the time I had plants of this species under my care they grew well, but flowered sparingly, and when I left

them the system was altered, and they soon died. My plants were fastened upon a long piece of wood (resembling what is now called a raft), the plant at one end and the other end inserted in a potful of drainage material, the latter being surfaced with living Sphagnum Moss, and the pot was placed in a saucer, the whole being hung up near the glass in the East India house, water being given twice during each day to the surface of the pot. This maintained the plants in a fresh condition, as they rooted well, and the roots penetrated the crocks beneath the Sphagnum, nearly filling the pots. In winter the plants were removed to the Cattleya house, where the atmosphere was lower and drier, but the roots of the Epidendrums were never allowed to become dry, although the saucer was kept empty. This will explain my system of treating the plant to those readers of THE GARDEN who were purchasers the other day and inquired how to manage it.

Anæctochilus.—A small importation of these beautiful-leaved Orchids was sold by auction last week. This I look upon as a sign of the times. It is a long time ago since I saw any imported plants of this genus, but from inquiries I hear from time to time after these plants, I feel sure they would become popular again if there were means of satisfying the present demand for them. This is a matter which concerns our Orchid importers.—W. H. G.

Odontoglossums are very good in the garden at Perriville, Highbury Park. In the middle of January there was quite a show, which is a fact worth recording, for although these plants are sometimes enveloped in fog when growing naturally, they are never visited with such an atmosphere as we experienced at the close of 1888 and the beginning of 1889. The kinds most notable were *O. crispum* in variety, *O. cordatum*, *O. Pescatorei* in variety, the beautiful and useful *O. Rossi majus*, *O. grande* and its near relative *O. Insleayi*, and *O. gloriosum*.

Dendrobium Kingianum album.—A beautiful variety of this old Australian species first appeared, I believe, with Mr. Smee, in "*My Garden*," some two years ago, and I recently noted it flowering in the fine collection at Cambridge Lodge, Camberwell. It produces much longer spikes than the typical plant, the raceme being upwards of 6 inches in length, dense, and the flowers are wholly pure white. The plant thrives well in the Cattleya house fully exposed to the sun.—W. H. G.

Orchids on cork.—These plants do not thrive well on this material, although I have tried it very many times for a number of years. The roots never become firm on it, and it harbours dirt and insects. I would strongly advise cork never to be used for any kind of Orchids, for although some Orchids are said to grow upon Oak trees in New Grenada, they do not appear to thrive upon the bark when it comes to us in the shape of cork.—W. H. G.

Cattleya Eldorado (H. Watkins).—A box of flowers comes from the above-named gentleman asking for name. They are the flowers from some plants which a friend collected in the Rio Negro district of Brazil and sent home to him. They are a very nice lot of varieties; the white one is *C. Wallisi*, sometimes called *virginalis*. The flowers are late for the species, but we have seen them in January this season in several collections. When growing, this plant requires more warmth than the majority of Cattleyas. It first flowered in this country about twenty years ago.

Odontoglossum nævium majus.—Although January is a very unusual month for this plant to flower, we recently noted a very nice example of it in bloom. Although found by M. Linden upwards of forty years ago in New Grenada, it is still one of the rarest *Odontoglossums*, the flowers coming nearest in shape and colour to those of *O. cirrhosum*, from which, however, it is very distinct. The flowers are white, heavily spotted with rich purple.

It has frequently been said that this plant requires more heat than such kinds as *O. Alexandræ*, but we have seen them growing well together. Moreover, as it grows naturally in New Grenada and Venezuela at between 6000 feet and 7000 feet elevation, it would not appear to require more heat in this country.

HARDY ORCHIDS.

THE MOCASSIN FLOWER (*Cypripedium spectabile*) needs little description, for it is perhaps the most commonly cultivated of all hardy Orchids. A well-established mass when in full flower and suitably and conspicuously placed is truly a floral treat, for the great pinky pouch and graceful pose of flower are very unusual and striking amongst our garden occupants. It likes a dampish situation, fully exposed if you like, and a soil largely composed of peat or decayed vegetable matter freely incorporated with sand or any gritty substance. During the flowering season the plants, I have found, are much improved by allowing each clump a large canful of soft water each day, and this may best be applied in the evening or early morning. Amongst decayed or decaying leaf-mould largely incorporated with rotten wood and a fair application of rough sand I have got this handsome Slipper Orchid to do best, but that it will succeed in free garden loam, though never, perhaps, attain to the same dimensions as in the other, I am quite convinced. Position has a good deal to do with its condition, and one thing should be remembered, and that is it cannot live in a wind-swept and dry situation. It must have constant moisture, and this in an ordinary garden is best brought about by planting the roots fairly low in the ground, and not filling the pit or hole up to the top or general ground level. By this means a sort of receptacle for moisture is allowed. A good deal of difference in the colouring of the flowers of this *Cypripedium* is noticeable, but there can be little doubt that the typical rose colour is the most showy and distinct of the many forms. For growing in pots this plant is extensively used. It forces well, although it is apt to get drawn up under greenhouse management, and the roots increase rapidly under such treatment. On a raised spot the Mocassin Flower looks best, such as that afforded by the sheltered and shady as well as damp side of a moderately raised rockwork.

THE SMALL YELLOW LADY'S SLIPPER (*C. parviflorum*).—Next to *C. spectabile*, I have been most successful with the present plant, single crowns having increased to fully a dozen in half as many years. In one instance I obtained a well-rooted plant with two flowering stems, and in the fifth year after being planted out it bore no less than sixteen flowers. I do not know that this is unusual, for if properly planted strong roots multiply in a surprising manner. To obtain the best results, I would suggest planting the roots in a compost of half leaf-mould, half sand, and in a shady situation, where ample, but not stagnant, moisture is afforded. The flower-stems are stout and wiry, rarely getting twisted or broken about even during rough weather, and bear sometimes two blooms each. Strikingly quaint and pretty are the flowers, the lip being bright yellow, and the chocolate-coloured sepals long and twisted. *C. parviflorum* is not unlike our native *C. Calceolus*, but of ranker growth and more easily managed. The flowers are also individually smaller, but of the same *Calceolaria* hue and with longer appendages. Less damp is required for this than for *C. spectabile*.

THE ENGLISH LADY'S SLIPPER (*C. Calceolus*) is a pretty plant, and, when its rather peculiar requirements are fully taken into account, is of fairly easy management. Unlike the former, it wants loam in which to grow, and I have done it well by adding a quantity of broken up limestone chips to the soil. Usually it is difficult to get good specimens, those newly sent over being for the greater part rendered useless by careless lifting. I have not found that particular situations are of paramount importance in the cultivation of this Lady's Slipper, although my finest and strongest flowering specimens were

fully guarded from the midday sun. It is a plant of strong growth when fully established, and increases at the rate of about one eye each season, so that single crowns increase slowly, but steadily. I have no experience of it as a pot plant, and I fancy, from its nature and long straggling rootlets, it is best planted out. I have noticed very little variation in the colour of the flowers, the labellum usually being of the *Calceolaria* yellow, and the sepals rather short and chocolate-green in hue.

THE DOWNY LADY'S SLIPPER (*C. pubescens*) cannot otherwise be regarded but as one of the handsomest of the genus. It is, however, by no means easy to cultivate—at least, such is my experience, and though it may hold its own, it rarely increases to any great extent. The following I have found to be one of the best methods of culture: Sink in the ground a decayed and crumbling log, and on this plant the downy Lady's Slipper in a compost of decaying, not fully decayed, leaf-mould and sharp, gritty sand. The flowers are of a brownish yellow colour, not unlike those of our native species, but much larger.

THE STEMLESS LADY'S SLIPPER (*C. acaule*) is just as difficult to cultivate satisfactorily as is the last plant. The log system of planting I have likewise found the best for this species. The pair of large ovate leaves are of a nettle green and somewhat hairy, and from between them comes the flower on a slender stalk of perhaps half a foot in height. Individually the flowers are large and particularly handsome, being of a bright rose, shaded more or less with white. In some instances the flowers are almost white; indeed, the inclination to assume varying tints is somewhat marked in this species. I have flowered it well for several years, but it requires more coaxing and coddling than any of the fore-mentioned kinds.

THE WHITE LADY'S SLIPPER (*C. candidum*) succeeded well with me when planted in sandy peat and loam equally mixed, but I fancy that it is all the better of plenty of shade, my finest plants having been grown at the north side of a low Holly hedge and where sunshine rarely reached the foliage. Plenty of moisture is likewise indispensable in the culture of this plant. It is an uncommon species, having a fair-sized flower, with the labellum an unspotted white and the sepals and petals a dirty white.

The above half-dozen kinds of hardy Slipper Orchids have, I may say, done well with me under outdoor culture; but it might be just as well to bear in mind that they are arranged in this paper as I have found them easily managed, the first on the list giving no trouble whatever, but as the number increases, so do the troubles of getting the plants well established.

THE SIBERIAN LADY'S SLIPPER (*C. macranthum*) and the *Ram's-head* (*C. arietinum*) I could never manage out of doors; but I quite believe that if good healthy, well-rooted plants were put under my charge I would have to report more favourably on their growth and wants. They are both rare plants, rare in their native wilds and rare in the trade, and, therefore, to get fat crowns and long fibrous roots is almost out of the question. With the *Ram's-head* I did pretty well when placed in a pot under glass, but then it is perfectly hardy, and should need no such treatment.

What my plants thrive well amongst was decayed pins of the Douglas Fir, mixed with sharp river sand, and I hear from a friend that in its native country it frequently grows beneath the shade of Pine trees. Both are plants of great beauty, and well worthy of more than an average amount of trouble to cultivate successfully.

A. D. WEBSTER.

Lælia anceps alba.—This chaste and beautiful variety is now flowering in Mr. Bull's nursery at Chelsea, and is well deserving attention, the flowers being absolutely pure white, saving a stain of pale yellow on the disc of the lip. I am quite certain that these forms of *L. anceps* with white flowers will flower freely enough when they have been in cultivation a little time.—H.

Cypripedium villosum.—In this we have another good plant which appears to withstand the

ravages of the fog. We noted a good example, bearing twenty flowers, in the establishment of Messrs. Seeger and Tropp, in Lordship Lane, Dulwich, where very severe and dense fog has been experienced this season.

Cattleya leaves diseased (*W. F.*).—The leaves are not diseased, but they are terribly infested with thrips. You must be a beginner in plant culture; if not, anyone who has had charge of these plants and let them get into such a state deserves severe censure for downright carelessness and neglect. Fumigate the house every week, and wash your plant's daily with soap and tobacco water until the insects are eradicated. The leaves will never get clean.

Oncidium Jonesianum flavens is a distinct and pretty variety of this species, which was first introduced by Mr. Horsman, of Colchester, from Paraguay; the variety has pale yellow sepals and petals spotted with a deeper yellow, the lip pure white, with an orange crest. Many fine forms of this plant have appeared in our gardens, but the plant has not proved satisfactory; in fact, it has been treated too cold; it enjoys an abundance of heat and moisture.

Cattleya Trianae.—Some very fine forms of this grand *Cattleya* are now opening with Mr. Horsman at Colchester, and there will evidently be a fine display for some time to come. Such are the advantages of living without the radius of the London fog. In one or two collections near London all the flowers have been ruined by fog.

Odontoglossum hebraicum.—This is a beautiful kind introduced from New Grenada, and supposed to be a natural hybrid, and although not rare, it is not frequently seen; moreover, it is usually considered a summer flowerer; but I recently noted a fine spike bearing twenty flowers in the Studley House collection. The sepals and petals are pale yellow, profusely and curiously marked with chestnut-brown, the lip being marked with a deeper colour. Flowers of this same plant we also received from the Wilton House collection at Southampton.

GARDEN FLORA.

PLATE 686.

SNAPDRAGONS.*

The accompanying coloured plate of Snapdragons shows what a variety of self colours may now be had from the *Antirrhinums*. There is an unlimited range of colours, some, and the best, purely self, as those shown in the plate; others striped and variegated in rich tints, pleasing to a few, but very often weak from the crude mixtures. Now that hardy flowers in general are grown more largely than they ever have been, the old-fashioned Snapdragon has received its share of attention, and beautifies not only the cottage garden—the only place in which it was seen in years gone by—but many large gardens, and may be occasionally seen flourishing on an old wall, where it makes a picture of unusual beauty. An engraving of Snapdragon White Swan was given in *THE GARDEN*, Vol. XXXIV., p. 293, and if we could only have plants as full of flower and health as the one there represented, our gardens would be brighter spots than they often are.

Snapdragons may be had in flower all through the summer and autumn months, and among the varieties are some with flowers of the most beautiful self colours. Snapdragons are best when treated as hardy biennials. A pinch of good seed sown in a box or pan in a house or frame during the month of March will furnish abundance of plants for any ordinary garden; and when these seedlings are 3 inches or 4 inches high they may be placed in the box or pan in which they are growing in the

* Drawn for *THE GARDEN* IN MESSRS. VILMORIN'S grounds at Verrières-le-Buisson, June 10, 1888, by H. G. Moon. Lithographed and printed by Guillaume Severeys.



GROUP OF SNAPDRAGONS.(ANTIRRHINUM VARS.)

open air until the stems have become hard and wiry, and afterwards transplanted into whatever position they are to occupy; and by mid-summer, or soon after, they will begin to bloom, and will continue to do so until the end of November. As a rule no other hardy border plant flowers more continuously or more freely than the Snapdragon, and the side shoots that come so abundantly after the centre spike has done blooming afford most useful material for cut bloom at a time when flowers are of great value. If seed be sown as soon as the earliest pods are ripe, which on old plants will be about the end of June, a batch of seedlings should be raised from it sufficiently strong to stand the winter, and which will flower early in the ensuing summer. The best plants and the finest spikes are produced from those plants that have bloomed the previous autumn, as, if the tops have been partially cut down during the winter, an abundance of strong, robust growth will come up early in the spring from the base of the plant, and these shoots will furnish splendid spikes of flower, varying from 6 inches to 9 inches in length, and all open at once. These would be at their best probably about the middle of June, but if a goodly number of plants be grown there would be little difficulty in getting good spikes for the house all through the month. The Snapdragon is a very easily cultivated plant, and if horticultural societies could be induced to encourage its culture by offering good prizes for the best eight or twelve self-coloured spikes, it would doubtless receive more general attention than it does at present.

A few very showy forms of the Snapdragon are those with flaked and striped flowers, and these come very constant from seed. It is noticeable that seedling plants of this striped strain have stripes or flakes on the under sides of the leaves, and the stems are also sometimes marked in the same way. The flower markings are so diversified, that out of a batch of 100 plants scarcely two have flowers exactly alike. Many of them are also bizarre in character, having a coloured ground, and two other diverse colours flaked upon it. In securing a collection for any purpose, the beauty of some of the self-coloured flowers, or those that have white throats with rich coloured mouths, and especially those that have deep coloured mouths and orange or white lips must not on any account be overlooked. Most of these colours are found in the greatest perfection in the tall-growing strain; and as these, when in the second year of growth, will rise to a height of 30 inches, they should be planted several feet from the front of the border, in order that dwarf plants be not obscured. There is a dwarf or Tom Thumb strain that is perhaps best adapted for pot culture. These dwarf forms will grow to heights from 10 inches to 15 inches when in flower, and, in addition to a very free blooming habit, have colours that do not exist amongst the tall kinds. This dwarf strain is as hardy as the other, and requires the same cultivation; but if planted in the open border the plants should be kept in the front row. If seed of these be sown in the spring under glass, plants will be produced that will flower during August and September; and if potted up into 6-inch pots will make a rare display in windows at that time. There are a few double-flowered forms of Snapdragon, but these do not seed, and have to be propagated by cuttings. The flowers are very large and massive, and have a curious appearance, but are not worth growing when we have the pretty single kinds. It is always easy for the grower to perpetuate any kind by means of cuttings, which should be taken from strong side shoots in the

summer, and struck under a hand-light in some shady or cool situation.

FRUIT GARDEN.

STARTING LATE GRAPES.

LATE Grapes are now grown to such perfection and so well preserved after they are ripe, as to practically do away with or considerably diminish the necessity for early forcing. Well preserved old Grapes are firm, sweet, and well flavoured; they are consequently, with few exceptions, preferred to new ones which have been forced in all stages of their growth during the dullest period of the year, and when ripe lack both substance and flavour. This change in the practice of cultivating this much esteemed fruit for maintaining a supply all the year round is a considerable gain to the gardener in several ways, as the production of his stock of Grapes for the year is accomplished during the summer season. There is, then, a saving in fuel, his Vines are not debilitated through constant hard forcing, and fruit of superior quality is produced.

The cultivator who moves with the times and is ever on the look-out for any hints and improvement in the cultivation of the subjects under his charge, and is ready to adopt them as far as circumstances will permit, is becoming more and more convinced that first-class flavour cannot be produced without the aid of sunshine, not necessarily as a direct agent to colouring and perfecting the berries, but indirectly, by more highly elaborating the sap in the leaves during the ripening process. He, therefore, now starts his early Vines later and his late Vines earlier, by these means improving his early kinds by bringing their season of growth into a more genial time of the year; likewise the late ones by securing for them a longer season of growth to develop their keeping qualities, as perfection can only be obtained in some late varieties by making an early start. The generally inferior flavoured Gros Colman, the taste of which I have heard compared to that of Ivy, has been altered in character, and become eatable as well as saleable. No Grape illustrates and confirms the opinion that improved flavour accompanies good colour better than this variety. Berries deficient in colour are very inferior; the improvement, however, which takes place when the same Grape is thoroughly well coloured and matured is surprising; but this improvement can only be obtained by starting the Vines early, and by this means redeeming the character of this noble-looking Grape. Lady Downe's is another variety requiring a long season of growth to produce it in its best form and develop the rich flavour it is noted for, but which, under the system of late starting, was not often obtained; also to ensure its keeping plump until the month of May. Mrs. Pince, West's St. Peter's, and Trebbiano are all improved by a long season of growth.

The advantages of an early start are apparent in a season like that of 1888. When Vines which have started almost of their own accord stand little chance of maturing a crop of Grapes possessing any very high qualities, many try to promote colour and flavour in backward Grapes by applying fire heat late in the autumn, but the foliage has then lost its assimilating powers, and no amount of fire heat will produce good Grapes when once the leaves begin to decay. The best time, no doubt, to apply fire heat is at the commencement of the season, when little suffices to start the Vines into growth. Moreover, should the summer prove

hot and dry no harm will follow, as artificial heat can then be almost dispensed with during the remainder of the season. The middle of February is quite late enough for starting a vinery in which really late kinds predominate. I do not assert that all the varieties which are classed as late require quite so long a season as this would give—Alicante, Gros Maroc, and Alnwick Seedling being of this class. Muscats, however, are best started at the beginning of February to ensure their ripening about the end of August, and these I have found remain plump longer than those wanting a month's firing after the above date to finish them. To be prepared, then, for starting the houses at the above dates, they must be cleared of fruit and the Vines pruned before the end of the old year. The well-known system of bottling Grapes enables us to do this easily, and by starting early, the Grapes are ready for cutting in December, and the house can be cleared and thrown open for a short period of complete rest. This operation conduces to a strong and even break when the Vines are again started, and if exposed to several degrees of frost so much the better. The roots of late Vines are generally growing in outside borders, which of necessity become very dry by the time the fruit is all cut, water having been withheld for some time previously. It is important then to make sure of thoroughly saturating the borders immediately the Grapes are all cut and bottled, not being content with a single watering, but having first loosened the surface with a fork, repeating the operation two or three times, the last time with liquid manure if possible. Vines that are dry at the roots always fail to break and come away satisfactorily; therefore dryness at the roots must be guarded against. A surfacing of fresh material is also of great benefit. After the house and Vines have been thoroughly cleaned, the surface soil must be removed and replaced with a compost consisting of one-third loam, one-third wood ashes, and one-third pigeon's manure, and failing the last, one of the excellent artificial fertilisers now so plentiful may be used. Pigeon's or fowl's manure, however, is a most valuable fertiliser, and where either can be obtained it is much preferable to wet and heavy farmyard manure.

A. BARKER.

Dwarf Cherries.—Mr. Rivers, of Sawbridge-worth, replying to a query of ours *re* dwarf Cherries, writes as follows: "I have tried to find all I can about the dwarf Russian Cherries, but at present I can hear nothing. The dwarf Cherries which I know of are Cerise Indulle, Gros Gobet, Gobet Hâtif, Amarelle à Bouquet, Griotte d'Ostheim, Montmorency, Jeffrey's Duke, and Duchesse de Polluau. The first six named are varieties of acid Cherries grown in France and Germany for *compôtes* and preserving; the two latter are varieties of the May Duke."

Protecting the stems of trees.—From my experience I do not think there is any better or cheaper way, in the long run, of protecting the stems of trees from the ravages of hares and rabbits than by using fine wire netting, which may be purchased at a cheap rate, and be cut into lengths and fastened round by giving the loose ends a hook-like bend after they have passed through the meshes opposite, when they will hold together and last for many years without any further trouble or attention. This is more than can be said of hay-bands smeared or smearing the bark, the first of which soon rot and come off, and the last is not durable and very risky as regards the health of the trees. I have sometimes applied three or more thin strips of split Oak such as are generally used for paling, and secured them by passing pieces of wire round. I have tried Gorze and Whin in the same way, but neither are equal to the wire, which I

should strongly recommend all who have trees whose stems it is necessary to protect to use, as there is little or no obstruction to light and air, and no small animal can get at the bark.—S. D.

FRUIT GROWING.

MR. W. N. WHITE, in THE GARDEN, January 19 (p. 49), writing from Covent Garden Market, brings forward strong arguments against the extension of fruit growing in this country but I think those who contemplate embarking in it will look a little deeper before they give up the job as a hopeless one. I grant that there are faddists in this, as in other things, who go to extremes, but that does not in the least alter the main facts of the case. No one would, I suppose, expect to clear from £60 to £100 per acre by fruit or would keep on cultivating Broccoli to feed sheep on. These are very extreme cases, and I suppose Covent Garden salesmen meet with as many extreme cases as anyone. But we who are practical growers keep plodding on quite content if we can make a living by the mean average returns. We know all about Tomato failures out of doors last year, for if we cannot ripen them here we know it is useless to expect them further north.

I can speak from my own personal experience. During 1888 vegetables of all kinds were abundant and cheap, but our local growers do not complain, as they do not depend on London, but local markets, and good vegetables realised a ready sale. Every year some of our large vegetable growers who are farmers and sheep owners turn their sheep over the remnant of their green crops to clear everything off and leave the ground in good condition for ploughing or digging up for the next crop. Fruit growing is not going to suffer because Cornish Broccoli does not pay, and I have not heard anyone advocating the extension of open-air vegetable culture as a means of making anything more than a living.

But as regards forced vegetables that realise high prices, I see no reason why we are to accept Mr. White's verdict as conclusive that such things cannot be produced in this country simply because he failed to grow salads in Cornwall. Englishmen, as a rule, are not deterred from trying again by one or two failures, and why manure cannot be obtained here as well as in France passes my comprehension. As to climate, with cheap glass and fuel, we are certainly not going to give up as a hopeless task the production of anything except tropical fruits that can be brought and sold at a price that we could not hope to compete with.

It is in the cultivation of hardy fruits that I fail to follow him, for he says, "I realised as much as 18s. per bushel for American Apples, but cannot sell the English ones I have on hand at 1s. or 2s. per bushel." Now the question is this, Did the buyers purchase the American Apples because they were American, or because they were the best? for if he alone can sell 50,000 bushels in a few weeks, all we have to do is to grow them equal to the American fruit, and we can sell ours as well. There is no prejudice against, but a decided preference for, the English grown fruit if it can be got, for I have between 3 acres and 4 acres of mixed fruits, mostly Apples, and they are certainly the most profitable fruit I grow. My trees are mostly bush specimens, the majority having been planted five or six years, and the price the fruit realised averaged from 5s. to 10s. per tree. They are by no means the only crop I get, as they are planted in rows about 15 feet apart and about 8 feet to 10 feet in the row. Between the rows we have room for a good bed of Roses, Violets, bulbs, or any kind of flower, vegetable, or shrub we want to grow. The Apples from these bushes were of large size, and I sold them readily at 8s. per bushel. I have to pay £10 an acre for land that is not so good as I could get for £2 per acre in the country, for I live in the suburbs of a populous district where every scrap of land is being bought up for building, and if I had to send my fruit to Covent Garden it would mean 50 per cent. taken off, and I should have to give up Apple growing here. I should have no fear

of the results out in the open country if I could get land on a long lease or with reasonable compensation for improvements. It is quite true that orchards of standard trees take a long time to become profitable, but they are only fit for landowners. What one does another can surely attempt to do, and I am fully convinced from my own experience that hardy fruits, and especially Apples, can be grown and sold in this country at a good profit.

Gosport, Hants.

JAMES GROOM.

THE HARDY FRUIT GARDEN.

WE have just finished going through the Strawberry beds and removing any few runners that may have been missed or that have grown since early autumn, and I could not help thinking during the operation what a large return one gets from this favourite fruit for a small amount of labour. The system may not answer in stiff, heavy soils, but here, in West Surrey, with our light, sandy loam, it is invariably the custom to get at the plantations as soon as all the fruit is over; remove everything in the way of runners, fruit stalks, dead foliage, &c., and give immediately a heavy top-dressing of half rotten manure, which remains until removed with other superfluous matter the following summer. No other mulching is necessary, for by the time the fruit requires a clean resting place the loose part of the manure will have assumed the character of a surface dressing of short straw quite sufficient for all the requirements of the fruit. I am aware that some growers object to this early autumn mulching, and suggest that it has a tendency to encourage a sappy and partly unnatural growth that is peculiarly susceptible to winter frost, but I have not found this effect produced, at any rate on the class of land to which I refer. My idea is that it rather seems to accomplish just what is required in the building up anew of the plant after its energies have been exhausted by the production of fruit. The above observations apply also to the Raspberry, both as to the early removal of all superfluous canes, whether those that have fruited or those not required for another season's supply, and also to the surface mulching; indeed, it seems to me, that with both the above-named fruits one cannot too soon clear away everything that is not wanted for another year, and it is interesting and instructive to note in the case of the Raspberry how very quickly the remaining canes will ripen up when they have plenty of light and air. Except in cases where the planting has been thoroughly well carried out at the outset, there is often work to be done in the Gooseberry and Currant quarters during the winter months. In the matter of the first-named fruit, I have more than once called attention to the advantage of the trellis system of culture for dessert fruit; there is very little trouble attached to it when the trees have once covered the trellis, and if care has been taken to plant for a succession, a supply for the dessert is ensured from these trees as long as Gooseberries last. A certain amount of method should also be shown in the planting of the regular Gooseberry quarter, as it is not advisable to mix the varieties indiscriminately, but rows should be respectively devoted to large varieties for early picking, for bottling, for later cooking purposes, and for preserving. This may seem rather a trivial matter, but it is a decided saving of labour, as the picker knows exactly where the several sorts are to be found without hunting all over the quarter, and it is also a great advantage where netting has to be practised, rows are cleared regularly, and there is a great saving of netting. We always prune early, dust with lime after a syringing with a strong mixture of soft soap and water, mulch a yard from the trees, and lightly fork over the remaining ground. I have found a similar method of planting very serviceable in the case of Red Currants. Short stretches of wall respectively south-west and north-west furnish a supply for early and late kitchen purposes, whilst the regular quarter is left entirely for preserving, and a small piece of wall is also reserved for the White Currant. This system of wall culture has, however, its drawbacks, the trees requiring nearly as much attention as stone fruit. I find the Plum aphid very troublesome, and unless

this is kept well in check the fruit gets very dirty and practically unfit for picking. A quantity of very fine fruit is, however, obtained in this way from a limited area, and the little extra labour is amply compensated for.

E. BURELL.

Claremont.

APPLE STOCKS AND COLOUR.

IN "A. D.'s" interesting article on the above he appears to think that stocks exercise a great influence on colour in Apples, but I am of opinion that they have little or nothing to do with it, and that sun, light, and atmosphere are the agents that put on or bring about the rosy cheeks of the fruit. This is pretty clearly shown in those we get from America, the skins of which are so waxen and beautiful in finish, as to make one quite dissatisfied with the appearance of most English grown fruits, while the contrast it affords is the chief reason for the demand there is for the American supplies. If stocks did exercise any of the supposed influence, we should only have to graft on highly coloured sorts, such as Red Astrachan in preference to Crabs or other stocks, to add to the rich tints of certain sorts. But if we want these tints at their best we must obtain them through the agencies mentioned above, together with healthy root action and foliage. Trees, too, must be kept thin and open, or the solar rays will not reach the fruit fully, and the difference between such as are exposed and those which are shaded may be seen at a glance. This is very striking in the case of Apples on cordons and those on bushes or trees growing more naturally with many shoots or branches, which in some measure obstruct the sun and light and cast a shade on or over the fruit. I am the more persuaded that we must not look to stocks for colour, as black Grapes come just as black when grafted on white varieties as on their own roots, and *vice versa*. Roots do, no doubt, have something to do with colour, and the nearer they are to the surface, in reason, and the more fibrous they are the better, as the food they supply is more in accordance with the plant's requirements, and less crude than that which they get from below. Feeling that this is so, I should not regard the Crab as the best stock for Apples, as its tendency is to strike down, while it is not adapted for light soil, in which Apple stocks make plenty of fibres.

J. SHEPPARD.

Apple Cornish Gilliflower.—There is no Apple with which I am acquainted that is more influenced in its flavour by soil and climate than this. I have just come from a fruit-room in which a quantity of this Apple is stored, the fruit being even in size and as plump and fresh as when first taken from the tree. What struck me as the most remarkable feature was the powerful aroma of the fruit when cut in half. I am, of course, aware that this is one of the characteristics of the sort, but for several years I have been a stranger to this quality, as the fruit which has been produced by a pyramid tree possessed this feature in only a limited degree, and, what is equally as remarkable, the richness of flavour for which this sort is so well known has also been absent. During the past few years the flavour has been so poor, that I could not send the fruit to the table. The fruit which I have just seen was produced by trees growing in a rich and deep loamy soil in a well sheltered garden, and as regards size, colour and flavour left nothing to be desired. The pyramid tree to which I have referred as producing inferior flavoured fruit is growing in a heavy cold undrained soil, and it is quite clear that to this cause the bad quality of the fruit can be traced. If that is not the case I do not know any other reason, seeing that the two gardens are in the same neighbourhood and therefore subject to the same climate. My experience of the bearing capacity of this sort of Apple is that although not a heavy cropper it bears pretty regularly. There is not a doubt but that it is better suited for a rather light, well-drained soil than a heavy one. There is no better dessert Apple in its season—April and May—than this. We sometimes hear complaints of the fruit shrivelling, but this arises through its having been

gathered too soon. To get the fruit properly matured it should hang on the trees until the end of October.—J. C. C.

STANDARD PEARS FOR BRITAIN.

1. BEURRE SUPERFIN.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.
6. EMILE D'HEYST.
7. GLOU MORCEAU.
8. THOMPSON'S.
9. BERGAMOTTE D'ESPEREN.
10. ALEXANDRE LAMBRE.
11. NOUVELLE FULVIE.
12. OLIVIER DE SERRES.
13. COMTE DE LAMY.

Early Pears.—Citron des Carmes, Doyenné d'Ete, Williams' Bon Chrétien, Beurré Giffard, Jargonelle, Seckel.

Cooking Pears.—Catillac, Uvedale's St. Germain, Gillogil, Bellissime d'Hiver.

Perry Pears.—Taynton Squash, Thorn Pear, Barland, Yellow Huffcap, Moorcroft, Longlands, Chaseley Green, Aylton Red, Red Pear, Rock Pear, Dymock Red, Oldfield, Butt, Holmer, Red Pear, Rock, Bosberry Scarlet, Lumber-skulls Marden.

M. CHARLES BALTET, of Troyes, France, who has a most profound knowledge of hardy fruits in France, and whom we have seen stage hundreds of sorts in first-rate condition, writes us as follows about the best winter Pears: "According to your request, I indicate the four best winter Pears as remarkable for first-class quality as for the hardiness and vigour of the tree: 1, Nouvelle Fulvie; 2, Doyenné d'Alençon; 3, Charles Cognée; 4, Bergamotte d'Esperen. I have placed them in the order of maturity. These varieties are good for all forms. They are suitable for the climate of the north of France and Belgium, where they are very much appreciated." The above was sent in reply to a letter of ours, in which we impressed on him that the first question was quality attainable in the north of France and presumably in England. These Pears he gives for the present and coming months, and therefore most important, as coming at a time when there are so few Pears in garden or market. Having for many years seen evidence of M. Baltet's knowledge of fruit culture, we submit these names to our readers' consideration, asking for their experience of these kinds in this country.

Pear Josephine de Malines.—I can fully agree with all that "J. G. H.," in THE GARDEN, Jan. 19 (p. 47), says in favour of this fine Pear, which without question is the very best for this time of year, as when left out on the trees as long as it will hang in the autumn, it always comes good and finishes up well for the table. We have a lot of it now mostly from trees grown as pyramids and bushes. I cannot say that I like the style of growth, which is loose and irregular, and the foliage always narrow, small and sparse, and quite unlike that of any other Pear, whilst "J. G. H." states that the trees are remarkable for their full leafage which keeps the frost off the fruit. This is not the case here, and from what I mention above, I need hardly say that the fruit of no other variety of Pear is so exposed. This, however, is an advantage, as the fruit is of course benefited by full light and having the sun's rays hitting right on it, and it is all such that have the best colour and richest flavour. We always endeavour, by timely removal of young shoots from the spurs, to shade the fruit as little as possible.—J. SHEPPARD, Woolverstone.

Pear Jargonelle.—In the article on the Jargonelle Pear in THE GARDEN of Jan. 19, the writer states that he has only once seen a standard tree. Should he have occasion to be in Edinburgh he may see another in my garden. I regret I am unable to give the age of the tree, but, judging from the dimensions and the little change during the last forty years, it must be of a great age, although

perhaps not quite so old as some of those referred to. The girth of the trunk at the ground is 4 feet 10 inches, and at 9½ feet up where it begins to branch 4 feet 7 inches, the two main branches being each 3 feet and 2 feet 7 inches in circumference. The height of the tree I find is 32½ feet and the spread of the branches 31 feet. The tree is in perfect health and every year a sheet of blossom, and in favourable seasons carries a heavy crop. Its great enemy is the March biting east wind, of which we have usually a good share, and which frequently tells severely upon it. Six or seven years ago it escaped the frosty wind while in blossom, and upwards of 4000 Pears were gathered from it. They were, of course, mostly small that year, but generally there are many good-sized fruits of excellent flavour.—ALEX. FRASER, Canonmills Lodge, Edinburgh.

FRUIT NOTES.

EARLY VINES.

PAY daily attention to tying down, stopping, and regulating, also remove superfluous bunches, leaving one only on each shoot, and be well prepared with Hamburg pollen for fertilising purposes when shy-setting varieties come into flower. Hamburgs do not often receive this attention, but drawing the brush lightly over the bunches does them no harm, especially in the event of the Vines being young and extra strong, or, on the other hand, too weak to perform this office for themselves. All the Frontignans and Sweetwaters, of course, should be looked after, and Muscats, when they come into flower, can be greatly assisted by drawing the points of the bunches up to the light. Having strongly advocated a low temperature throughout the past dull, sunless weather, especially during the night, I must now advise a gradual and steady increase to a minimum of 60° to 65° and 10° higher through the day by the time the first flowers open, also a slight diminution in the supply of atmospheric moisture, as Grapes always set best in a brisk temperature with a circulation of fresh air warmed by some contrivance before it reaches the foliage. Draughts at this season are very dangerous, and often do serious mischief in chilling the foliage and rusting the berries before their existence is suspected. The best preventives are a chink of night air on the apex, to prevent the gathering of vitiated vapour and the admission of air along the front through a sheet of rough canvas, little and often as the temperature rises, but never in quantity likely to result in a depression. The top ventilators on dead calm days may be opened a little, but sparingly, when keen cutting winds are likely to create a vacuum by carrying away the heated air the moment it is generated.

Succession houses containing mixed varieties may be syringed with warm water two or three times a day, more or less according to the state of the weather and the quantity of fermenting material used for softening the atmosphere. Aim at a temperature ranging about 56° at night and 65° by day until the bunches are prominent, then discontinue direct syringing, but damp the floors and walls, and run up well on sunny days to draw out the clusters. Muscat-flavoured Grapes should have the warmest part of the house, and in order to secure the highest attainable flavour in Gros Colman, a Vine or two should have a place in this long-season compartment.

LATE HOUSES.

As the Vines in this compartment have been pruned and cleansed and are now resting, the most important point is a firm determination to keep pot plants of every kind out of it. If outside borders are satisfactory, a light covering of fresh stable litter for keeping out frost may be placed over them, but beyond this, the usual rainfall and exposure to the atmosphere will have a beneficial influence. The inside borders to some are an enigma which they hardly know how to unravel. Renovation, it is quite certain, cannot be undertaken so long as the Grapes are hanging, and disturbance of the roots immediately after they are cut often paralyses them to an extent past recovery, and yet

there is a suitable time for carrying out this work in a most satisfactory manner. Patience, then, for the present must be the watchword, but so soon as the sap begins to move and the buds to swell, steel forks must come to the fore, for no time must be lost in removing the old and bringing in the new compost. Advantage may be taken of dry or frosty weather for making up the material in an open, airy shed where it may be stacked in long, narrow ridges and well packed with hot manure or leaves to induce fermentation. When the time comes for using the compost, the fermenting material must not be included, but the addition of a little fresh manure or leaves will form an invaluable mass for filling in that part of the border area unoccupied by soil, when the gentle warmth thus imparted will start the roots into immediate action and the Vines will hardly look behind them.

POT VINES.

Yearlings cut down to the lowest bud last month and kept dry in a cold house may now be placed in heat, where they must be gradually moistened to excite growth before they are shaken out for re-potting. If cutting down was succeeded by a dressing of styptic, bleeding will hardly set in, but prevention being better than cure, a second dressing before they are taken in may be advisable. When the buds have grown from 1 inch to 2 inches, the strongest and most promising plants should be selected for shaking out. Meantime clean pots, not larger than those in which they have been grown, crocks and compost should be made ready for use, especially the latter, as all composts in which bone-dust and other highly concentrated stimulants form a part are greatly improved by lying for two or three weeks in a dry, warm potting shed or early vinery.

HARDY FRUITS.

If the planting of fruit trees was cut short in the autumn, advantage should now be taken of dry days not only for preparing the stations by throwing out the soil and putting in the drainage, but also for wheeling to the different spots the necessary supply of fresh compost. A crisp frosty morning is most suitable for this work, but instead of tipping it at once into the holes or trenches, it should be laid loosely by the side to get thoroughly pulverised by the time it is wanted. We sometimes plant as late as April, but should the weather be fine and open and the compost in good dry working order, I should not miss the opportunity in February. Next to having the soil dry enough to bear treading and firming over the roots, the most important matter is protection from wind-waving. Stakes for standards and dwarfs should be driven into the solid subsoil before the trees are planted; indeed, where mathematical precision is important, the stakes should be set and driven to the line before the spade is put into the plot or border.

If grafting is contemplated, now is the time to cut the scions, also to head back the stocks, as half the battle depends upon the performance of this work before the sap rises. The shoots intended for scions should be dipped to ensure freedom from insect pests, and then laid in under shady trees or hedges. In cutting back the heads of large trees each branch should be left long enough to allow for a second cut, say a foot lower down, when the time arrives for grafting. Then, again, to prevent too severe a check, a goodly number of medium shoots, capable of carrying one or perhaps two grafts each, should be left for this purpose. Old trees grafted last year also should be examined and divested of any clay that may be adhering to them prior to cleansing with soapsuds, strengthened by the addition of Gishurst compound, not less than eight ounces to the gallon. If American bug has got into the incisions this mixture will destroy it, when re-claying, especially over the crowns of large branches, will hasten the spread of new sap-wood. If the majority of the scions have made a good growth, the strongest may be shortened back to cause a break near home, that is, where more shoots are wanted to form the framework of the tree. The removal of spray from the stocks must be regulated by their vigour, as well as that of

the grafts. If the latter are very strong and capable of taking the full flow of sap, the spray may be removed. If weak and likely to be overpowered by the spray, then the latter may be well shortened back, but not entirely removed until next autumn. Trees that were grafted two years ago, the scions, several on a crown, having taken well, may now be thinned to let in light and air, as too many growing scions, especially in the centres, often work irreparable mischief the third year. If cut clean off with a chisel just above the union, they make the best of scions for future operations.

Work in the walled garden should now be slack, especially where all training has been kept well up to date. Peach trees washed and resting a few inches from the wall may remain in this position until the flower-buds begin to swell freely and show colour, when the time for laying in will have arrived. Young trees which made strong wood, it is to be feared, have ripened badly, and most of the shoots will require extra shortening, but not at present, the middle or end of March being quite early enough for pruning and training. If the walls have not been washed with the old brick-red colour, now is the time to do so. A fine day when the walls are dry should be chosen, and the more the wash is worked into the joints and nail holes, the more effectual the destruction of insects. Apricots on south walls will soon be on the move, but as yet they are not too far advanced to admit of another washing with soapsuds through the garden engine. This excellent and invigorating insecticide suits stone fruits quite as well as it does Apples and bush fruits; in fact, I question if it does not convey to the soil in old gardens the very elements for which so-called worn-out trees have long been languishing, and yet, the thrifty cottager excepted, it is to be feared the masses of horticulturists allow this solution of soap and soda to run to waste. When the trees have been washed for the last time, at least for the present, the poles may be fixed and the coping boards and nets got ready, but on no account must they be put up until the flowers are on the point of opening. Trees on west walls, of course, will be more backward, a most decided advantage where spring frosts are troublesome; this, however, is not the only gain, as trees facing west get thawed by a general rise in the air temperature before the sun touches the flowers. A good crop of Apricots is the main point, whether the fruit ripens in July or August is a matter of secondary importance.

W. C.

PROPAGATION OF VINES.

ALTHOUGH tens of thousands of pot Vines are sent out annually by the trade, being so easily propagated by means of single eyes, cuttings, and layers, there is hardly a Grape grower in the kingdom who does not endeavour to set the Phylloxera at defiance by striking a few for his own use every year. In the selection of wood for supplying single eyes, the great secret of success consists in having thoroughly ripe wood, neither too strong nor too weak, but the best of the spur prunings with hard, plump buds perfectly formed. The next point is a brisk, but steady bottom-heat from good tan or the ordinary hot-air chamber common in propagating houses, where Cocoa-nut fibre forms an excellent plunging material; nay, more, cuttings or eyes will strike freely enough in this material without the aid of soil, but being liable to go off immediately after they are lifted and potted, the safest and best plan is to insert them singly in 3-inch pots or cubes of turf and to shift them on as they require more room for their roots. Nurserymen who convert single eyes into fruiting canes in the course of a season put in the first batch in December or early in January; but then their pits and houses are specially prepared for the work, whilst private gardeners whose aim—often under great difficulties—is the production of good planting Vines succeed best by deferring the start until the middle of February. This being so, now is the time to commence, first, by securing a steady bottom-heat of 80° in a close, but light propagating pit; second, by filling rather firmly the requisite number of small pots with sandy loam dry enough to bear pressure with-

out becoming pasty. The eyes may be prepared by a clean cut half an inch above and below the bud or by taking them out with a sharp knife, as the budder of fruit trees extracts his buds in August; but so accommodating is the Vine, that it matters little how the eyes are prepared provided the top and especially the bottom-heat are steady and lasting. The pots or cubes of turf and buds being ready, the ordinary method is to take out a little soil, replace it with silver sand, and press the bud firmly down until it is just level with the surface, when a slight sprinkling through a fine rose will be necessary to consolidate the sand and the bud. When dry, the eyes will be ready for plunging, not necessarily in strong heat at once, as some propagators prefer placing them in a close temperate house for ten days or a fortnight to favour the formation of the callus, when the roots and shoots start simultaneously into growth. When the young plants have exhausted the sap contained in the bud in the formation of the first one or two tiny leaves, very steady top and bottom heat will favour the formation of the first set of roots, and when they touch the sides of the pots, as will be indicated by the fresh healthy appearance of the foliage and the elongation of the shoots, the amateur's ordinary stumbling-block will have been left behind. From this time forward the syringe may be used rather more freely, but an excess of water in the tightly compressed soil being fatal, the lightest dewing over from the time the eyes are inserted until they are fit for the first shift into 5-inch pots should suffice. When the young plants are transferred to larger pots, the compost, consisting of sound loam, a little old brick rubbish, and a handful of bone-dust, should be thoroughly warmed before it is used, and, considering that they must be replunged in moist tan or fibre, the supply of water must be extremely limited. As days increase in length, and brightness and solar heat become more powerful, rapid growth will justify an occasional root-watering, and the spread of the young leaves will necessitate rearrangement, when very loose or half-plunging will form the first step towards getting them out of the bottom-heat, but not off the warm bed so long as the close pit affords head room.

Hardy or outdoor Vines in wine-growing countries are increased by cuttings a foot or more in length, and being thoroughly ripe when put into the trenches where they are to remain, they strike as freely as Willows. In this country, on the contrary, imperfect maturation renders them extremely uncertain, hence the importance of selecting young wood from old Vines having a full south aspect. When wood of this kind can be procured, the cuttings after being disbudded should be planted on warm sandy borders or against walls, and treated precisely as we treat Gooseberries and Currants. The result then, even, is uncertain, but unless a great number of young plants are wanted the difficulty can always be got over by inserting short bits of wood, 4 inches in length, in sandy soil, leaving a single bud exposed and covering them with cap glasses. Early autumn, immediately after the fall of the leaf, is the best time to put in the cuttings.

Layering Vines is the oldest mode of increase known in this country, and being extremely simple, those who cannot command ripe cuttings may readily obtain good canes in twelve months by pegging down suitable pieces of wood during the autumn or winter. Indeed, so accommodating is the Vine that old rods of any length laid down flat and pegged into the surface of any good garden soil will form a complete gridiron of roots, whilst shoots from each bud allowed to grow well form fruiting Vines by the end of the summer. When the wood is ripe, these old root-stocks may be cut into as many pieces as there are rods, when the latter may be lifted for potting or planting.

This mode of increase, I may say, is equally applicable to Vines in hothouses, as we have laid down old canes 15 feet to 20 feet in length within a few inches of the front wall plate, when young rods taken up 3 feet apart have filled the house with superb fruit-bearing wood by the end of the

season. The inside borders, it is hardly necessary for me to say, should be made of new compost as for planting canes, and connection with the parent stool should be cut off when they are thoroughly established. Mr. Miller, of Coombe Abbey, some years ago adopted a very simple and ingenious mode of manufacturing fruiting pot Vines by filling a number of pots of suitable size with good compost; these he ranged in single file along the front of the house and placed a long strong rod over their centres. By means of stout hooked pegs this rod, with a good bud immediately over the centre of each pot, was made secure; roots in due course struck down into the compost; all growths from superfluous or intermediate buds were restricted or destroyed, whilst those which emanated from the special buds were trained and manipulated in the usual way. Nicking or notching layers is not absolutely necessary, as canes, young or old, pegged firmly into warm moist soil throw out a profusion of roots.

W. C.

FERNS.

W. H. GOWER.

DIPTERIS.

THIS is a small family of beautiful plants; indeed, I do not think that more than three species are yet known. Two of these have long been in my possession in a dried state, and for years I have been anxiously looking for their introduction alive, but up to the present time I have not been rewarded. At the present time, however, when Ferns are again becoming popular, there is a possibility of getting them, and as they are so entirely different from anything we have in the way of Ferns, their introduction would assuredly well repay the trouble.

Dipteris belongs to the polypodiaceous Ferns, and is still by some retained in the genus Polypodium, from which, however, in its restricted form it is totally distinct in its venation. Dipteris comes very near to the genus Drynaria, which indeed I look upon as its nearest relative, but this it differs from in its manner of growth. From the rhizome, which is creeping, much branched, and woody in texture, rise slender stems, supporting large, leathery, fan-like fronds.

D. HORSFIELDI.—This is an exceedingly pretty plant, the stem being slender, and from 3 feet to 4 feet high. The fronds, varying from 1 foot to 3 feet in length and as much in breadth, are fan-shaped and coriaceous in texture, with deep lobes and deeply toothed edges, the main veins very prominent, the sori small and very numerous. The upper side is deep green, beneath deeply glaucous, which lends an additional charm to the plant. It appears to be common in the South Sea Islands, and it is found in Fiji, from whence someone should send it. It is also found in the Malacca Islands. Will not some of our Orchid importers instruct their collectors to send this plant home?

D. WALLICHII.—This is a very distinct plant from the previously named one, and, judging from the specimens, it is not glaucous on the under side, consequently not so pretty. It is a much stronger growing plant than Horsfieldi, and being a native of Northern India, it is curious that no collector has ever sent it home. The stem is stout, of a deep chestnut-brown when dry, 3 feet or more high; the blade of the frond is upwards of 3 feet long, fan-shaped, and from 3 feet to 4 feet broad; it is deeply lobed, the edges being plain; it is very thick and coriaceous in texture, the principal veins very prominent, while the small sori are very numerous. The upper side is of an intense deep green, but underneath the colour is of a somewhat rusty brown.

These two plants only require to be known to be highly appreciated, and I think some of the numerous collectors who are now scouring the eastern regions in search of new plants

should turn their attention to these two Ferns, which have never yet appeared in this country in a living state.

HARDY EXOTIC FERNS.

A READER, "G. J.," whose question on cool stove Ferns I answered a few weeks ago, also asks for information upon exotic hardy Ferns. This I will attempt to give, but at the same time I hope "G. J." will allow me to remind him that there are hosts of varieties of our British kinds which would afford him excellent variety without touching the foreign ones at all. I do not know if "G. J." is a botanist, but if he is, in all probability he would scarcely think I should take notice of these, for I know personally how some of the leading botanists of the day have passed them over as not fit to be grown. Though some of the varieties of our native Ferns are not beautiful, there are yet many hundreds, far more so than the acknowledged species, and many of them so distinct, that had they been found years ago, we should have had them described as much-admired species. However, my mission is now to enlighten "G. J." on some of the most beautiful of the exotic hardy Ferns suitable for planting in a large fernery in the woods. This recalls my younger days when I had several ferneries so situated under my charge. My favourite Fern then, and has been for thirty years, is the American Maiden-hair,

ADIANTUM PEDATUM (see illustration).—I do not think there is another Fern to equal it in beauty. The fronds grow from 1 foot to 2 feet in height, stems jet black, supporting a large broad frond, the pinnules being large and light green. It is a deciduous plant, and in exposed situations I used to peg its own dead fronds over the crown in winter, but in ordinary situations I do not think this is necessary. It is at once the most charming of all hardy Ferns.

LOMARIA CHILENSIS is another grand Fern for the open-air fernery, and I have had it with fronds 5 feet long. The fertile fronds are much contracted and die off in the autumn, but the sterile ones in ordinary winters remain green. It is a Chilean plant which is referred to *L. procera*, from which, however, it appears in cultivation to be distinct.

ANCHISTEA VIRGINICA is a very handsome Fern from Canada and the United States. The fronds, each from 2 feet to 3 feet high and about 9 inches broad, are of a pale green colour, the sori being copious and very attractive. It is a deciduous kind, its creeping rhizome requiring during winter a little protection, which can be afforded by its fronds.

ONOCLEA SENSIBILIS.—This is another beautiful and distinct Canadian Fern, which is also widely distributed in North America. The fronds, each varying from 1 foot to 24 inches in height, are of two forms; the sterile ones are deeply lobed, the segments broad and bright green, the fertile ones contracted into berry-like segments. It is deciduous.

OSMUNDA CINNAMOMEA is another deciduous Fern, which produces fronds of two kinds, in which it differs from all the other Royal Ferns. The barren frond, which is from 1 foot to 2 feet in height and longer than the fruit-bearing one, is twice divided, arching at the top and light glaucous green. The fertile ones, which rise in the centre, are hairy, and of a deep reddish brown. It is a native of North America, &c.

OSMUNDA INTERRUPTA, also known by the name of *O. Claytoniana*, is a most interesting, handsome, and distinct kind. When well grown it attains a height of some 3 feet; the fronds are twice divided, broad, and deep green, some few of the middle pinnae being contracted and bearing the sori, by which character it may be easily recognised. It is plentiful in Canada and the United States.

STRUTHIOPTERIS GERMANICA AND *PENNSYLVANICA*, the Ostrich-feather Ferns, are noble hardy plants far too seldom seen in private collections; their rhizomes creep under ground and spread rapidly, soon forming a dense grove, and upon that account they require a space set apart for them. They produce fronds of two kinds; the sterile ones are twice divided, some 2 feet or 3 feet high, plume-like, and deep green; the fertile ones rise up in the centre of the barren ones, are much contracted and erect, the American plant resembling the German one, saving in its larger size and more erect habit. These two plants produce a very tropical effect in an open-air fernery.

CYRTOMIUM FALCATUM.—This is a Japanese plant of great beauty, which thrives well in the hardy fernery, but it never attains the dimensions of the previously named kinds, and should be used in the front rows. It grows from 1 foot to 2 feet high; the fronds are pinnate, about 6 inches long, and dark shining green. It forms a large scaly crown, and I have usually given it the protection of some old Fern fronds in winter.

ONYCHIUM JAPONICUM is another plant from Japan which I have found thrives well in the open

be expected to produce any great display. There are many of these, however, which can be planted in suitable nooks after the main planting is done, and this work should be pushed on now so that the plants may be removed before root action sets in, as I know from experience how much Ferns suffer from injury to the young roots.

THE FERNERY.

It is rather early yet to commence repotting established Ferns. Young plants or any that require shifting on into larger pots may be potted at any season of the year, provided they are grown in a temperature high enough to keep them in active growth. But where the plants are in a dormant state they should not be disturbed at the root during the winter months. Any plants that have got into an unhealthy condition and require to have the old soil shaken from the roots should not be disturbed until they begin to start into growth, and the same remark applies to those that are to be divided or are to have their roots reduced. A great deal may be done, however, in the way of pre-



American Maiden-hair Fern (*Adiantum pedatum*).

air, but I have always accorded it the protection of some dead fronds of the common Brake Fern. It is an elegant front row plant, producing fronds from 1 foot to 18 inches high.

LASTREA SIEBOLDI, from Japan, is a plant with fronds from 1 foot to 2 feet high, and, therefore, suitable for a front place only; the fronds are once divided, with very long and broad leathery pinnae of a light green. It is a charming distinct species.

LORINERIA AREOLATA.—A handsome, bold-growing Fern which should find a place in every large fernery. It grows some 18 inches or more high, producing fronds of two kinds; the barren ones are once divided, the lobes being broadly lanceolate in shape, toothed at the edges, and bright green; whilst the fertile fronds are much contracted. It comes from North America.

The above are some of the showiest hardy foreign Ferns, selected because of their distinct appearance from our native kinds. Of course there are a host of others suitable for the situation you name, but many of them are similar in appearance to the English kinds to a casual observer, whilst the small-growing sorts cannot

paring plants for what is to be done later on. In the first place, it is necessary to take care of any delicate species, especially if they happen to be over-potted. Although I do not believe in drying Ferns off too much, yet it is necessary to water very sparingly those that have lost most of their fronds. Many Ferns which are considered evergreen lose a great many of their old fronds just before they start into fresh growth in the spring. It will be all the better to preserve the old fronds as much as possible, but all that are too far decayed should be removed, and dense growing sorts should be cleaned to prevent anything coming in contact with the young fronds and which may cause them to damp off while they are in a young and tender state. Much will depend upon careful attention to Ferns just at this season of the year. If thoroughly cleansed from any insect pests while they are in a dormant state, it will save a lot of trouble later on, and will also prevent the fronds being damaged while in an immature state either by the insects or by the cleaning. Of insect pests, scale and black thrips are the greatest enemies to Ferns. In cleansing them from scale great care should be taken that the spawn is not left behind, and the plants

should be held over a pail or some other receptacle to catch all the insects as they are brushed off. After the plants have been cleaned, the surface of the soil in the pots should be removed. It is very difficult to thoroughly eradicate thrips. Most of the sorts that are subject to this pest can be sponged, but this requires to be done three or four times, allowing only a day or two to elapse between each operation. Green-fly will often make its appearance in the spring, especially on *Adiantums*, but if the plants are in a healthy condition they will not suffer, and the fly will disappear as the growth of the plants becomes matured. Where Ferns are planted out, a little of the surface soil should be removed after everything has been properly cleaned, and replaced by a good covering of fresh compost, taking care to work it well round the stems of such sorts as the *Pterises*, *Aspleniums*, &c., which as they advance in growth produce roots above the surface. I believe that Ferns frequently get into a weak state through the exposure of that portion of the stem whence young roots are produced. Under natural conditions this want is provided for by the accumulation of leaves, &c., a point which is not always borne in mind by those who cultivate Ferns. A.

TREES AND SHRUBS.

WINTER-FLOWERING SHRUBS.

FIRST and foremost among hardy shrubs that flower at this season of the year must be placed the winter Jasmine (*Jasminum nudiflorum*), whose bright green, but leafless branches are wreathed with golden yellow blossoms, and in this state are often objects of beauty for months together. Whatever support be accorded it, whether it be a wall or fence, by far the most pleasing way of training this Jasmine is to secure the principal branches in position and then allow the plant to grow at will, as thus the long flexible shoots dispose themselves in a very graceful manner. In addition to its other desirable qualities, this Jasmine is a first-rate town plant, for it will both grow and flower well in smoky districts. If the sprays are cut just as the earliest blossoms are on the point of expanding, they will open well in water, and a few twigs of this, with the coral berries of *Cotoneaster Simonsi*, furnish a pretty winter nosegay. Another shrub whose blossoms must be sought for on a south wall is *Chimonanthus fragrans*, which is remarkable not so much for its showy as for its deliciously fragrant blossoms. So pronounced is the perfume of the starry flowers of this *Chimonanthus*, that a few of them will scent a good-sized room. There is a variety of this (*grandiflora*) the blossoms of which are larger, and consequently more showy than those of the type. Two other sweet-scented wall shrubs are the winter Honeysuckles (*L. Standishi* and *fragrantissima*), the blooms of which are, as a rule, rather later in expanding than those of the two shrubs previously mentioned. With regard to the Honeysuckles, *L. Standishi* is of quite shrub-like habit, forming a somewhat erect-growing bush, with leaves that are hairy on both surfaces when young, but when mature, almost smooth on the upper side. The foliage of this is deciduous. The flowers are white, borne during the winter months, and are deliciously fragrant. Though it will cover a considerable space if trained to a wall, this Honeysuckle is, strictly speaking, a shrub, while, on the other hand, *L. fragrantissima* is more or less of a climbing habit. Besides this, it differs from the first-named in the leaves being broadly ovate, quite smooth on both surfaces, and retained on the plants to a greater or less extent throughout the winter, so much so, indeed, that unless in the case of very severe weather it can on a wall

be regarded as an Evergreen. The flowers of both are white, very sweet-scented, and freely produced. The North American Witch Hazel (*Hamamelis virginica*) bears a profusion of its peculiar yellowish flowers late in the autumn or early in the winter, while the Japanese representatives of the genus do not flower till the first or second month of the year. The showiest is the Tree Witch Hazel (*Hamamelis arborea*), which, by the way, is seldom met with more than 6 feet or 8 feet high. The flowers, which are borne in great profusion on the leafless branches, are of a peculiarly starry shape, being composed of a number of curiously twisted petals of a bright yellow tint, while the crimson-coloured calyx stands out very conspicuously. It is a shrub that will no doubt in time be more grown than at present, but it is not easily propagated, and besides this does not make very rapid progress during its earlier stages. The other species, *H. japonica*, is of smaller growth than the last, and besides this the flowers are of a paler colour. Both are, however, remarkably pretty when in bloom, but from the season of the year at which they flower the expanded blossoms sometimes get cut off by sharp frosts. The buds, however, are seldom injured, so that another crop of flowers appears should the weather be favourable. The earliest blossoms of the Japanese Quince (*Cydonia japonica*) often serve to cheer up a dull winter's day, while in many cases a succession is kept up for months. There are now a great many varieties of this favourite shrub, but a good crimson form is the showiest of all, and an unusually good variety of this class is *princeps*, while should a contrast be needed, the pure white *nivalis* will supply the desired tint. They are all first-rate subjects to train to a wall, and indeed are equally ornamental when allowed to assume their natural shape of a much-branched bush, but, of course, so treated, they are later in blooming than when protected. The fruit, which, by the way, is not often produced, possesses a very agreeable fragrance. The *Mezereon* is also another shrub that flowers very early in the year, and where the situation is not too hot and dry it is very ornamental, for the bright-coloured berries are equally as showy as the sweet-scented blossoms. The Cornelian Cherry (*Cornus mas*) usually flowers about February, and the still leafless branches, thickly studded with tufts of bright yellow blossoms, are very attractive when in this state. Besides these, the stately growing *Mahonia japonica* will in a mild winter often flower soon after Christmas, but in the event of severe weather it is, as a matter of course, much later in expanding its blossoms. The pretty little bright-coloured *Erica carnea* or herbacea will soon be in flower, and besides this many blossoms will be found on the *Laurustinus*, and I have sometimes even seen Darwin's Barberry flowering freely during the winter months. In *Garrya elliptica* the long pendulous catkins form a very prominent feature, and when uninjured by frost they retain their freshness for a considerable time. T.

Retinospora plumosa aurea.—In the mixed shrubbery at this season of the year no plant produces a better effect in colouring than the above-named *Retinospora*. The colour is now more intense than at any other time of the year on either large or small plants. An annual clipping of the points of the shoots keeps the plants well furnished with growth, which is not nearly so dense when the shoots are allowed to grow without any clipping. The inside quickly gets thin without the annual clipping.—M.

Skimmia oblata and S. fragrans.—Mr. Foreman says (p. 74) that those who take my advice and plant these two shrubs together in the hope of

getting berries on *S. oblata* will be disappointed. I do not think they will if the two flower together; but let them try. Mr. Foreman also says that the plants of *S. oblata* sold in nurseries are generally male. I asserted that they are always female. I may be wrong, and I wish to learn. Can he tell me of any particular nursery where I can get a male plant of *S. oblata* as distinct from the so-called *S. fragrans*? As for the so-called *S. Foremaniana* (these Latin names for garden varieties are confusing and objectionable), if it is a monocious plant and can produce its berries independently, it is a valuable acquisition; but can it? This is a point of great importance on which Mr. Foreman has given no information in his note to THE GARDEN.—C. WOLLEY DOD, *Edge Hall, Malpas*.

NEW TREES AND SHRUBS.

In this class of plants, the novelties of last year, instead of being limited chiefly to varieties or forms of already known kinds, are, in the majority of cases, species whose introduction into our gardens will prove most welcome on account of the decorative qualities of their foliage or of their flowers, and in some instances through the combination of both. Foremost among those most valuable for the beauty both of their foliage and flowers alike is *Casalpinia japonica*, a leguminous shrub of scandent habit, which is a native of Japan, a country to which we owe the greater part of our hardy exotic decorative shrubs. The light green colour of the foliage of this handsome shrub, which resembles that of *Robinia Pseudacacia*, renders it exceedingly ornamental, and the pale yellow colour of its numerous and large flowers, on which the red tint of the long branched stamens contrasts admirably, also adds greatly to its value. These flowers, which are produced very freely, are disposed on erect racemes measuring from 8 inches to 10 inches long. This new shrub has proved perfectly hardy in Messrs. Veitch's nursery at Coombe Wood, where it grows in a fairly exposed situation, and where it is allowed to ramble freely over sticks, and its hardiness in many districts of England may reasonably be expected. In *Stuartia pseudo-Camellia* we have another Japanese shrub with leaves of a dark green colour above and lighter underneath; these when only partly developed are tinged with a very pleasing brown colour. In this case the handsome cup-shaped flowers are large and formed of five rounded petals, white, of a silky nature, and slightly fimbriated on the margin. It has proved quite hardy and very free. *Styrax obassia* is another beautiful flowering shrub whose Snowdrop-like flowers of pure white are disposed in elegant racemes, and produced in profusion from amongst the abundant and pretty foliage. We have in *Phillyrea decora* *Vilmoriniana* another excellent addition which cannot fail to be greatly appreciated, as it is a shrub of compact habit, and particularly recommended for town decoration, as it is said to be most suitable for smoky districts. A very pleasing contrast is formed by its small white flowers disposed in clusters and produced from the axils of narrow leaves of leathery texture and of a very rich green colour, which, it is said, they retain even under the influence of the most unfavourable atmosphere. One of the most beautiful summer-flowering shrubs of recent introduction is *Escallonia Philippiana*. It is of dwarf, compact habit, yet its comparatively long and slender branches covered with dark, shining leaves of good substance are laden with small, but numerous white flowers.

Among the new shrubs of value for their foliage only, the most noteworthy is undoubtedly another very distinct and most valuable acquisition from Japan, named *Daphniphyllum glaucescens*. It is of very luxuriant appearance, has *Rhododendron*-like foliage, and is particularly bushy and compact in habit. Its leaves, elliptical in form, are about 6 inches long and nearly 3 inches wide at the centre; their colour is of a soft pale green above and glaucous beneath, while the petioles and mid-ribs are of a deep red colour, which rich tint is also, to a certain degree, shown in the bark. In its native country, Central and North Japan, this truly handsome shrub attains 9 feet in height, and is

therefore well suited for planting in shrubby borders, where it produces the most pleasing effect. In *Eulalia japonica gracillima* we have an exceedingly graceful variety of the common *Eulalia*, with narrow, but elegantly arching green leaves averaging between 3 feet and 4 feet in height. Its narrow, slender foliage bends like a reed, and it is best adapted for growing as an isolated specimen on the lawn, or by the side of a lake, where it forms a most beautiful object. *Prunus domestica variegata* is a brightly variegated form of the common Plum, and in this instance the foliage is broadly margined with gold, in contrast to the bright green colour of the centre of each leaf.

A new Lilac, which certainly is very handsome, is called *Marie Lemoine*. It is an exceedingly fine form with pure white flowers, each single pip measuring close upon 1 inch in diameter, and disposed in large and somewhat massive trusses.

S.

DECIDUOUS TREES AND SHRUBS IN WINTER.

I WAS much pleased to notice "T.'s" admirable article on this subject on page 57. It is one that I have long held strong opinions upon, very similar to those so well expressed by your correspondent. Even in summer most landscapes are very heavy, unduly weighed down through a superabundance of evergreen trees and shrubs. The fashion for Pines and Spruces declined so much some twenty years since as to threaten to extinguish most of the lightness and variety of our landscapes. Pine forests are magnificent in their density and blackness, but they are hardly the proper setting for the enrichment and adornment of our homes.

And winter-time is gloomy enough without enshrouding it in a still more gloomy night-cap of Firs. These, doubtless, bring shelter and warmth as well as darkness and gloom, but the former is almost too dearly purchased by the latter.

The best antidote, however, to excessive shadow in landscape is the liberal use of Birch, Beech, Elm, Lime, Larch, Thorn, and other deciduous trees and shrubs such as those specified by your correspondent. The most telling of them all are, perhaps, the Birches, the Golden Osier and the Weeping Larch—the last a very telling form all too little employed in the formation and enrichment of landscapes.

Laburnums, wild Cherries, or Geans, Bird Cherries, and some of the more fast and slower-growing Poplars have a light and graceful effect in winter, and introduce specially valuable elements of colour and form during the spring, summer, and autumnal months. The faster some of these trees grow, the more graceful they become.

For use on a large scale there are no two species of deciduous trees so readily available as the different varieties of Birch and the Wych and other sorts of semi-weeping Elms. When the hoar-frost veils all these over from summit to base is the time to take note of their transforming, uplifting charms on landscapes and to decide on how, where, and to what extent to plant them to ensure the richest and most graceful results.

But for the stupid practice at one time so common of forming most landscapes of rare and choice trees to the exclusion of most or all of those grown for cover or timber, mainly Birches, Osiers, Elms, Beeches, Limes, Oaks, Thorns would have formed a far larger percentage of the bulk and beauty of most of our modern landscapes.

D. T. FISH.

The Japanese Euonymus.—This is one of the most accommodating Evergreens that we possess, for in a general way it flourishes whatever may be the soil, situation, or atmospheric surroundings. For instance, it vies with the Tamarisk in its power or love for the sea spray, as it may be often seen along the south coast growing vigorously with fine deep green foliage where but few shrubs could even exist. It is also a first-rate Evergreen for smoky towns, in proof of which the numbers that flourish in London under very adverse conditions may be pointed out. The ordinary

green-leaved form is the best of all, as the variegated varieties, beautiful though they may be where the air is pure, are in London soon disfigured by the smoke, and being less vigorous in constitution than the type they more often succumb. Besides this, cuttings of it root so easily that there is no difficulty in getting a large stock, and, what is more, the young plants grow away rapidly even during their earlier stages.—T.

ROSE GARDEN.

T. W. GIRDLESTONE.

SELECTED ROSES.

MADAME LAMBARD.

THE demoralisation, so to speak, of the Christmas holidays has caused the admirable suggestion made by "M." on p. 549 of Vol. XXXIV. in the issue of *THE GARDEN* for the 15th of December last, to remain too long unnoticed. It may be hoped, however, that "M." who probably knows the press of work that is liable to arise at the end of a year, will believe that the delay has been entirely unavoidable, and not in any way owing to lack of interest in the proposal itself.

"M." points out the objections to a Rose election, and these were felt when that suggestion was made, and they were the reasons for stating very precisely the basis upon which alone such an arrangement could be advantageously carried out. Moreover, a Rose election has been done before, not infrequently.

A discussion or inquiry, however, on the lines suggested by "M." will have the charm of novelty, in addition to being of the greatest general interest.

There are now a good many Roses which are almost universally regarded as indispensable in every Rose garden, and an expression of opinion on the part of practical growers as to the most important qualities of individual varieties, and as to the means by which in most cases the best results may be obtained, will be of the utmost value.

Such a Rose is *Madame Lambard*, and it will be hardly possible to make better trial of "M.'s" suggestion than by asking for brief replies to the following inquiries respecting *Lacharme's* beautiful Tea:—

1. What, in your opinion, are the distinctive excellences of this Rose both as a plant and as a flower?
2. On the other hand, in what respects do you consider that it falls short of what a perfect Rose should be?
3. As compared with others of its class, would you regard it as hardy, moderately hardy or tender?
4. In what soil or situation would you prefer to grow it?
5. What stock do you find suits it best, or does it do better on its own roots?
6. How should it be pruned to secure extra fine flowers, and how for general garden decoration?
7. Is it well adapted for forcing or pot culture?
8. What is its value as a market Rose?

The inquiries are purposely expressed in somewhat general terms in order that they may apply to any variety that may from time to time be selected for discussion; and it has been thought well to add numbers 7 and 8, because, on the one hand, the cultivation of Roses under glass continues to extend immensely, and many gardeners seem to be under the mistaken impression that any Rose will do to force, while, on the other hand, the ridiculously small number of Roses generally visible in the flower markets, and the very poor quality of the majority of those that are to be seen there, would

seem to indicate that the qualities essential to the value of Roses in the cut-flower market are not fully appreciated by many growers, who thus waste time and space in producing varieties unsuited to the purpose. Perhaps on this point some hints from America may be forthcoming, and in any case it may be hoped that correspondents, specialists, perhaps, will not be deterred from sending notes on particular points by any disinclination to answer all the inquiries.

It is hoped that correspondents will sign their notes, adding also their address, as the character of many Roses varies so greatly in different localities that the consideration of the behaviour of any particular variety, especially a Tea like *Madame Lambard*, in regard to its situation in various parts of the country, will be of the utmost importance.

FRENCH AND ENGLISH ROSES OF RECENT YEARS.

THE dictionary defines ingratitude as "a want of a due sense of favours." Is it, then, possible that by becoming inured to the pricks of Rose thorns the rosarian may become callous to the prick of conscience? For cultivators of the queen of flowers do not generally seem altogether possessed by pale-faced Fear; yet "conscience does make cowards of us all," and that the ingratitude of the rosarian is such that a properly equipped conscience should be able to make him afraid of his own shadow may be clearly demonstrated.

It is notorious that every new Rose is perfect. There is never a novelty that is not the most vigorous, the most free-blooming, the largest-flowered, the most brilliant, and the most distinct variety raised *jusqu'à ce jour*. The colour is invariably *ravissante, unique*, the form *superbe*, the size *énorme*; and the raiser magnanimously tosses them to the Rose public for a paltry twenty-five francs apiece. This is a matter of daily experience. Everybody that knows a Rose from a Rosemary knows that this is so. And yet this Rose public, how it neglects its glorious—its annually glorious—opportunities of acquiring the perfection of all that is roseate. What can be thought of people who, when raisers, by unremitting toil, painstaking selection, and unerring judgment, have been enabled to offer them perfect Roses—sometimes a hundred of them in a season—for a trifle of five-and-twenty francs apiece, display their lamentable "want of a due sense of favours," by ignoring their chance of emancipation from the cultivation of old-world mediocrity? Guilty of foolish, if not criminal, ingratitude must inevitably be the verdict, and no wonder can any longer exist that raisers should regard the amateur Rose grower as the absolute impersonation of the "marble-hearted fiend." From what other cause can it be that 90 per cent. of the new Roses annually offered are either consistently ignored, or else appear only to be acquired with a view to affording an inflammable basis to the autumnal rubbish heap?

The suggestion that *necessity* is the reason for the retention of so few of these absolutely perfect Roses, in order that literature generally may not have to be suspended for lack of epithets, since otherwise the majority of the adjectives and the whole of the superlatives in the language would be appropriated by the Rose catalogues is, of course, frivolous; not less absurd would be the idea that any new Rose was less perfect than alleged by the raiser; and certainly no one would dream of raising the question of expense in the matter.

The true explanation must be sought for in

the theory of rosarian ingratitude, and perhaps some light may be thrown upon the mysterious phenomenon by the following table of varieties sent out during the last few years:—

	As Exhibition Varieties.	As Climbing or Garden Roses.	Totals.	In general cultivation in 1888.	Generally exhibited in 1888.
In 1883-4—					
From the Continent.	732	4	76	19	7
In England . . .	5	5	10	10	31
From America . . .	12	1	3	2	0
In 1884-5—					
From the Continent.	60	7	67	11	4
In England . . .	3	7	10	8	19
In 1885-6—					
From the Continent.	82	18	100	18	2
In England . . .	5	5	10	10	29
From America . . .	12	—	2	1	4
In 1886-7—					
From the Continent.	77	14	91	20	8
In England . . .	8	—	8	8	29
From America . . .	1	—	1	1	0
Total for 4 years—					
From the Continent.	201	43	334	68	21
In England . . .	21	17	38	378	108
From America . . .	5	1	6	4	1

From this it will be seen that of the large number of new Roses sent out during the four years, hardly more than a quarter are at all generally cultivated in this country, and scarcely more than 10 per cent. generally exhibited, or about 12 per cent., without reckoning the varieties sent out as garden Roses.

And yet we know that they are all first-rate. We have it on the very best authority—that of the raisers themselves—for who should know a seedling better than the man who has nursed it from its earliest infancy? Strange, is it not? A hundred perfect Roses available each year, and only ten made use of!

'Tis strange—but true; for truth is always strange;
Stranger than fiction.

In examining the above table, the contributions from America, although at least one of them, The Bride, will long occupy a prominent position wherever Roses are grown, may for the moment be neglected; and a comparison shall be instituted between the record of novelties sent out on the Continent and that of the new Roses distributed in England. It will at once be seen that there is a gigantic discrepancy in the numbers in the third column (334 and 38), a very considerable *rapprochement* in the fourth column (68 and 36), and in the last column a close approximation (21 and 18). Thus, while from the Continent there were sent out nearly nine times as many new Roses as were distributed in England in the four years, the number of Continental seedlings now grown here is not even double that of English seedlings of the same date; while the number of English sorts exhibited only falls three short of the Continental total. That is to say, of 334 Continental varieties sent out, only 20 per cent. are now cultivated here, as against 95 per cent. of the more modest English contribution of thirty-eight novelties; and that of 291 reputed exhibition varieties of Continental origin there are hardly employed more than 7 per cent., while close upon 86 per cent. of the twenty-one new exhibition Roses sent out in England have been well shown.

Here, then, at last is a clue to the colossal ingratitude that has been so conspicuous. Once upon a time all the new Roses, speaking generally, were raised in France. In those days English growers were eager enough for the French novelties and found no difficulty in extolling their virtues. But more recently England has taken to raising new Roses for herself, and, of course, immediately wishing to show her independence of all foreign help, proceeds to

pick and choose and to be dainty, forsooth! over the elegant bill of fare provided by La Belle France. For it naturally could not be supposed that greater judgment or more careful selection on the part of English raisers could have anything to do with it. No one can doubt that it is merely national prejudice that prevents the universal cultivation of the new French Roses, and demands English-raised seedlings. But have English rosarians thoroughly considered the imminent risk and danger to which this



Flowering shoot of Erica intermedia. (See p. 94.)

attitude exposes them? The Continental raisers have it in their power to carry out a desperate *revanche*. They might refuse to let us have any of their seedlings at all, and is the possible prospect of the reduction of the annual new Rose list to one-tenth of its proportions one that the English rosarian dare face?

That the average given in the above table is in no way exceptional, although for only a short number of years, may be seen by comparing the names and dates in a first rate English nursery catalogue, when it will be found that for a quarter of a century, dating from 1861, the average number of additions is ten per annum, though in so select a list as the illustrated cata-

logue of the National Rose Society the average is not above six per annum.

It may also be worth while to give the names of the recent Continental Roses that have been able to cause self-interest to outweigh ungrateful prejudice, and that have consequently been exhibited to advantage during 1888. Those of 1883-4 were—

Alphonse Soupert (Lacharme), Benoît Comte (Schwartz), Eclair (Lacharme), Gloire Lyonnaise (Guillot), Mme. de Watteville, T. (Guillot), Prosper Laugier (E. Verdier), and Suzanne-Marie Rodocanachi (Lévêque); of 1884-5, Dr. Dor (Liabaud), Edouard Hervé (E. Verdier), Souvenir de Gabrielle Drevet, T. (Guillot), and Victor Hugo (Schwartz); of 1885-6, Clara Cochet (Lacharme) and Reine Nathalie de Serbie, T. (Soupert and Notting); and of 1886-7, Comte de Paris (Lévêque), Dr. Antonin Joly (Besson), Dr. Grill, T. (Bonnaire), Mme. Bois (C. Levett), Mme. Desir (Pernet, père), Mme. de Wierre (Lévêque), Mme. Henri Pereire (Vilin), and Mme. Joseph Desbois (Guillot).

The question now arises—What is the moral to be drawn from the present position of affairs? It seems to be twofold. First, that although the number of the seedlings distributed by English raisers is not extremely great, the quality is very acceptable; and secondly, that whereas growers who raise Roses at all extensively in this country may be counted upon the fingers of one hand, and as the feasibility of raising first-rate seedling Roses of all classes in this country has been proved to demonstration, the practice of raising seedlings, if only in view of a possible *revanche* on the part of Continental growers, should be greatly extended in England.

Then, if English rosarians elect to continue ungrateful and to display their "want of a due sense of favours," they will at any rate afford Continental growers no excuse for describing them as favoured with an undue want of sense. —T. W. GIRDLESTONE, in "Rosarian's Year-Book."

Seedling Roses.—I am much obliged to "J. C. C." for drawing attention to my careless omission, in writing of seedling Roses, of all mention of the important operation of root-pruning at the time of laying them in for the winter. As "J. C. C." points out, the length of the roots of seedling Roses is generally very considerable, and though some have little besides one strong tap root, others have perfect "wigs" of root, all long and lusty. All these roots, tap and otherwise, should be reduced to a length of about 6 inches, or at any rate never exceeding 9 inches, at the time when the seedlings are transplanted, in order to be heeled in out of reach of severe frosts and excessive wet until spring-time. They will then be drawing root during most of the winter, and when planted out in showery weather in March or April will be able to take hold of the ground at once and start immediately into growth. All seedling Roses that are laid in in pits or frames will want careful looking over now during close or foggy weather to see that they are not likely to damp off, a fate that may occasionally befall a few of the younger and least-ripened seedlings. All decaying leaves should be removed from among the plants, so that they should not lie at all unnecessarily wet, and as long as the weather is really dry, the more the lights are off the better.—T. W. GIRDLESTONE.

New Roses.—Mr. Girdlestone has given us a list of new Roses, the bulk of which are Teas, and by far the greater portion are of French origin. The only exceptions are the climbing Niphetos (which I hope, by-the-by, will prove to be no fluke), Mr. Wm. Paul's Sappho, Mr. Prince's sport from Souvenir d'un Ami, Sarah Prince, and the one Irish Rose Mrs. Jas. Wilson. These four are so far pretty well known, and may yet make good reputations. But out of the remainder, some thirty-four in number, and all French, it is worth asking how many are

there which will be heard of in English gardens or even on the exhibition table some two or three years hence? Will Mr. Girdlestone kindly keep his eyes upon these novelties, which he has so obligingly catalogued, and report at the end of the season how many of the new Roses have proved to be worthy of introduction; in what respect they are improvements upon other kinds; and also what sort of figures they cut on the exhibition table? We may expect that even if amateurs cannot get plants of these new comers at present, the trade will be able to do so. Roses are rapidly increased and put into commerce; hence it should be possible equally soon to learn something of their respective merits. Mr. Girdlestone intimates that the list of new kinds for the season is about as large as usual. If that be so, it may be possible to inform readers of *THE GARDEN* as to the percentage of novelties of the two preceding seasons which have best borne out all the commendations of their raisers. I do not make these queries in a captious spirit, but feel curious to know what percentage of new Roses really turn out to have superb merits.—A. D.

** "A. D." will find information as regards "New Roses" on page 108 of the present number.—Ed.

Roses in Scotland.—The season of 1888-9 will long be remembered in northern counties for the abundance of flowers on hardy plants, and Roses especially have flowered very freely. Hybrid Perpetuals have opened their buds freely, and at the present time (end of January) many buds formed and half open may be seen. Gloire de Dijon may be considered as one of the most serviceable Roses known for northern gardens especially. In most seasons there are numbers of late blooms, but this season flowers of Gloire de Dijon have been very common outdoors, and the dwarf plants have flowered more freely than standards, or even those on walls. For archways this fine kind is very suitable, as by removing yearly a few old shoots and training young growths in their place, the vigour of the plant is maintained. When archways are not wanted too high, they are very useful when furnished with vigorous Hybrid Perpetuals. These can be formed partly by spurring in the previous year's growths and allowing a number of young ones of the current season to remain. How the plants fail on archways is generally by allowing the roots to suffer from want of wholesome nourishment, or by cutting the young shoots too hard. An archway to have a good effect should stand singly, so that the individual Rose may hang downwards and show its beauty. When the plants are entirely spread over the top of a wire screen and become a dense mass, the flowers get smothered and are not seen from below. Arcades of Roses seldom give satisfaction, because their beauty is hidden by the plants forming a canopy overhead. Single rods of galvanised iron or wood allow the growths to droop downwards and hang in graceful masses. Ordinary climbing Roses of robust growth often defeat the object by their being crowded, so that they cannot develop themselves.—M. T.

Gardening in Sweden.—Prof. L. H. Bailey recently contributed to the *American Garden* some "Rural Notes from Scandinavia," from which we extract the following passages: "In ornamental gardening the traveller finds much to admire, particularly in Sweden. There is not that richness of finish and variety of plants which one sees in England, but there is usually a most excellent and tasteful use of materials. The Slots Park at Christiania is an admirable example of the adaptation of common plants to ornamental gardening of a high character. The greater part of the plantings are Birches and Elms, trees which everywhere clothe the adjacent hill-sides. Perhaps the very contrast of this simple park with the ornate and burdened ones of England and other parts of Europe may heighten its charms in the mind of the traveller. Yet one must feel that the absence of effort and artifice and the repose which comes from the very simplicity of its design and details give this park an intrinsic merit. Parks are usually

burdened with accessories, mere display, a feature of gardening—if gardening it can be called—which is supported and often demanded by the popular desire for show and curiosities. One extreme in this direction now holds rule in America—the craze for carpet bedding, which is so generally and so unfortunately denominated landscape gardening. It is said that American carpet bedding 'beats the world,' and my own observation thus far sustains the boast, much to the credit of other countries."

COLD FRAMES.

THE uses of ordinary frames are so many, that only those accustomed to raise something of everything, or to utilise them for the wintering of plants ordinarily kept in houses, can tell how varied are the purposes to which they may be put. Frames are of diverse forms, from the ordinary movable frame of wood to one of a substantial erection of brick. Many useful structures are composed of turf alone with a rough framework of wood laid over the top of the turf walls and secured to them. Some have frames of concrete, the walls of which, unless well faced, usually offer many crevices into which insects can winter or breed. Still a thick coating of hot lime white will help materially to remedy that evil. Frames of rough slabs of wood are useful enough for hardy things, especially if the joints be protected on the outside by leaves or litter. Perhaps the most useful of all forms is a frame of stout wood well put together and removable to any place or position. These, however, if enduring, are, all the same, rather costly. Makeshift frames are usually formed of cheap materials because not required permanently, yet such things often present valuable aids to gardeners in many ways. The market grower seems to prefer very low brick frames, the backs perhaps about 15 inches and the fronts about 6 inches from the ground. In these, the soil being always nearly close to the glass, large quantities of seeds are raised, such as early Cauliflowers, Lettuces, Celery, Brussels Sprouts, Wallflowers, various flowers of useful kinds, such as Stocks, Pansies, &c., the raising in frames facilitating germination as well as early growth. Cauliflowers sown in November will give strong plants to put out early in April, or Lettuces sown at the same time, or perhaps in October, will produce a quantity of plants for planting out early in the season. In the case of Lettuces raised from September sowings, the plants will ere now be thinned and dibbled out into other frames, and thus go out about the end of March exceptionally strong. Cold frames are useful for the raising of successional crops of early Potatoes, and very often a crop of breakfast Radishes may be pulled before the Potato tops are through. Early Horn Carrots may be got from frames through an early sowing. Parsley may be sown and raised early, and be ready for dibbling out into the open ground some time before the plants in the open ground have put on the rough leaves. Mustard and Cress, as also Radishes, may be raised in succession. Flower seeds, especially tender annuals, such as Stocks, Asters, Balsams, &c., are better raised in a cold frame than anywhere else. Dahlia roots placed in the soil will break strong, and may be neatly divided before being planted out. Marrow seeds sown in cold frames soon germinate, and if the seeds be sown in pots are thus readily transplanted to the open soil. Tender forms of Auriculas, Carnations, Picotees, &c., are all the safer if wintered in a cold frame, and cut-down Chrysanthemums are best if stood thickly in a frame under glass until the needful stock of cuttings has been secured. Double Violets are far better wintered in a frame than exposed to frosts and heavy rains; in fact, the uses to which cold frames of every form and style can be put in a garden are illimitable. A frame should during the winter never be empty. Its uses are then of the most important kind, and will increase in value as the spring advances. It is doubtful whether a cold frame should be idle at any time, for with a north aspect it is during hot weather the best possible position for Chinese Primroses, Cinerarias, Cyclamens, &c. Even if no other use is found during hot weather, the frame may hold a Cucumber

plant for the production of summer fruits. Amateur gardeners who have largely to depend upon cold frames for plant production, learn fully to understand their value in the garden economy.

A. D.

THE GARDENERS' ORPHAN FUND.

A LARGELY attended meeting of the committee took place at the Caledonian Hotel, Adelphi, on the 25th of January, Mr. George Deal in the chair. From the financial report made by the secretary, it would appear there is a balance of £391 12s. 7d. in favour of the fund at the bank, and contribution boxes and collecting cards are answering well, as Mr. J. Hughes sent from Birmingham £7 6s. 10d. taken from thirty boxes placed in different parts of the town. Mr. W. H. Divers sent £2 7s. 8d. from a box at Ketton Hall Gardens, obtained from visitors, and Mr. Rose, of Lockinge Gardens, sent 5 guineas, the proceeds of a concert given at Wantage on behalf of the fund. Mr. Fulbrook, Streatham Hill, sent £1 8s. 6d.; Mr. Crawford, Coddington Hall, £1 12s., both sums collected by means of cards. A special donation of 5 guineas from Mr. A. F. Barron was announced, and one of £5 from Mr. Macmillan, the publisher. A further statement showed that during the first half of the present financial year which closed on December 31, the sum of £549 3s. 6d. had been received, which is decidedly in excess of that obtained during the corresponding period last year, while the expenses for the same period are relatively less. A further sum of £10 9s. 10d. was also announced from local secretaries. It was reported that entertainments in aid of the fund are increasing. Mr. Harris, manager to Miss Grace Hawthorne, lessee of the Princess's Theatre, will allow a discount of 50 per cent. upon all tickets sold by the members of the fund for admission to the performances on February 6, 7, 8, and 9, and these can be had from any members of the committee and secretary. It is gratifying to know this came as an unsolicited offer. Miss Swanborough is also purposing to give a theatrical entertainment for the same purpose. Other offers of local entertainments were also announced. The committee wisely came to the conclusion that in no instance could they undertake to make up any deficiency arising from one of these entertainments. A petition to the City Companies, praying for a grant to the fund, has been approved and signed by the president, Sir Julian Goldsmid, Bart., M.P. It was also resolved to hold another floral fête in the Wholesale Flower Market on behalf of the fund, and a memorial will be sent to the Duke of Bedford requesting that his permission may be granted. By way of showing how local horticultural societies can help the fund, it was stated that the Croydon Horticultural Society will hold their summer show on July 3, and a Rose fair and sale of Roses will take place for the benefit of the fund.

Mr. Peter Barr has, we learn, taken a nursery at Surbiton, where he proposes to grow the choicest hardy flowers. We heartily wish him every success.

Sex of Skimmias.—With reference to the correspondence under the above heading, allow me to say that many years ago I planted a *S. oblata* in my garden at Nant-y-glyn, Colwyn Bay. This was a female plant and never fruited, till after a few years (having seen it stated in Van Houtte's catalogue that *S. fragrans* was the male plant) I planted one of the latter alongside of it, having bought it under the name of *S. fragrans*. This was a male plant, and since it was planted *S. oblata* has borne nearly every year fine crops of scarlet berries, from which I have raised seedlings of both sexes. I have never had the slightest doubt of these two plants being merely the two sexes of *S. oblata*, and thought that this had long been known.—ALFRED O. WALKER, *Chester*.

The death of John Southgate occurred at his residence, Selborne, Leigham Court Road, Streatham, on the 13th ult. He was well known as one of our most enthusiastic Orchid amateurs, and his collection, disposed of recently, was one of the richest in the country.

WOODS & FORESTS.

SUCCESSIVE CROPPING WITH SCOTCH FIR.

THIS is a subject of much importance to the planter, and as considerable difference of opinion is entertained by practical men upon the subject, it is even on this account rendered the more complicated and interesting. Some writers tell us that in course of time the soil becomes exhausted and incapable of producing a second or third crop of the same species of trees without allowing it to lie unoccupied for a series of years in order to give it time to recruit. As this assertion is not borne out by actual experience and observation, I shall briefly glance at a few facts which I have noticed in connection with the subject. That rotation of crops is desirable when it can be attained I do not deny; but that is not the question. The point I mean to discuss is whether the ground is capable of producing successional crops of Scotch Fir. In answer to this I maintain that it is. Some of the largest and finest natural Scotch Fir forests in the Mar district of Aberdeenshire I thinned and sorted about thirty-five years ago, and the trees are all the produce of standard trees left here and there upon the ground when the former crop was cut down. As the present trees are models of beauty and health, this fact proves conclusively that the ground is not exhausted; and as I have found the remains of old Fir trees in many parts of the forest, it would be difficult to tell the number of crops of Scotch Fir which some parts of the ground had produced. The old forest of Glentamar on the Aboyne property is considered to be a remnant of the old Caledonian forest, and no one can tell for how long the ground here has been carrying a crop of Scotch Fir. One thing is certain, that there are some people still alive who remember some parts of the forest having been cut at least twice within a century, and as the quality of the wood produced at the present time maintains the high character for which the Glentamar wood has always been famed, I think this is strong proof that the ground is not exhausted, and that it is still capable of being used for growing forest trees. When a crop of Scotch Fir trees has been cut and removed, the surface of the ground is always, to a certain extent, covered over with dead leaves, &c., and as the seeds of the Fir refuse to germinate in such material until it is thoroughly decomposed. As this takes a series of years, some people conclude that the ground is exhausted and requires a rest, and that this accounts for the non-appearance of the seedlings. After the removal of a crop of Scotch Fir trees there are two methods of stocking the ground with young trees, namely, by sowing the seed on patches of ground dug over with a spade at the desired distance apart, and by inserting young trees at the spots. The first preliminary step to be taken, however, is to see that the ground is thoroughly drained, and all surface rubbish, as far as possible, burned, in order in some degree to destroy the Pine weevil and the nests of field mice. In cases where the weevil is known to be plentiful I have found it necessary to scarify the bark from the stumps and surface roots left in the ground to prevent it from using them for breeding purposes.

The pits for the young trees should be opened in autumn or during winter, and the stuff excavated left exposed to the influence of the weather until planting operations are commenced in spring. The size of the pits may be about 15 inches in diameter and one spade deep. The

surface sod should be laid on one side of the pit and the clean soil dug from the bottom of the hole left by itself on the other, and any old roots that may be found should be cut with a mattock and picked from the soil, in order to render it pure and clean for the roots of the plants. When planting the trees in spring the surface sod should be broken up and placed in the bottom of the pit, and a spadeful of clean soil laid on the top of the broken turf to form a congenial bed for the roots of the tree. By this mode of inserting the trees the fresh ground at the pits will usually stand rather higher than the general surface level, but this is an advantage at the outset, as the ground generally subsides a little through course of time. Another advantage to be gained by this plan of preparing the ground is that it receives all the benefit of trenching, and as the surface around the base of the plant is clean and free from herbage or rubbish of any kind, it does not harbour insect pests which are injurious to Pine trees. In place of breaking up and using the surface sod as food for the roots, some planters cut it into halves and place it Grass side down on the top of the pit after the tree is planted, with the view of keeping out drought from the roots; but as such a sod so placed forms an excellent shelter and protection for the Pine weevil, the plan should never be practised.

J. B. WEBSTER.

Pinus contorta.—This is one of the most distinct and beautiful of the medium-sized Pines, and particularly suitable for planting in limited areas. The foliage is short, of a bright green colour, and arranged thickly on the branches. It belongs to a section of the genus having its leaves in pairs, and which includes nearly the whole of the European as well as some American and Japanese kinds. The specific name is derived from the peculiarly contorted branches, which twist in such a manner that the diameter of their spread is less than that of most other kinds. When from 15 feet to 20 feet high, it forms a dense tree of narrow pyramidal habit and of a very effective shade of green. This tree is a native of the western part of North America, and appears to be perfectly hardy in England. Even when in a small state it freely bears cones, which are about the size of those of the Scotch Fir.—W. T.

The Golden Willow (*Salix vitellina*).—This Willow has a very ornamental appearance when planted in large groups. The masses of waving golden branches in winter, when the leaves are off, have a pretty appearance in the rear of masses of Evergreens, especially when associated with clumps of the Red Dogwood (*Cornus sanguinea*), another low-growing deciduous shrub that might be advantageously used for giving life and colour to masses of dark-leaved shrubs in winter, in ornamental game coverts or large shrubberies. The pliable twigs are most useful for tying and other purposes, and after all the twigs that are required for use have been taken off, the remainder, in the spring, just before growth commences, should be cut well back. This keeps the plants dwarf, and stimulates the further production of plenty of young clean shoots. Cuttings of strong shoots, about 15 inches long, planted firmly in the ground, about two-thirds of their length, will soon make good plants. E.

Planting trees on mounds.—It is somewhat remarkable that even practical men of experience advocate the planting of trees on mounds. I maintain that it is altogether unnecessary as far as success in planting is concerned, although it may with advantage be carried out on a modified scale on naturally wet, stiff, clay soils. On dry, light soils, mounds, especially abrupt, high ones, are wholly unnecessary and detrimental rather than otherwise by encouraging the evaporation of moisture from the roots, which, probably, during an extremely dry, burning summer, would suffer so

much from drought that the trees would die outright. There is no better plan of planting ornamental trees and shrubs than turning the soil and subsoil to a depth of at least from 18 inches to 24 inches, and a yard or two more in diameter than is required for the roots when planting, clearing out stones, roots, or very bad subsoil, and replacing them by fresh soil or turf, well chopped up and stirred in with the original soil. On stiff clayey lands inclined to be wet, the trees should be planted on the surface, the roots covered with fresh soil, so that a slightly raised mound may be formed over the roots, and outside or beyond the latter, not less than a yard or so. The method of surface-dressing trees every few years with turf, leaf-mould, or other enriching material and gradually forming easy mounds is preferable to planting on mounds at the outset.—F.

PLANTING WATER MARGINS.

TREES and bushes are indispensable embellishments to water. They are important for concealing its real extent, besides producing light and shade. In planting near water, however, we must not interrupt the best and most lengthened view of it, as seen from the house and the principal parts of the park; neither must we entirely shut out from view the whole of the ends or boundaries of the outward prominences, or some of those parts which project into the water. At the same time caution must be used not only to prevent the eye from catching the various bends of the outline of water from any one point of view, but also to afford variety in the grouping of the trees and shrubs; indeed, the whole planting must be so effected as to leave the extent of the water undetected, and even unimagined, from any one position.

The following may be named as suitable for planting in the neighbourhood of water. The Alder, kept low by occasional cutting, makes a fine fringe, and forms a strong barrier for the margins of lakes where the current is liable to wash away the banks. The common Whitethorn, Bramble, Hedge Rose, Red Dogwood, Honeysuckle, and Blackthorn are also very useful for planting by the sides of lakes, &c. Trees best adapted for positions nearest the water, where the ground is liable to be moist, must consist of the common Alder, various kinds of Willow (including the Weeping and Rosemary-leaved forms), *Alnus cordifolia*, Norway Spruce, deciduous Cypress, and Hemlock Spruce. Such trees are also suitable for the islands; but in order that the roots may not lodge too much in the water, the parts of the island to be planted should be raised irregularly, or in a natural manner, with stones, roots, sods, &c., mixed with suitable soil, and a few feet higher than the level of the water. The five last-named kinds of trees are most appropriate for beautifying water in well-kept grounds.

Amongst the larger trees employed, not exactly for fringing the margin, but at a moderate distance from the water, the Wych Elm is the most elegant, and should always be planted in extensive places, its elegant massive twigs and pendent branches entitling it, above all other large trees, to this distinction. Nevertheless, the English Elm, Lime, Beech, Weeping Birch, and Larch would be appropriate. Every kind of Poplar should be excluded, except, indeed, the Lombardy, of which two or three may be planted so as to rise out of the midst of masses of other trees. In planting, room should be allowed for walking near the water's edge, sometimes close to it, and at other times with a bush or group of shrubs intervening. W.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GRAFTING.

As the nurserymen are those most interested in the question raised, it devolves upon them to defend a position that is certainly not quite impregnable. From the remarks you quote, it is quite evident that you do not agree that grafting is an "art which doth mend Nature," and I am sure many planters could tell us of the numerous disappointments it has caused them if they would kindly do so.

In the first place, grafting is unnatural; it is, moreover, an awkward makeshift which should be employed only when all other methods of propagation fail.

Writing some ten or twelve years ago, I pointed out that grafting was tolerated, because we had not as yet learned the art of raising seedling fruit trees suitable for our variable soils and climate. It seems now pretty fully proven that "own-root Roses" are the best, and some of us would like to try own-root fruit trees, such as Apples, Pears, and Plums. Only the other day I read with surprise the statement of a nurseryman that he worked or grafted the common Bullace, a plant wild in many of our hedgerows, and readily raised from seeds (stones) by the thousand if necessary, and supposing any particular variety desirable, surely an old stump "hillock-layered" would give rooted suckers by the dozen. All own-root fruit trees are readily increased by pollarding near the ground and covering up the young shoots with earth. As an instance of grafting flowering shrubs, I may say that years ago, seeing a plant of *Prunus triloba* (*Amygdalopsis Lindleyana*) in flower at Kew, I resolved to have the plant in my garden, and wrote for two dwarf plants. They came from the nursery on stems 5 feet high, looking like two demoralised mops, and when I complained I was told dwarf plants were "not in stock." The heads in both cases died away the first year, and several similar failures took place until I at last obtained a dwarf plant, and by plunging it deeply in the soil and barking its shoots here and there before covering them up, I at last have it growing well on its own roots.

Apart from the direct evils of grafting, there is the question of the enormous indirect influence it has exerted against the raising of fruit trees from seeds. Of course I know that many of the seedlings would be worthless, but, on the other hand, grafting does not enable us to make any real advance on existing varieties; indeed, as often happens, it actually fails to enable us to hold our own. Even supposing that grafting was all that the trade believe it to be, there is no reason why we should trust entirely to its aid for the replenishing of the orchard and fruit garden. Granted that some Pears when grafted on the Quince do better on some soils than when grafted on the Pear stock, we are yet left in uncertainty as to whether the Pear itself would not be better and more fertile on its own roots. The mere knack of setting one plant to do part of another plant's business is absurd on the face of it, unless the points to be gained are indisputable, which in the case of grafted fruit trees is by no means the case at the present time. Enhanced fertility, or rather precocity, may be in certain cases induced by grafting on dwarfing stocks, but we have to pay the penalty by a shortened period of life and a

much restricted area of fruition. In the long run, the best way of obtaining plants most suitable for any particular soil or climate will be to rear seedlings of the best varieties already successful there, or from varieties which succeed in a worse soil and in a more severe or ungenial climate.

Even the A B C of grafting is very often misunderstood, the common idea of working a weakly scion on to a vigorous growing stock being altogether wrong, and the reverse of this is by far the better plan. Nothing rejuvenates an old, decrepit fruit tree so quickly as grafting a few scions from a strong growing variety on to the extremities of its branches, as these act like the valves of a pump, and by exciting root action benefit the decaying tree. But although this is true, the upholders of grafting must not take it as an example on their side, because ten to one the reason that the tree was decrepit arose from its being originally a grafted one, and instead of renovating it by "a hair of the dog that had bitten it," &c., the better plan would have been to grub it up and plant a tree or two of the same sort elsewhere on their own roots. That grafting is a convenient way of getting up a stock in a nursery or garden is admitted, but no one who really knows its effects and results can be so bold, I imagine, as to assert that grafting is the best way.—SCION.

— In THE GARDEN, Jan. 26 (p. 74), you invite your readers to give their opinions on the subject. I agree with the writer, and consider his assertions correct. Grafting is an impediment, and although at first a useful discovery, it is at present only suitable for nurserymen to propagate quickly. But now that it is generally admitted that all trees on their own roots are preferable, why should the nurserymen in all countries not follow the example of the Americans, who propagate their fruit trees by grafting on small pieces of roots, the consequence being that the graft after a short time throws out its own roots. I received per sample post from Pennsylvania in March last a parcel of twelve Apple trees grafted on roots. I potted them and put them in my greenhouse and they were growing in April. By the end of October I shook them out, the grafts having their own roots. I took off the small pieces of roots on which the trees had been grafted and put the plants into larger pots until I could plant them out. They are now about 1 foot high. Besides, everyone must admit that all trees on their own roots maintain their natural form and beauty, which is not the case with grafted ones.—JEAN SISLEY, *Monplaisir, Lyons.*

— I think that the correspondent whose article you quoted has not given grafting a fair trial. How can he expect it to succeed when he does not carry out in its entirety everything connected with it? Why did he allow the shoots of the stock to come up around the graft? Why did he not rub them off? Indeed, he admits neglect, for he says that a Plum orchard left to itself will become one forest of shoots of some common stock. The fault, I maintain, rests with him in not carrying out in its entirety everything connected with grafting. Whether grafting be as necessary in the case of trees and shrubs as it is in the case of fruit trees, I hope to learn in future issues of THE GARDEN.—H. GIRLING.

* * Mr. Girling forgets that people who plant on a large scale have something to do besides removing suckers from many plants and hardy trees, which should be as little in need of such attention as an Oak tree. Even those who plant Rhododendrons on a large scale have no wish to be troubled with a host of suckers—very difficult to deal with when the bushes get large.—ED.

— Most of your readers will, I imagine, be inclined to sympathise with the writer whom you recently quoted, even if they are not quite prepared to accept his dictum that "it (grafting) will be no great loss if it is abolished altogether." The evils of grafting are everywhere apparent, there be-

ing few gardens free from large crops of suckers of stocks far more vigorous than the scions which they rob, and rooting out such suckers only aggravates the difficulty. This is only one form of evil arising from grafting, budding, &c.; others are plentiful if less noticeable. Your query embraces a very wide sphere, and the number of replies, bearing on fruit trees, that may be depended on is unfortunately sure to be small, for no one could speak with authority and from practical experience, unless the trees, grafted or otherwise, have been under his immediate supervision for at least twenty years. Few, I suspect, have had a fairly wide experience with unworked trees for such a length of time, and the well-doing of two or three trees could not be accepted as conclusive evidence in favour of such a drastic measure as the abolition of grafting. It is a pity that some enterprising nurseryman does not come forward with an offer to supply clean-rooted cuttings of our best fruits, so that all who wish to try them could do so; the next generation, at least, could then solve the problem. Something could be done at home by raising trees from burred branches, as recommended for Apples by "J. G. H." (p. 48), or even by striking small cuttings, but a thoroughly fair trial would demand a start with clean stock. If the demand for own-root trees was made, the trade would scarcely stand in its own light sufficiently to refuse the supply, especially if buyers were determined to get what they wanted. Progress would be slow for a time, but once the first batch was ready the rest would be easy, and the future of the departure from the orthodox method of production would be governed by results. Grafting has the strong point of usage in its favour, and if this system of production is to be broken down, it must be in consequence of the merits of trees on their own roots. Home grafting, unless special efforts are made, is apt, from scarcity or poorness of stocks and unskilled workmanship, to be the worst of its kind, and would scarcely count in any discussion.

The influence of stock on scion may be used to advantage in cases where a weakly, but otherwise good variety of fruit tree or other plant could scarcely be expected to do well on its own roots in certain soils and situations, but which succeeds well on another stock. Grapes often show this influence in a marked degree, and many other instances might be given where, in the case of delicate plants, grafting would seem to help us towards the desired end; but whether it is of general utility, or whether we could not do as well without such weakly things, is an open question. Undoubtedly grafting in its various forms has been abused and overdone as an illegitimate means of quick production, which has lived in many cases to disaster.—JOHN C. TALLACK, *Livermere.*

Brodiaea Leichtlini is now very bright. It seems to be a very scarce bulb, and although not particularly showy, it is worth growing on account of its early flowering, which usually takes place about the end of January. The flowers are as large as a shilling, white, with a permanent brownish line down the centre of each division, and have bright orange anthers. The flower-stalks are short, rising from the midst of a bunch of bright green leaves.

Brockworth Park Pear in flower.—When in Ledbury to-day, Feb. 4, Mr. G. Piper, the well-known pomologist, invited me to examine two standard Pears growing in his garden. Every flower-bud had pushed, a few blooms being open, and had we not experienced a most decided change on the 2nd, the trees would have been in full flower by St. Valentine's Day, if not earlier. The variety is Brockworth Park, and the two trees stand side by side quite out in the open. This year's crop certainly is lost, as I could not detect a dormant bud, and how trees, which have gone so completely wrong, will succeed in righting themselves is a matter for future observation. In the same garden I noticed a remarkably fine standard Jargonelle, which together with other varieties showed no sign of getting out of order. The age of this tree may be 150 years or more, as Mr. Piper told me it was

as large sixty years ago as it is to-day. It bears freely whenever Pears in the locality are not a complete failure. The fruit is of medium size, clean, bright, and all that can be desired in point of flavour. This makes the third standard tree which has been unearthed, and many more I have no doubt will be found by contributors to the pages of THE GARDEN.—W. C.

ROYAL HORTICULTURAL SOCIETY.

IN reply to your correspondents on page 68, and partly to prevent misunderstanding, I beg to say that I did not infer, when writing of Mr. Findlay, that the secretary of the Manchester Botanic Society is an autocrat, but I did mean and do say that he and his council have shown a most praiseworthy and excellent example to all similar councils and societies. As far as regards Mr. Findlay's remarks on honorary secretaries, I have little doubt he is correct in principle, but most rules have exceptions which serve to accentuate their general correctness. As far as regards the Royal Horticultural Society, it at present possesses in the Rev. W. Wilks an admirable honorary secretary, and I can honestly say I never received anything but support from him whenever I suggested anything which I considered would be advantageous for the society's welfare; nor are his ideas warped by narrow considerations of finance or based on what I certainly would call "penny-wise-and-pound-foolish principles."

Mr. Wilson has called attention to the number of Fellows he introduced "while he was justified in doing so." I can confirm Mr. Wilson's statement, and, moreover, am confident that, in allowing him to retire from the council, the society will suffer a loss the extent of which will only be fully appreciated at the end of the current year.

In reply to "W. C.," I deny absolutely and *in toto* that I am "Kensingtonian to the backbone," or even to the very smallest extent. I never believed in South Kensington, and knew it to be too far west for the convenience of most persons wishing to attend the society's meetings. I resigned my Fellowship partly for that reason in 1875. For similar reasons, inconvenience and unsuitability of locality, I disapprove of Chiswick for the fortnightly meetings. Surely "W. C." can hardly expect busy City men to go down to Chiswick, and fashion has long since deserted it!

"W. C." is entitled, as everyone is, to an opinion as to who are the best "whips" for the society's coach, but he naturally looks at the question with the bias of one belonging to the same business and having the same interests as the gentleman he refers to. I cannot say that the list "W. C." gives of the proposed flower work at Chiswick in 1889 is, to me, very imposing. Could not an attempt have been made to grow Roses in this year of the conference, and are Lilies quite unknown to the Chiswick management? As regards another matter which affects the interest of the Fellows, there are at present supposed to be six vacancies on the council. This information was comparatively recently sent to the garden press; but why was not the fact also then made known that by new By-law No. 82, unless on or before the 10th January there were nominated by the Fellows other fit persons for these vacant seats on the council, such nominations or suggestions would after that date be practically valueless? The effect of such want of knowledge by the Fellows is that the council again have nominated persons to fill the vacancies, and if the council had nominated no successors, by Bye-law No. 89, the present holders of office could have remained in office till the next annual meeting in 1890. Where certain things happen to be everybody's business, they generally result in being nobody's business, and to that happy condition of affairs may be attributed what appears to be very grave neglect in regard to the rights of the Fellows.

In regard to these new nominations to the council, the remarks on p. 547 in the number for December 15 seem to have been lost on those who arrange such matters at the Royal Horticultural

Society. There is an old French proverb, *l'appétit vient en mangeant*, and the "traders" seem to have gained such confidence by success, that for the six vacancies three nominations have been arranged for representatives of the gardening and nursery trade interest; one gentleman (and a first-rate nomination this is) will represent the Covent Garden interest, and the remaining two are of country gentlemen; at this rate of progress it will not take long for the Royal Horticultural Society to become, not almost, but entirely a trade society.

CHARLES J. GRAHAME.

NOTES OF THE WEEK.

Flowers from Cork.—I send a gathering of flowers from the open air and two blooms of Ard-Righ Daffodils and some blooms of Christmas Rose (Riverston) from a house. *Narcissus cyclamineus* and *N. minimus* are beautiful on rockwork. The Christmas Roses are from seeds sown in 1887.—W. B. H., *Temple Hill*.

Hyacinths flowering in London.—In proof of the unusual mildness of the past month, it may interest some of your readers to know that I have had Roman Hyacinths in full blossom for the last ten days. These I planted in the middle of September in a window box facing due east and they have not been in any way protected.—CECILIA YORKE, 103, *Eaton Place*.

Early Primroses.—On Feb. 5 we received a bright variety of coloured English Primroses from Mr. G. F. Wilson, Weybridge. These varieties of our lovely native Primrose are at last beginning to take their due place in our gardens. Mr. Wilson has a simple and excellent way of having them on his table in the winter, and it will be found described in THE GARDEN of Jan. 12, 1889 (p. 27).

Osmanthus ilicifolius.—I saw a large plant of this in the grounds at Bradford Peverel, Dorsetshire. It was a bush many feet through and covered with berries. It was not placed in a favourable position, or no doubt it would have given a better effect. Such useful shrubs as this and its varieties should be more planted, being far more valuable than many things equally as expensive and not half so useful.—J. C. F.

Vegetables and the frost.—The last wet sunless summer is showing its effects on green vegetables already. I saw recently in the gardens at Elvetham, Hampshire, a large patch of green curled Borecole, or Scotch Kale, destroyed by the frost—in fact, killed to the ground, and many of the Broccoli had suffered severely. I have seen in other gardens large patches of old Cabbage stumps almost killed. It is to be hoped that severe weather will not now come, or I fear there will be few green vegetables in spring, judging from the effect of the recent frost.—J. C. F.

A note from the Riviera.—Mr. E. H. Woodall, writing from Nice, Jan. 25, says: "One or two days have been warm enough to enjoy picnicking in a lovely little bay near here where the ground under the green Aleppo Pines is pink with the lovely *Erica mediterranea*. I am delighted to see how much better Carnations are grown now-a-days, that charming *Enfant de Nice*, with its delicate rose flush on the white petal, and *Alégatière* being most grown of all. This coast has lost almost all the charm it once had for me; no country is now to be found; all is villa and nursery gardens or flower farms, and boulevards and new roads or quarries have destroyed most of one's favourite old haunts."

Royal Horticultural Society.—If the weather should be mild it is anticipated that the next meeting of the Royal Horticultural Society, on Tuesday, February 12, will be an interesting one, as a large number of Fellows are expected to be in London to attend the annual meeting, and several persons both amateurs and nurserymen, have already signified their intention of sending exhibits. The fruit and floral committees will meet in the Drill Hall, James Street, Victoria Street, at 11 a.m., after which the hall will be open to all Fellows at 12, at which hour also the scientific committee will meet. At 3 p.m. the annual meeting will be held in the library at 117, Victoria

Street, when the council will present their report for the past year, together with the balance sheet and revenue account of the society. The Fellows will then proceed to ballot for members of council and officers for the year 1889-90, and also to elect new Fellows. Any persons wishing to join the society should send in their names to the hon. sec., 117, Victoria Street, S.W., on or before Monday, February 11.

Choisya ternata.—This beautiful white-flowering shrub appears to be quite at home at Bournemouth judging from a large bush I observed in a villa garden on the East Cliff. This bush was from 4 feet to 5 feet high and almost as much through. I was told it was planted there about four years ago. Although the plant is not hardy in many places, it is a useful cold greenhouse shrub either for forcing or otherwise. Mr. Roberts, of Gunnersbury, used to use it with good effect in the spring mixed with other plants.—J. C. F.

The Crete Dittany (*Origanum Dictamnus*) is a very useful plant for a cold house or corridor. Although when in flower it is very curious and highly ornamental, it is at all times interesting, and just now, as the flower-stems are breaking away from the hoary, green and white-flaked oval leaves, it is particularly so. It may be grown easily in pots in sandy loam, with small pieces of sandstone round the neck to keep the branches from the soil. It stands out in the south, but we are afraid it would suffer in severe winters north of the Tweed.

Snowdrops in flower.—It is always difficult to make selections of such groups as the Snowdrop, but for our own part we would begin with the *Imperati* group, which includes all the fine forms raised at Dunrobin Castle and which are known as *Melvillei* varieties. They are truly handsome forms, easier if anything to manage than *G. Elwesi*, *G. globosus*, or the curious forms of *G. nivalis*, such as *virescens*, *lutescens*, &c. *G. poculiformis* is a truly wonderful variety, and we are glad to say, easily managed; the inner segments, instead of taking the usual form of a tube or cup, are in this case produced to about the same length as the outer ones, making a nearly formal flower. It is not so plentiful as the others, but should be sought after.

Barr's bulb grounds at Tooting are now very gay with spring flowers, the *Crocus* in particular, of which a large number of species are grown. Amongst the most noticeable was *E. reticulatus*, a charming purple-striped species. *C. Imperati*, of course, was in great beauty, and *C. chrysanthus*, as well as the varieties *fusco-tinctus* and *fusco-lineatus*. Perhaps the prettiest of all, however, was the well-known *C. susianus*, with its curious reflexing habit, showing its richness in colour. A large break of *Chionodoxa*, *Scilla bifolia*, and *Snowdrops* was also very interesting, showing how much earlier foreign-ripened bulbs are to those grown in this country. A few *Daffodils* nearly allied to *pallidus præcox* were truly welcome.

Late white Chrysanthemums.—Mrs. Charles Carey is a grand late bloomer. Early in February I saw a lot of this kind at Didlington Hall. The plants were grown in bush form, and judging from their appearance, there will be a supply of flowers well into March. These plants consisted of from six to twelve shoots, each bearing from three to four flowers. Another good kind is *Princess Blanche*, a late Japanese variety with pure white flowers. *White Ceres* is also a good late kind, and was well grown at Lendefearn, Bournemouth. I noticed, in addition to these, the following kinds: *Dr. Masters*, *Golden Gem*, *Duchess of Albany*, and *Mrs. C. Carey*. There was a large batch of these in a cold vinery. *Hero* of Stoke Newington appears to be very late this season. A batch of it was fine early in the year at Didlington Hall, Norfolk. I noticed good blooms of the following for cutting the first week in February: *Ethel*, *Magnum Bonum*, *Meg Merrilies*, *Princess Teck*, and *Mons. Moussillac*. These were grown as bush plants and had never been staked, having been placed in a moist, open situation and allowed to grow naturally.—J. C. F.

TREES AND SHRUBS.

PICEA WEBBIANA (SYN., P. SPECTABILIS).

WERE this noble tree perfectly hardy in all parts of Britain, no collection of Conifers would be complete without one or more specimens. It is a native of the Himalayan Mountains, where it forms immense forests at elevations of 10,000 feet to 12,000 feet. It persists in making an early growth in this country; consequently, the young shoots, when an inch or more in length, are liable to be cut off by spring frosts. The old wood, nevertheless, appears to be perfectly hardy, trees at Eastnor having withstood 34° of frost in 1860-61. Such being the fact, it is much to be regretted that it cannot be recommended for general planting in flat inland districts, and yet so stately a tree certainly should have a chance in all maritime counties, especially in the south and west of England, as well as in Ireland, where *Pinus insignis* grows so freely; indeed, wherever this remarkable Pine succeeds, *Picea*, I suppose I ought to say *Abies*, *Webbiana* should have a fair trial. The tree from which the annexed cone (considerably reduced in size) was taken is planted at an elevation of 380 feet above sea level, and, exclusive of the shelter afforded by other Conifers, it is fully exposed to the north and east winds. The soil, a heavy calcareous loam, resting on shattered limestone, is cold and late, and it is to this, or rather to these retarding influences that I attribute our success, as the young growths have never once been caught by late spring frosts. The cones of all kinds of Conifers, unusually plentiful last year with us, did not reach their average size, and those of *P. Webbiana* were no exception to the rule. In good ordinary seasons they average 6 inches and 7 inches in length. At first they stand perpendicular, but towards the end of the summer they sometimes lean over and get broken by the west winds. The cones produced by this tree are of a deep, intense purple colour and very full of turpentine, which exudes freely, whilst the leaves, which are more than 1½ inches in length, are deep green above and silvery-white below. These, I believe, are the true characteristics of the best variety, if more than one can be found in this country. At any rate, we have two younger trees, supplied by a well-known firm, rather more dense in habit and with leaves deep green above and paler green below. The silvery colour being absent, they are not so bright and lively when moving with the wind, but still they are very distinct, and, like the original tree, they escape spring frosts.

Each of them, owing to the hot dry summer of 1887, I am sorry to say, has produced a few cones very dark, almost if not quite black, and apparently, for I have not been up to them, not more than 3 inches or 4 inches in length. For some few years I thought these two seedlings might be those of *Picea Pindrow*, also a native of the Himalayas, but this species, not more than 100 yards away from them, on a slightly higher level, makes very slow growth indeed; its leaves are more silvery, but not so white as those of the best *P. Webbiana*, and it never bears cones. Thus tested, I believe the seedlings to be those of a bad form of *P. Webbiana*, and much harder than those of the true

P. Pindrow. Planters willing to give *P. Webbiana* a trial should select a sound, deep, moist, but the reverse of wet soil, at a good altitude—if facing west, so much the better, or at any rate where, whilst in a young state, it will be sheltered from the morning sun. The timber in the Himalayas, where the tree attains 80 feet to 90 feet in height and 5 feet to 6 feet through, is of great economic value, being white, straight-grained, and full of turpentine, which makes it very durable. The cones, too, are very valuable, yielding in a young state a most beautiful purple dye. As these qualities are never likely to be of any use to us, planters in



Cone of *Picea Webbiana*. Engraved for THE GARDEN from specimen grown at Eastnor Castle.

this country in the most favoured spots should not introduce more than one or two specimens. W. C.

A note on Ivies.—Those who wish for a few Ivies will find the early part of February a good season for purchasing plants in pots, which are always the best, as they are the most vigorous and therefore more quickly clothe the wall. It is in a great measure due to planting mere scraps that the Ivy has obtained a bad name for slow growth. It should have a moderately light soil fairly enriched with manure, not forgetting also deep digging, as the Ivy loves to send its roots into well-worked ground. Purchase only strong plants of the respective varieties, and these should be for an

ordinary garden the beautiful, rampant-growing Emerald Gem, or Green, as some call it, the better known *canariensis*, the large-leaved *Ragneriana*, and *atro-purpurea*, which in the winter has a very richly polished purple foliage. *Marginata grandis* is a good variegated variety, and *madeirensis variegata* is eclipsed by none if the soil is fairly light and the position not too exposed or cold; but if for a small garden it is better to keep to the strong-growing green types than the too frequently weak silvery Ivies. When the ground is prepared, plant, and this must be done thoroughly, not in the careless manner that some seem to think suits the Ivy, but which it assuredly resents in a poor growth. It is better not to train the shoots at once, but rather peg them down in the soil in two or three places if they are long and straggling, so as to ensure a plant of bushy, even growth. The young vigorous shoots that come from these pegged-down joints cling quickly and tightly to the walls, and soon make an even covering. If it is found that a particular variety makes a weakly start, it is better to cut the stems to the ground and let stronger growth shoot up to take its place.—E. C.

STAG'S-HORN SUMACH.

(RHUS TYPHINA.)

THOUGH leafless during the winter, the Stag's-horn Sumach is by no means devoid of interest at that season, as a striking feature is furnished by the large rusty-looking masses of inflorescence with which many of the shoots are terminated. The rugged aspect of a specimen, when not more than 10 feet high, is also most marked. It forms also a highly ornamental shrub during the summer months, being usually seen with a clear stem and a head of branches few in number, but furnished with large pinnate leaves that give to it quite a sub-tropical appearance. It flowers during the summer months, and is then very attractive, for the blossoms are borne in the shape of dense velvety-like spikes of a crimson colour, and being produced from the points of the shoots, they stand out very conspicuously above the noble pinnate foliage. Besides its ornamental qualities, the bark of this Sumach is employed in America for tanning. It has the advantage of growing fairly well even on hot, sandy soils, and the bright tints which the leaves assume in autumn cause it then to stand out conspicuously. Another species of *Rhus* is *R. glabra*, which is smaller than the last-named, but still very ornamental, especially by reason of the bright shining green of its large pinnate leaves. The cut-leaved variety of this (*laciniata*) attracted a large share of attention when first introduced, and a very beautiful foliage plant it is, the leaflets being much divided, which give to the plant a light and elegant appearance. It is seen to great advantage when about a yard high and confined to a single stem, when it rivals any of the tropical fine-foliaged plants. The Venetian Sumach (*Rhus Cotinus*) is a very old inhabitant of our gardens, but it still stands out as one of the most remarkable shrubs we have, and is especially valuable from the fact that its most attractive stage, viz., when in flower, occurs about the month of August, at which time there are few other shrubs in bloom. The inflorescence is in the shape of dense wig-like masses, which surmount the entire plant, so that, viewed from a little distance (especially if lit up by the rays of the declining sun), the specimen appears to be enveloped in a cloud of red. The leaves die off a very rich reddish yellow colour, and in another species (*R. venenata*, the Poison Sumach of the United States) they acquire a brilliant scarlet tint. This species is, however, in common with another North American kind (*R. Toxicodendron*), far too poisonous to be recommended for ornamental planting. The Japanese *Rhus succedanea*, a small-growing, pinnate-leaved species, is very brilliant in autumn, but I am not sure of its hardiness; anyhow it is worthy of being treated as a conservatory plant, where the bright-coloured leaves will remain on the plants for a long time. The whole of the Sumachs can be propagated by root cuttings, which is the readiest method of increasing them, all that

is necessary being to cut the roots up into lengths of from 3 inches to 5 inches and dibble them into some sandy soil, and if protected by a frame so much the better, as an excess of moisture can then be guarded against. T.

A FEW OF THE LESS KNOWN CONIFERS.

I THINK the charge of lack of variety often laid to the account of planters of deciduous trees might, in many cases, be aptly applied to Conifers. True, there are establishments where the latter are to be seen in great variety, but in the majority of cases this is not the case, Wellingtonias, Araucarias, one or two Spruces, and Lawson Cypress being largely in the ascendant. This is more to be deplored, as Wellingtonias are not, as a rule, good subjects for the landscape. As the planting season is at hand I may, perhaps, call attention to a few of the less known Conifers that are preferable for many sites to those above-named. Of the Silver Firs, *Abies brachyphylla* is, perhaps, one of the very best, and is, in fact, one of the coming Conifers. It lacks the stiffness and formality of the old Pinsapo or the newer polita, and yet forms a very shapely tree, and, given a favourable site (in our case a sheltered, low-lying spot), it grows at a great pace, its leader averaging an annual growth of more than 24 inches, whilst it is well furnished throughout. I cannot recommend the new polita so strongly as *brachyphylla*, as it is much slower in growth and very stiff and formal in habit. However, it may be included in large collections, as it is a novel tree, and well merits its name of Tiger Spruce, for a thicket of young specimens would be almost as impenetrable as the well-known Wait-a-bit Thorns. Both these Firs, natives of Japan, are comparatively new to this country, and there are as yet no large specimens. The Himalayan Spruce (*Abies Smithiana*, or *morinda*) is, I consider, one of the handsomest of its class, and one of those trees that harmonise well with almost any surroundings. It is seen to great advantage on a slope, with its graceful feathery outline backed up by some large deciduous trees, and it is almost impossible when viewing it in such a position to realise its close affinity to such formal Spruces as *nigra*, *pungens*, and *polita*. *Cedrus atlantica* var. *glauca* is another tree not often met with, but it is a highly ornamental subject for the small lawn, and the silvery hue of its foliage is almost as bright as the underneath view of the Silver Firs. It is difficult to say to what dimensions this tree is likely to attain in England, as it was not introduced until 1843. The few specimens I have seen are of comparatively slow growth. *Sequoia sempervirens*, although introduced about the same time as *gigantea*, never seems to have attained the popularity of the latter tree; it is, however, a magnificent Conifer, and promises to rival in this country the dimensions of the largest Silver Firs. The best specimen in the grounds here was planted about 1850, and is now over 80 feet high, and 12 feet in girth at 2 feet from the ground. I certainly think it might be planted more frequently as a specimen tree instead of *gigantea*, as it has not the stiff appearance of that variety. One of the few deciduous trees classed as a Conifer (*Taxodium distichum*) is not only an ornamental tree for the lawn, but a very useful one for decoration, its light feathery foliage being very acceptable for many purposes. It is rather tender in a young state, and is a long time in making headway; it is, however, with its delicate foliage quite a unique tree, and should be included in all good collections. E. BURRELL.
Claremont.

The cardinal Willow.—What is it? It is highly praised for the brilliancy of its red bark at p. 46, where it is stated to be specially grown at Woking for tying. Then "W. C." (p. 76) follows on also in its praise, but does not appear to have got hold of the right thing, as he states it is not so good as others for tying. For years a red-barked Willow has been circulating under the name of *Salix Basfordiana*, of which there is a male and female form, differing, as might be expected,

from each other in vigour and colour. This is undoubtedly *S. vitellina* var. *rubra*, and a brilliant and fine thing it is, and one of the best I know for tying purposes; so good, in fact, that you may tie it into knots like a piece of string. However, this is not so much the point as its bright winter colour. I have lately procured a Continental variety under the name of *S. Britzensis*, evidently a form of *S. vitellina*, but brighter in colour than *S. Basfordiana*. The sunny skies of France may have something to do with this, and after a season's growth in this climate it may be no better than the other. However, I should very much like to know what the cardinal Willow is. I have been told that it is of a brighter colour than what I grow as *Basfordiana* (*S. v. rubra*); if so, I should much like to possess it, and so, I am sure, would many more. My own impression so far is that there is only one red-barked Willow, viz., *S. vitellina rubra*, and that the cardinal Willow is merely a newly invented popular name for it.—T. SMITH, *Newry*.

PLANTING TREES AND SHRUBS.

THAT was excellent advice the late George Glenny gave gardeners when he advised them in the act of planting not to dig holes below the good soil on a clayey subsoil, for such holes only become receptacles for water, and he added to this the caution never to turn shrubs or plants of any description out of pots into the open border without previously breaking the ball of earth and roots and separating them somewhat and spreading them out in a natural position. As a great deal of planting is going on now, these are seasonable remarks, and it may be added that, as a rule, the planting of raised spots or mounds should be avoided unless in exceptional cases, such as low, damp, swampy parts. There are cases where it is necessary to raise mounds and plant them for the purpose of shutting out from view unsightly objects, &c., and then clay should form a good part of the substratum so as to assist in keeping the surface cool and moist. Some of the finest and most striking specimens of the Golden Elder I ever saw were growing on a raised mound in the county of Herts. On the other hand, stony mounds through which rain can run as through a sieve cause the death of a great many shrubs in a time of drought, for unless in very wet seasons very little of the rain will reach the roots if the surface has become hard or the sloping sides carry it away. All mounds so far as possible should be made level on the top, and if slightly concave so much the better. It is an advantage to scoop a kind of shallow basin round newly-planted trees. In this way the rain as it falls inclines inwards and so benefits the roots.

When a tree is planted on a lawn or any other grassy site the herbage should not be allowed to grow close up to the stem, though it is often allowed to do so. This, if it might be termed a precaution, is of more importance in the case of newly-planted than that of old-established subjects. One writer has remarked that, "as a rule, the roots of a tree extend as far as the extremities of the horizontal branches, and that should be, until a tree has grown large, the measure of the circle that is to be bared of turf and left open to the beneficial influences of the air, rain, and sun." It is a common practice with many who grow standard Roses in forecourt gardens to pile the soil up in high mounds over the roots, which are kept away from these beneficial influences, and it is not to be wondered at that the plants become sickly and die. In the case of trees and shrubs planted in unfurfed soil, an undergrowth of tall and rank weeds is allowed to grow, and many a young plantation has been greatly injured in this way, as it monopolises the nutriment in the soil, prevents the access of rain and sun-light, and actually chokes the foliage of the lower branches of the trees.

In the case of choice and delicate trees and shrubs, and generally those which are liable to injury from the cold of our climate, it is not wise to select, as some do, the lowest and most sheltered spots to plant them in, and for this reason, that in valleys and enclosures they are likely to suffer more from frosts than they would in more elevated posi-

tions and open situations. The protection required by plants that are subject to injury from climatic conditions should rather be in the direction of screening them from our bitter and cutting north-east winds in spring than in excluding them from invigorating summer breezes. One invariable result of secluding them to some extent in nooks and dales is that they are stimulated into growth early in spring and encouraged to make a late growth in autumn, and in both cases the tender shoots are unable to resist and are injured by frosts. In more open and exposed situations the growth is shorter, but then the wood of the shoots is much better ripened. R. D.

Hardiness of *Eucalyptus urnigera*.—We have recently mentioned the hardiness of this species of *Eucalyptus*, and our remarks on this subject are corroborated by the following note from the *Lyon Horticole*: In the year 1878 M. Tabus, a nurseryman at Alais (Gard), sowed in a pot some seeds of *Eucalyptus urnigera*, from which he raised one seedling, which was left neglected in the pot for five years in a corner of the garden. In the year 1883, when he planted this seedling out in the open ground, it was only about 5 feet high. Close by it were planted, under exactly the same conditions, some *Euonymus* and *Laurustinus*. The latter were all cut off by the frost of last winter, and along with them some plants of *Eucalyptus globulus*, *E. coriacea*, and *E. amygdalina*; while the plant of *Eucalyptus urnigera* was not injured in the least. This specimen now measures nearly 18 inches in circumference at $3\frac{1}{4}$ feet from the ground, and it has never needed a stake to keep it straight.—*Revue Horticole*.

Varieties of the Holly.—While the common Holly stands forth as one of the finest of all hardy evergreen trees, there are among the vast number of varieties some very distinct and beautiful forms, but perhaps the best of the green-leaved varieties are the large, bold-habited kinds, represented by such as *scotica*, *platyphylla*, *altaclarensis*, and *Shepherdii*. They, especially the two last, are equally as vigorous as the common Holly, and under suitable conditions will form magnificent specimens if planted singly on the lawn or in any isolated position. So treated, the leading shoot will grow rapidly, and the plant naturally assume a somewhat pyramidal shape, the lower branches in most cases resting on the ground. Other varieties worthy of special mention are the weeping form of the common Holly, and that in which the berries instead of the normal hue are yellow. The variety known as *Donningtonensis* is a free, dense-growing form with leaves of various shapes, some being plainly lanceolate without spines, while others are more or less furnished with prickles. This belongs rather to those of medium vigour, with which must also be included *Bessoni*, whose leaves are quite spineless; *crassifolia*, an extremely curious, thick-leaved form; and *ovata*, a variety with rather small, flat, ovate leaves, and the spines arranged thereon in a very regular manner. A great merit possessed by all the Hollies is the fact that where space is limited they can be readily kept within the bounds allotted to them, and that without the specimens having anything of a sheared-up look, for in cutting back, all that is necessary is to shorten the principal branches to the extent required, and the only effect of this will be to induce a denser habit of growth.—H. P.

SHORT NOTES TREES AND SHRUBS.

Galax aphylla.—The leaves of *Galax aphylla* at this season are remarkably beautiful, and they are now gathered in considerable quantities on the mountains of Western North Carolina and sent north to be used in winter decoration. Florists might make good use of them in certain arrangements. The leaves range in colour from a bright glossy green to deep crimson, maroon and dark bronze, and are often richly variegated.

Staking newly-planted trees.—It cannot be too often inculcated that the operation of staking newly-transplanted trees which have tall stems should be carried out immediately after each tree is planted. For this purpose, M. Em. Rodigas recommends in the

Bulletin d'Arboriculture of Ghent the use of stakes which will be only long enough to have about 2 feet over-ground after they are driven home in the soil. This short stake being firmly attached to the tree permits the upper part of the stem to yield freely to the wind, while the lower part, neck, and roots of the tree are not liable to suffer any appreciable disturbance.—*Revue Horticole*.

KITCHEN GARDEN.

IDEAL VEGETABLES.

OF late years many have turned their attention to the improvement of vegetables, the result being a considerable addition to the lists, and in some instances decided advances have been made. I cannot help thinking, however, that too much importance has been attached to the production of forms and varieties most pleasing to the exhibitor or the lover of sensational vegetables and too little notice taken of the requirements of private establishments and those who want the best of everything on the dining table. It is the views of the latter I wish to advocate, and venture to think I have a great majority on my side. What may be considered ideal vegetables and which hybridisers and others should strive to obtain I will endeavour to state, taking the various kinds alluded to somewhat in alphabetical order. These comments are not meant as a mere tirade against coarseness, but will include in each case my ideas as to what would constitute the most generally serviceable forms, good table quality being the most important desideratum.

Globe Artichokes are largely grown, and as far as my experience goes, they are still gaining in popularity. Unfortunately, in some positions they are liable to be killed by frosts, and the renewal of the stock is a slow and rather laborious proceeding. No plant is more easily raised from seed, but, as it happens, seedlings vary surprisingly, a great percentage being worthless. Is it not possible to save seed in a district, or under glass where it will not be spoilt or poisoned by Cardoons? Those Cardoon-like seedlings that are invariably obtained from a packet of seed are wonderfully productive, but quite uneatable. Seedlings are naturally more robust and more prolific than plants raised by dividing old stools, and a reliable strain of the Green Globe would be a boon of the greatest value to the majority of kitchen gardeners. One of the latest additions to the varieties of Beet is much too coarse, but in the old Dell's Crimson or its various synonyms we have a model root, both as regards size, colour, and quality. The Egyptian or Turnip-rooted is serviceable for an early supply, but soon grows far too large. Crimson Ball is an improvement on it as far as colour is concerned, but what is wanted is a naturally much smaller variety, and which in all but shape would resemble Dell's Crimson. In some gardens none but the Turnip-rooted can be successfully grown, and this is another reason for attempting the improvement of Beet. Several new or improved forms of Broccoli could be named, the quality of the hearts in some instances almost rivaling the best Cauliflowers. These are also fairly self-protecting, but in spite of this they are not nearly so hardy as they ought to be. It is the length of the stems that is to blame for this, and we want more sturdy forms, as the less of the most vital part of the plant that is exposed the hardier the plant must be. There are certainly exceptions to this rule, notably the dwarf growing Purple and White Cape and Osborn's Winter White, but if varieties were forthcoming as dwarf and hardy as Miller's Dwarf Late White with hearts equal to those of Leamington and

Model, there would be fewer complaints of failures. In the case of Brussels Sprouts I believe we are progressing in the right direction. The Aigburth was at first welcomed as being a very productive as well as a large variety, but it is gradually being superseded by good and reliable improvements on the old Imported. I wish I could speak equally as favourably of what is being done with Cabbages. Those varieties producing enormous hearts are not the best, by any means, for private gardens. Ellam's Dwarf Early Spring is a model variety, and any finer than this must approach coarseness. The good old Wheeler's Imperial is slightly harder, but scarcely so good in point of quality, while Hill's Incomparable is smaller and of neater growth than either, and no fault can be found with the quality. These small varieties can be grown thickly, and certainly best please the cooks.

Carrots are greatly improved, the coarser, bad-coloured varieties having been supplanted by superior forms. Early Nantes and Scarlet Model are both excellent Horn or stump-rooted varieties, being of quick growth and good quality. They also keep well, and a constant supply could be maintained with these alone, or the first-named only could be depended upon for all purposes.

Coarseness in Cauliflowers is most objectionable, the best for the table being those that are close and neat, and which can be cooked and served whole. The Extra Early Forcing or Snowball is quite a model, this being of neat growth and producing close heads of the best quality. Later varieties grow more strongly, and are apt to produce large and, unless closely looked after, badly coloured hearts. The comparatively new Magnum Bonum is a noteworthy exception, this being of compact habit and forming really good hearts. A still later variety of the same habit would be appreciated, both Eclipse and Autumn Giant being of strong growth. Celery will be alluded to only in terms of commendation, both the white and red varieties now available being as near perfection as possible. The White Plume was doomed to failure from the first, and it is my belief we shall never have a variety that can be prepared for the table without undergoing a blanching process. Cucumbers are not much improved, none as yet being found capable of superseding the old Telegraph. What we want is a variety possessing a stronger constitution, but in other respects much resembling Telegraph. For home consumption smaller rather than larger-fruited varieties are most suitable, Cardiff Castle being the best of the kind yet available. Veitch's Perfection, if it answered to the description given of it, would meet all requirements, but when tried here it was a failure, or at any rate not equal to the other varieties just named. Varieties that produce four or more fruit at a joint are to be avoided rather than selected, over-cropping being a very frequent cause of early failure, even in the case of moderately productive sorts. If any further improvement of Endive is attempted, it should be in the direction of effecting a cross between the Green Curled and Round-leaved Batavian—the latter, in my opinion, being the best in point of quality, and an earlier form would be acceptable. It is doubtful if any further progress will be made with Lettuces, both Cabbage and Cos types being well varied and excellent in every respect.

There are plenty of good varieties of Onions to select from, good keeping as well as exhibition forms having been added to the list. The white-skinned Tripolis are most appreciated for

cooking whole, being tender and very mild in flavour. Unfortunately, when these are sown in the spring they are very liable to mildew, and in any case do not keep well. We want, therefore, a good keeping white-skinned Onion, but this, I am afraid, is an unattainable ideal.

The number of varieties of Peas have been and still are rapidly increasing, but the tendency of raisers is all in favour of showy pods and extra large Peas. These may suit the exhibitor and market gardener, but are neither the most suitable nor the most profitable for home consumption. William I. is a model variety in all but quality, and Gladiator is a step in the right direction, this only needing a better constitution to make it perfect. It should be added, for the benefit of those unacquainted with this variety, that it is of medium height, very productive, the pods being long, curved, thin, and closely packed with comparatively small, green and fairly sweet Peas. Unfortunately, it is not proof against either a wet or dry season. Surely it is possible to endow this variety with a more robust habit, or else to communicate some of its good qualities to the more reliable Princess Royal. Ne Plus Ultra is undoubtedly the most popular variety in cultivation, yet it is by no means perfect. It frequently attains a height of 7 feet and upwards, and, all things considered, is not particularly productive. In Criterion we have a somewhat dwarfer habit, but this is suitable only for second early and successional crops, and we want a later form possessing a better constitution than Omega, the dwarf Ne Plus Ultra. Chelsea Gem is a model early variety, and numerous owners of small gardens would welcome later forms of much the same type. Much that has been said of Peas is also applicable to runner Beans. The new varieties of these are fairly productive and the pods are very fine, but the good old common Scarlet is yet the best for the non-exhibitor and also the market grower. A good perpetual bearing kidney Bean, or one say that would climb to a height of about 3 feet, would be welcomed by many, none of those recently introduced of a somewhat similar character giving satisfaction. With such a number of good Potatoes to select from, all ought to be able to find what they want. I am afraid a reliable disease-resisting Potato with other than tall strong haulm will not be forthcoming. Nor shall we be favoured with a disease-resisting Tomato. It ought, however, to be possible to impart good flavour to some of the smaller-fruited varieties of the latter, thus rendering them fit for dessert.

W. IGGULDEN.

TOMATO GROWING OF THE FUTURE.

WHATEVER may be the future of Tomato growing, the experience of 1888 as regards its cultivation cannot but be of great service to those who intend to embark in or extend the growing of it for market. It will be remembered that many cultivators failed altogether to secure a satisfactory crop even in well-constructed houses, while very few had any ripe fruit at all from open walls. This failure was due to too much rain and lack of sun. Those who failed with them under glass may draw a useful lesson from last season's experience, because there is no doubt that they failed in supplying the requisite amount of heat to keep the plants healthy, and also at the same time gave the roots more water than was good for them. In every successful case that I saw last season the plants had been assisted by fire-heat up to the end of June, and the roots had been kept too dry. In my own case, plants grown in pots and placed on a stage fully exposed to all the sun with an average night temperature of about 55° supplied ripe fruit by the end of May in abundance, and continued to do so all the summer. But the most productive plants I met with were

grown in a rather large span-roofed house, with the plants occupying the centre bed and trained to straight sticks. The staple of the border was decidedly poor, and as it had but little water given it, the soil at the end of the summer was dry and hard.

Further observations show clearly that, except in very hot and dry summers, the crop is more reliable on gravelly or sandy soil than where the staple is heavy and the lower stratum of earth of the same character when they are grown against walls. Further than this, my observations during the past season lead me to believe that in average seasons, when preparing the soil for open-air culture, it will be better to use coarse gravel or small stones than manure to mix in the border, in the same proportion as stimulants would be given. The result of my experience goes to prove that a dry, warm soil is better than a rich one. And I am quite sure that when they must be planted against walls, that it will be better to substitute some open material that will increase the warmth of the border rather than to attempt to grow them in a rich staple.

I do not think that Tomato culture will decline; on the contrary, there is every indication that it will extend, at least under glass. But to be successful, the cultivator must keep up the temperature by the aid of fire-heat, even at midsummer if it is required. If a period of dull weather should occur, fire-heat will not be so necessary if the water supply is carefully regulated according to the weather.

J. C. C.

KITCHEN GARDEN NOTES.

SEAKALE.

WHERE a number of roots are lifted and forced every winter, fresh plantations, as a matter of course, have to be formed each spring. Seakale is very easily raised from seed, but this is the least satisfactory, because the slowest method of propagating the requisite stock. Plants may be most readily raised from root cuttings, and these by good culture can be grown to a serviceable size, or quite strong enough for lifting and forcing in one season. With this end in view, all strong young thongs or roots that are broken off when the crowns are forked out of the ground should be preserved, and many more can be cut from the old stems after they have been forced. Those that form the best cuttings are quite young roots about the size of a man's little finger, and these should be cut into 3-inch lengths, a piece being sliced off the smallest end, or otherwise this, the wrong end, might be inserted uppermost. It is yet too early to trust these root cuttings in the open ground, as both slugs and frosts might injure them. For the present they may be buried in sand or fine mould and kept in a cool shed, a better plan, however, being to dibble the cuttings rather thickly in boxes of good soil and set them in frames till the early part of May. By that time they will have formed roots and buds, and when planted out in rich soil will be well in advance of those not started into growth before they were dabbled out. Up to the present time the weather has been most favourable to open-air forcing, those crowns early covered with pots and forcing material yielding extra fine succulent growth. It is a mistake to force a second supply of shoots from established roots, unless the latter are to be destroyed, and to avoid thus weakening them the manure and leaves ought to be early cleared away, enough only being left over the clumps to protect them from frosts until they are sufficiently hardy to dispense with this covering. The forcing material with perhaps a slight addition of fresh manure, ought to be further utilised for forwarding later supplies. As a rule, the very finest produce is obtained without the aid of manure, and pots may also be dispensed with. A portion of the plants, or say a single row, ought at once to be well mounded over with either leaf soil, decayed tan, or light mould to a depth of not less than 9 inches, over this being banked a good thickness of garden soil obtained from between the rows. More crowns may be similarly covered a fortnight hence, and the remainder before they commence active growth. In this manner a succession will be

ensured, cold winds and frosts retarding those longest exposed.

RHUBARB.

This also forces rapidly at this season and it ought to be plentiful in most gardens. It is still necessary to cover up more roots with boxes, tubs, or other contrivances, and to surround these with a bed of leaves or leaves and manure, taking care to guard against over-heating. A screen or rough covering formed with the aid of stakes and straw litter will materially forward Rhubarb, a difference of a fortnight being a good gain, especially when the produce is marketed. Many market growers cover the bulk of their early Rhubarb with a rough mound of straw litter only, and this being kept loosened does not decay rapidly, as it otherwise would, and with the aid of such protection a comparatively early supply of rather short, but profitable stalks results. Should the weather remain open and the ground in good working order, new Rhubarb beds may with advantage be formed rather earlier than usual or before other matters require attention. Three important points or aids to success are a good selection of varieties, abundance of solid manure, and deeply dug ground. Royal Albert, Linnaeus, and Johnstone's St. Martin are all early and of excellent colour and quality, and for the later supplies Myatt's Victoria is the best. Good roots for planting can be purchased from most seedsmen, and those who have a few strong old clumps to spare may split them up into numerous offsets, each having one or more good crowns attached. Rhubarb may also be easily raised from seed, this being either sown in the open ground or in heat and eventually transplanted to good, well-prepared sites. Unfortunately, seedlings cannot be depended upon to come true to name. In all cases it is advisable to plant Rhubarb as much as possible in convenient quarters outside of the garden walls, or to where the heaps of forcing material may be readily carted and not prove an eyesore. The ground ought to be double dug to a depth of 2 feet, solid manure being freely mixed with each split. If this has already been done, so much the better, as unless it has settled considerably it will be necessary to trample it down, a loose root-run being unfavourable to a quick strong growth. The divisions may be put out in threes, these groups being not less than 3 feet apart, a distance of 4 feet separating the rows, or strong single pieces may be planted 3 feet apart each way. In fact, they may be grouped in any form to suit the method of forcing adopted, but in every case loss rather than gain results from crowding. The old stems ought to be completely buried, only the buds or crowns showing just above ground, and some of the finest soil should be firmly disposed about them. A good mulching given now and renewed if need be next summer will complete the operation. Well-established clumps that give signs of failing vigour will be much improved if the soil is forked away from the uppermost roots, these being given a good dressing of solid or partially decayed manure prior to returning the soil.

JERUSALEM ARTICHOKE.

These very often will succeed where other vegetables fail, and as they are very serviceable, if only by way of variety, when the list is rather limited, a few or many, according to circumstances, may well be grown in every garden. If properly cooked and served, these roots are by no means to be despised, and it is surprising that so few amateurs cultivate them. Although it is quite true that they succeed fairly well with but little trouble expended upon them, this is no excuse for leaving them to grow on the same ground year after year, merely lifting some of the roots and leaving the rest to grow again. In reality they pay for good culture and change of soil, and this is accorded them in most well-managed gardens. They are much harder than the Potato, and should the weather and ground be favourable for the operation, there is no reason why the planting should not be completed now. Owing to the great height the stalks attain and the shade they cause, we assign our Artichokes a place outside of the walls. They succeed best in deeply-dug, well-worked ground,

or such as best suits Potatoes, very little manure being used, a rich root-run causing strong top-growth and the formation of coarse tubers of the poorest quality. Our usual plan is to open drills running from north to south, these being drawn 5 inches deep and fully 3 feet apart. The preference is given to small whole sets with a sprout intact, but if these were scarce large tubers would be cut up, much as Potatoes are treated, every little piece growing. They may be disposed 10 inches apart, and should be carefully moulded over, or otherwise the sprout might be snapped off. One good moulding up and occasional cleaning is all that need further to be done to them.

TURNIPS.

Apparently these are very plentiful this winter, and hereabouts there will be an abundance as long as old roots are needed. Late-sown crops of Snowball and Red Globe have scarcely ceased to grow, and both these and Chirk Castle Black Stone will, most probably, keep well. Where, however, there is a prospect of an early scarcity of roots, and seeing they are always in demand, it is advisable to attempt forcing a few, or any rate forwarding a small breadth on a warm border. A very slight hotbed is needed in the former case, on this being set a good-sized garden frame and partially filled with the shortest of the heating material, on this being placed about 9 inches of loamy soil. A firm root-run is desirable, as being best calculated to induce early bulbing, and the soil should therefore be trampled prior to being levelled over and the seed sown. Early Milan is the variety that should be sown, and if the seed is new it ought to be distributed broadcast and thinly and covered with a little fine soil. Cover closely till the seedlings appear and protect every night subsequently. Air ought to be given in mild weather and freely when the plants have attained a good size. At the outset a little thinning out may be necessary and this may be more completely done when the earliest bulbs are as large as good-sized Turnip Radishes, or as soon as they can be used. Sown very early on open borders and not protected they rarely succeed, but if either covered with frames or mats capital crops may result.

W. I.

PROPAGATING.

BOUVARDIAS.—To obtain good plants for autumn flowering, the cuttings should be propagated as early in the season as possible. Stock plants should be placed in a warm position and kept frequently syringed, but they will require very little water at the root. The cuttings may be taken as soon as the shoots are 2 inches or 3 inches long. It is not necessary to cut them close to a joint, as they will root freely from any part of the stem, provided they are taken from fresh, healthy growths, not hard or stunted wood. For propagating Bouvardias I like to use 5-inch pots, filling them with a compost of loam, peat, and sand in equal parts. Give plenty of drainage, and surface them over with sand. The cuttings should not be crowded, about twenty in a pot being quite thick enough. They should be kept quite fresh, and watered as soon as put in. The pots may be plunged in a close case where there is a good brisk bottom-heat. Bouvardias are rather liable to damp off if not carefully attended to.

FICUS ELASTICA.—The cuttings should be taken from well-ripened tops while they are in a dormant state, or from single eyes taken when the wood-bud begins to start. To prevent bleeding, dry sand should be applied as soon as they are cut off. The cuttings should be put in singly in small pots, and sandy loam used for soil. They should have the warmest part of the propagating pit. A good bottom-heat is very essential. If put in a close case where the plunging material is moist, they may stand one day before water is given, but it is a mistake to allow them to get too dry.

SOWING SEEDS.—The second week in February is a good time for sowing seeds of a few very useful subjects for keeping up a bright display during the summer months. There are various opinions as to

the best method of raising seedlings of various tender subjects. Light sandy soil, plenty of drainage, and a shady position are too frequently recommended. With regard to soil, which is the first consideration, my experience is that a more retentive soil is preferable, and for seeds which germinate within a reasonable time it is not advisable to use much drainage, as by having a larger body of soil in the pots, when once properly watered sufficient moisture will be retained to keep the surface in a moist condition until the seeds begin to germinate. I am much in favour of using loam for seeds. Of course, it must be soft mellow loam, and not inclined to form a crust on the surface after it has been watered. A little well-prepared leaf-mould may be added, and also sand if the loam does already contain sufficient to keep it from becoming too close. It will be all the better if the compost can be prepared some time before it is required for use. If this is done, and it is spread out thinly and moistened, it will give a chance of any seeds of weeds germinating, and thus get rid of one great nuisance. It should also be properly cleansed from worms, &c. In filling pots for small seeds the soil should be pressed moderately firm, and a little that has been sifted through a fine sieve spread evenly over the surface, but not pressed. After the seed has been sown the soil may be pressed lightly, and in case of very small seeds no extra covering will be necessary, but, in some instances, a slight sprinkling of fine soil may be shaken over the surface. In watering I like to give only a very slight surface watering, using a fine-rosed watering-pot, and then well soak the under soil by dipping the pots, taking care that they are not dipped deep enough for the water to flow over the surface. Select a light open position for the seed-pots at this season of the year. A shelf where the pots will be close to the glass is about the best position. A piece of glass should be laid over each pot during the day and removed at night, and although placed in such a position the seeds will require a little extra attention, and will not germinate quite so quickly, the seedlings will be much stronger, and not so liable to damp off as when they are raised in a close shady position. All seedlings should be pricked off as soon as large enough to handle. They will then require a little shade for a few days.

GLOXINIAS.—Such good varieties may now be obtained from seed, that it is hardly worth keeping named sorts. If the seed is sown now, good plants may be obtained for flowering the same season, and these come into bloom in time to succeed those grown from corms saved from the previous season. It is, however, advisable to select a few of the best and most distinct varieties each year and propagate them from leaves, and by so doing a much healthier and better stock may be maintained than by propagating old named sorts year after year. Seedlings require very careful treatment while in a young state. They must be pricked off as soon as large enough to handle, and potted off singly before the roots have got too matted. After they are fairly established, they may be grown on with little trouble, and they do not require such a high temperature as is often given them.

TUBEROUS BEGONIAS.—These also make good plants in one season. The seed should be sown not later than the second or third week in February. It may be sown and the young plants started in heat, but they should be removed to a cooler position before they become drawn; and after they are well established, a cold pit will be most suitable, as they do best where they can be kept up close to the glass and have plenty of air. A slight shading only is required during the hottest part of the day.

TORENIA FOURNIERI AND T. BAILLONI may also be sown now. These are both very pretty and useful plants for the conservatory during the summer. A.

Natural beauty.—There is one duty obvious to us all; it is that we should set ourselves each one of us to doing our best to guard the natural beauty of the earth; we ought to look upon it as a crime, an injury

to our fellows, only excusable because of ignorance, to mar that natural beauty which is the property of all men.—MORRIS.

FRUIT GARDEN.

W. COLEMAN.

THE CURRANT.

If the Gooseberry is the king, the Currant certainly is the queen of bush fruits; indeed, taken commercially and for domestic purposes, I question if the Currant is not the more valuable of the two. Currants embrace two species, the black and the red, whilst the white, the subject of the accompanying engraving, is only a variety of the red. Indigenous to this country, it is perfectly hardy, and being most accommodating



Fruiting branch of White Currant.

as to soil and situation, there is not a parish in the United Kingdom in which certainly the red and black, if not the white, are found growing and fruiting in every cottage and ducal garden.

The Red Currant (*Ribes rubrum*) commercially is not quite so valuable as the Black (*R. nigrum*), but for all-round domestic purposes, especially amongst the middle and upper classes, it most certainly heads the list. Fit for use when fairly coloured, the first gatherings mixed with Raspberries, to which they give a piquant sharpness, are in daily demand for tarts and other dishes. Then, as they reach maturity, enormous quantities are used for bottling, for jams and jellies, and for adding colour and briskness to preserved Strawberries. Being good travellers when picked dry, hundreds of

tons find their way to large towns where they have a ready sale at paying prices. Another very important point in favour of the Red Currant is the certainty of the crop, for whilst we see Gooseberries cut off or sadly decimated by late spring frosts, it rarely happens that the fruit of this species, which is later and perhaps better sheltered by the leaves, is even a light crop in fair average seasons.

The White Currant is less hardy and commercially less valuable than the red or black, whose colour gives them the ascendancy for cooking purposes, and yet the white variety, soft, sweet, and delicious, is invaluable for the dessert. Indeed, next to the Gooseberry, the White Currant is pre-eminently popular with all lovers of fresh ripe bush fruits, who not unfrequently retain more costly dishes of hothouse produce for the gratification of another sense. The white variety, then, should be planted in all good gardens, not only as a bush or pyramid, but also as a single, double, or treble cordon against north and west walls, where, by means of broad copings and good nets capable of keeping out wet and birds, most delicious fruit may be preserved well into November.

The Black Currant, of which we now have several improved varieties, is grown more or less in private gardens for making jam, jelly, cheese, and bottling, and occasionally for cooking fresh from the tree. For eating fresh, the harsh and, to many, disagreeable flavour is prohibitive, and yet when well boiled in a good beef-suet paste, or stewed with a few Raspberries, it forms a most wholesome and delicious dish for daily use. As a market fruit the Black Currant is more valuable, and possibly in greater demand than the red; hence the immense quantities now grown by market gardeners and thrifty cottagers, not only near large towns, but far away in the country, where railways offer fair, but I am sorry to say the reverse of cheap, facilities for quick transit to ready purchasers. The market gardener who plants an orchard frequently puts in intermediate rows of Black Currants, not only on account of their partiality for shade and a certain amount of moisture from well-drained, deeply tilled ground, but also to secure quick returns, as bearing trees are easily manufactured, transplant readily, and soon yield very fine fruit. Cottagers in this part of the country, equally alive to the great demand and good prices, plant rather extensively in proportion to their garden area, and not unfrequently a score or two of good bushes settle the account at rent day.

PROPAGATION.—The propagation of Currants being so very simple, it unfortunately happens that too many persons, penny-wise-and-pound-foolish, persist in taking cuttings from old varieties; whereas a few shillings expended in improved sorts, now plentiful and cheap, whilst securing change of soil, would most unquestionably prove a paying investment. In the selection of wood suitable for cuttings, ripe shoots, neither gross nor weak and 12 inches to 18 inches in length, are to be preferred. If taken with a heel or half an inch of old wood early in the autumn, disbudded from the base to within a few inches of the point, and firmly inserted one-third of their length in good friable soil, ninety per cent. will root and form a few small shoots by the end of the first season. Cuttings may be put in as late as February; autumn, however, is the best time; at least I have found it so, and having a liking for bushes on extra tall stems, my cuttings are lined in with a spade, 9 inches apart and 12 inches from row to row. The leaders are stopped when they have made about 9 inches, and all buds that start within 1 foot of the ground are pinched and eventually removed. A little time is lost the

first season, but it is more than repaid the second, when plenty of roots force from four to six shoots from each crown. These are trained to form the foundation of the ordinary bush or pyramid, whilst those most promising are allowed to grow into cordons. If all goes well, the young plants may be lifted and lined out in the nursery at the end of the first year, but by giving a little extra room in the cutting bed this work is quite as well deferred until the end of the second, when all latent stem-buds will have started and suckering in the future will be less troublesome.

PERMANENT PLANTING.—Although bush fruits, as I have observed, are very accommodating, the soils which suit them best and give the finest and brightest fruit are well-drained, deeply-tilled loams, rich enough to produce stout shoots without the aid of manure at the outset. Lacking this quality, good rotten manure, road-scrappings, burnt earth and refuse—anything fresh, may be added and thoroughly incorporated as the work of preparation proceeds. In old gardens teeming with humus, moist, but not wet, the Currant is quite at home; but in this case even I would use a little fresh soil, free from manure, for giving the roots a start. The situation, considering that fine bright Currants can be grown on north walls, to many may appear a matter of secondary importance, but the fact that there are Currants and Currants must not be overlooked; therefore, if we would have them sweet as well as bright, we must plant where they can have full exposure to sun and light. The distance from bush to bush is a matter which must be governed, first, by the variety, as some of the large red grapes grow very strong, whilst the whites assume a neat and compact form; secondly, the form of the plantation, which may consist of a series of rows, or a single row only near the margin of a walk. Upon the block system all Red Currants should be planted 6 feet apart, white ones 1 foot closer; in single file, the first may run 4 feet, the second 1 foot closer—be it understood with liberty to grow upwards and outwards, as Currants, like all other fruit trees, rejoice in extension. Cordons against walls or fences may be planted 1 foot apart, but unless head-room is abundant, it is best to place them 4 feet from stem to stem, and carry four shoots equi-distant up from each.

PRUNING AND TRAINING being so closely connected, and my space limited, I must treat of the two under one head. Assuming that clean-stemmed bushes with four to six shoots each have been formed in the nursery, the knife the first spring after planting must be kept in the sheath, but the ordinary spreading bush or vase form being the ideal, the framework may be set by tying or pegging them out, and by pinching the points out of any unduly taking the lead. Early in the autumn the year after planting, the centre shoots may require cutting back to within a foot of the collar, but those pegged out may not require shortening, especially if the young growths have been once pinched during the summer. Once the proper set is secured, each of the original shoots will send out another from near its base, and this in like manner must be pegged down to increase the size of the bush, but on no account must the centre become crowded with robbers, a condition which may be prevented by pinching all inside growths throughout the summer. As Red and White Currants attain size and become furnished with fruit-buds, each leader must be shortened back to about 6 inches every autumn, and the older parts be closely spurred to a single bud. In this way, by means of about 6 inches a year, very large bushes may soon be made, but in course of time unfruitful branches may die off or require removal, when vigorous young growths here and there should be allowed to run up, not only to take their places, but also to rejuvenate the bushes; for after all there is nothing like a free growth of young wood for keeping fruit trees healthy.

MULCHING.—The Currant being so fertile, I need hardly say mulching and watering play a very important part. The first mulch immediately after planting need not be rich, neither must anything in the form of stimulating liquid be used for wash-

ing the soil home about the roots, but the mulch must be heavy enough to keep in moisture and the water plentiful enough to settle them in their new home. When in full bearing an annual dressing with good rotten manure and copious drenchings in dry seasons with liquid and house slops, including soap-suds, will tell wonderfully upon the weight and quality of the crop.

THE BLACK CURRANT being as distinct in habit as it is in colour, I have left it until last. In the first place, it never does well on a single stem; therefore the striking of single cuttings and keeping them disbudded is quite unnecessary, not that the Black Currant will not strike as freely as the Red, but once larger pieces of the branches have rooted in light, moist, rich soil, they may be allowed to form suckers to their fullest extent. In the second place, the fruit in loose irregular bunches being borne almost entirely upon the young shoots, the method of pruning is equally distinct. In gardens where the old varieties have been grown for generations, large stools furnish an abundance of well-rooted fruit-bearing branches, but this is bad practice, for independently of the fact that they may become soil-sick, these layers, which cost nothing, keep the improved varieties in the background or out of the garden altogether. By way of a start, the grower who would have the finest and sweetest fruit should invest in such sorts as Lee's Prolific, Blundell's Black, and Black Champion, plant well, and give them plenty of good food and moisture. Drought, indeed, is fatal to size and juiciness of berry; consequently, taken weight for weight, jam made from a maximum of small, dry, husky berries is inferior to samples made from varieties now in favour with growers for our principal markets.

PLANTING.—Having prepared the ground as for Red and White Currants and provided a good stock of the best sorts, the bushes, when planted in blocks, should stand at least 6 feet apart each way, and considering that they do not object to slight shade, they should be encouraged to develop until every inch of ground is covered with the half pendent branches. If planted in single rows, the bushes or stools may be placed somewhat closer together, and this perhaps is the most paying way, as boundary or dividing lines 6 feet in height and as many through can be formed in a few years. When thoroughly established and suckering freely they will stand any amount of mulching; they will also require top-dressing and feeding.

PRUNING.—A most simple operation, for knowing that the fruit is borne principally upon young wood and not upon aged spurs, it consists in the annual thinning of the heads to let in light and air as well as the hand. The shoots or branches which should be taken away are those which have either become old and bare, cross each other or have found a resting place upon the soil. The removal of these allows young growths which do not require spurring to develop and force their way outward, and in this way a constant relay of the best fruit-producing wood is secured.

If space allowed, one might go into special modes of growing and training Currants as pyramids, standards, and espaliers, but culture for the greatest profit being to the fore, this part must stand over for another occasion.

VARIETIES, fortunately, are not numerous, and yet purchasers who exhaust the best catalogue lists will find themselves in possession of some duplicates, especially of the red varieties. The following for some special qualities, including earliness, lateness, size, or sweetness, are worthy of general culture:—

Red.—Scotch, or Knight's Early, bunches short, berries large, growth upright; Dutch, sweet, rich, and good, an improvement on the old Red; Cherry, fruit very large, deep red, and early; Mammoth, very large and fine; Warner's Grape, bunches long, berries large, fine for exhibition; Ruby Castle, large, rather acid, ripens and hangs late, growth strong; La Fertile, large, and a prodigious cropper; La Hative, a continental variety, said to be very early and excellent; Wilmot's Long Bunched, very fine, bunches 6 inches long, fine for exhibition.

White.—Old Dutch, the good old variety generally met with in gardens; Old Dutch Cut-leaved, fruit much larger than that of the preceding, the finest for dessert and exhibition; Wilmot's Large, possibly a duplicate of the preceding, very fine.

Black.—Lee's Prolific, fruit very large, richly flavoured, prolific, a great advance, should be grown in all gardens; Naples, or Green Bud, a great favourite for market; Baldwin's, much grown in Kent, and highly recommended; Prince of Wales, very hardy and prolific; Champion, berries very large, quality excellent, should be largely grown; Blundell's, very prolific and fine, name local.

GATHERING AND RIPENING LATE PEARS.

THERE prevails an impression that lack of flavour in late Pears is due to premature detachment from the trees. A great number of growers undoubtedly gather their Pears, especially the keeping varieties, before they are ready, but there comes a time when the trees lose their influence for good, and, notwithstanding the fact that the fruit may be allowed to hang until it drops, unless the dry warmth of the autumn has converted the crude water into saccharine matter, the result cannot be satisfactory. By gathering the Pears a few at a time as they part freely the season may be prolonged, but unless by good cultivation the fruit as well as the wood have been properly matured, hanging till doomsday will not improve the quality. I recollect many years ago learning from the late Mr. Rivers that he had been tempted by an exceptionally fine autumn to allow some late Pears grown under glass to hang until the first week in November, and quite recently, when turning over the pages of the ninth edition of his "Orchard House," at page 91 I came across the following remarks:—

Pears under glass must not be suffered to hang too long, for in 1854, and again in 1855, I had Pears on my trees of fine size and most beautiful appearance, having clear skins of a fine golden colour, which never became soft. Again in 1855 I allowed some Louise Bonne, some Passe Colmar, and a few others to hang in the open air until November, but these never ripened.

From these notes "Learner" (p. 80) will gather that the vagaries of Pears, always most prominent after bad summers, were as great a puzzle to the veteran, even in the fine climate of Sawbridgeworth, nearly forty years ago, as they are to us to-day. The secret of success in growing the fruit may be summed up in a few words: Keep the roots of the trees near the surface of warm, well-drained and copiously fed borders, crop lightly to ensure full development, and let the fruit have all the sun and air possible throughout the summer and autumn. Grape growers know quite well that Lady Downe's and other late sorts must be ripe before the Vines put on the sere and yellow leaf, otherwise their watery juices will evaporate, the berries will shrink, and the flavour will be very poor indeed. Pears are no exception to this law, I may say, of Nature; therefore, those who would have late Pears worth eating must make progress whilst the sun shines, and not trust to gathering at any particular date, as a king's fruit room cannot turn crude sap into saccharine matter. But, supposing that Bergamotte d'Esperen and Easter Beurré have been well matured upon the trees, that the density of the saccharine matter at gathering time is equal to that of fruits grown in France and Jersey, how are they to be kept? and under what treatment must their fullest flavour be developed? Well, following Mr. Barker's advice (p. 34), the grower should gather all the fruits that part on the touch or the slightest turn upwards, convey them care-

fully to a dry cool fruit room where the temperature neither fluctuates nor varies much above or below 40°. If it does fluctuate, or the atmosphere is too dry, he may cover them with some light, inodorous, non-conducting material to prevent evaporation, or, better still, he may place them in single layers in close-fitting drawers, marking each gathering, as first in must be first out again. Extra fine fruit again may be folded in silver paper and stored away in shallow, close-lidded boxes, in large clean flower-pots, or pipkins with lids to them. When the time for use approaches, the grower, knowing his probable consumption, must remove the first batch to a dry airy room in which the temperature ranges from 50° to temperate, but the fruit must not be unnecessarily disturbed nor handled. The length of time allowed for softening and bringing out the flavour will depend upon the condition of the Pears when the cool store is opened. If quite hard, very late fruit being now the cry, they may be left alone for some time longer. If showing signs of softening, ten days should put the flavour and aroma into them. When Grape rooms were kept warmer than they are now we placed a given quantity in this structure weekly, but 40° to 45°, the orthodox temperature in these days, is much too low for choice Pears which do not ripen until February.—W. C., *Eastnor*.

—“A Learner” (p. 80) suggests that further and more particular information concerning the proper time for gathering, with the best methods of keeping and ripening late Pears, would be of service to many, and as he refers to a sentence in a recent article of mine, I will endeavour to render the operations relating to the above important points in Pear culture as clear as I can, and no doubt others of your correspondents will be induced to give the details of their practice.

GATHERING.—The time for this operation will, of course, vary in different localities, while the season as well as the positions in which the trees are growing will have to be considered. Generally speaking, for late varieties—that is, those which usually ripen after Christmas—from the middle of October to the end of that month is the period during which the Pears will arrive at the stage when they are ready for picking. The exact time, however, when a certain variety will be fit for gathering can only be determined upon the spot by examining the fruits. When quite ready for picking they will part easily from the tree at the junction of the stalk with the fruit spur. The fruits should be taken in the hand and gently raised in an upward direction, when, if fit for gathering, they will, when raised to a horizontal position, part from the tree at the point above indicated without any further effort to detach them. The whole crop upon the tree may not always be ready at the same time, in which case those that appear at all firmly attached should be allowed to remain a week or so longer, and they will often in this short space of time improve perceptibly, as the tree being relieved of the greater part of its load, concentrates its energies upon the remainder. Upon looking up my memoranda relating to the time of gathering the latest Pears, I find dates varying from the 20th of October to the beginning of November for such kinds as Josephine de Malines, Bergamotte d'Esperen, Easter Beurré, &c., thus showing that no definite time can be given for gathering any particular kind even in the same garden, but that the cultivator must use his own judgment in the matter. A fine day should if possible be chosen for the operation, the fruits being very carefully handled in the process, placing them one at a time in the baskets, which must not be too large. The fruit should then be conveyed direct to the fruit room and placed upon the shelves with the same care.

STORING.—This is a point of the greatest importance, for if the Pears are placed in a position exposed to currents of air, or where the atmosphere is very dry, all the juices are absorbed before the fruits arrive at maturity; whilst a super-

abundance of moisture in the air causes insipidity. The most elaborately constructed fruit rooms are not unfrequently ill adapted for preserving Pears in the best condition, and quantities of valuable fruit are spoiled through being exposed upon open shelves in these rooms to currents of air and a fluctuating temperature. A dry cellar or cool cupboard would often prove far more suitable. However, when a fruit room is available one generally likes to make use of it, and much may be accomplished by judicious management in rectifying its defects. The essentials to preserving the fruits satisfactorily are an equable temperature of about 40° during winter, darkness, and a rather dry atmosphere. Without at the present time entering into the construction of the fruit room, I may say that these conditions are best secured when the roof is thatched and the walls are constructed hollow. Such a room, when closed and the doorway packed with straw or mats, is frost-proof, unless in exceptionally severe weather. If not so constructed, external coverings are preferable to artificial heat for excluding frost and regulating the temperature. The room should only be entered for the purpose of examining the fruit and obtaining a supply for the table. Those selected for early use should be placed in a temperature of about 55° for a week, or longer if needful, before they are required. A dry atmosphere is better than a moist one, as this often impairs the flavour. The temperature of a living room, which usually ranges, or ought to, between 55° and 60° during the winter, is most suitable for ripening Pears. More heat than this, however, may be used if desirable, but it is not wise to do so except in cases of emergency. Where the fruit room does not fulfil all the above needful conditions, I can strongly recommend the plan of storing in clean flower-pots; those 10 inches or 12 inches in diameter are useful sizes, and new ones are preferable. After having been gathered the Pears should be conveyed to the fruit room and placed upon the shelves for about a fortnight to allow them to part with some of their moisture. Then have some flower-pots ready with wooden covers, into which the fruits should be very carefully placed, taking care to put in only those that are quite sound. When nearly full, place the covers on the pots, and arrange them upon the floor of the fruit room, or remove them to some other cool dry place. No further attention will be required until their season for ripening approaches, when a potful at a time can be brought out into warmer quarters and the ripening process finished off.—A. BARKER.

FRUIT NOTES.

PINES.

If we except the Early Queens, placed in heat at the beginning of January, work in this department does not become pressing before the middle of the present month, and then even the state of the weather, as well as the condition of the plants, should be the guide, as it is much better to defer the potting of these succulents for a few weeks than to rush into a general disturbance of plants and beds should the elements prove unpropitious. Years ago all operations, from sowing Onions to potting Pines, were performed to date, but this horticultural red tape business, fortunately, has been given up, and no one can say that growers and consumers have not great reason for satisfaction. In those days renovation of the beds in the autumn, burning off the roots during the winter, and making a fresh start with lanky plants in the spring with too many was a triennial affair, resulting in fruits which modern growers call “crabs.” In these times they pot up large suckers, give them one shift, and cut Queens weighing 5 lbs. or 6 lbs., Cayennes and Rothschilds 2 lbs. or 3 lbs. heavier, if not in twenty months, certainly within the two years. This surely is a step in the right direction, but in what way has the advance been made? Why, simply by a careful selection of suckers, by eschewing dates, by giving the necessary aid at the right time, and growing the plants right on, not only to showing, but to the ripening of their fruit. Express speed it may be, but then we have made consider-

able strides in building, heating, and ventilating, and the gardener is not the man to lag behind the engineer.

From these remarks the young beginner will gather that I do not set much value on dates or hard-and-fast lines as to temperature, but prefer giving rest in bad weather and making full speed when the sun shines brightly. Such being the case, we will now look in upon those early Queens introduced to extra heat and moisture more than a month ago. If well watered with weak guano water at a temperature of 80°, and the heats have ranged 65° at night, 70° by day, with an extra run of 10° from sun, that about the roots being 80°, the opening of the centres of the plants will tell whether they were properly prepared and judiciously selected. If growth has set in it is all over with ripe fruit early in June. Otherwise, the most forward shows will be visible by the end of the month. When this stage is reached, a gradual rise of 5° by night and day, unless the weather is very bad, may be made, the bottom heat remaining about the same, say 80° to 85° from pipes and fermenting material combined. Direct syringing having been very light, a general examination of the soil in the pots also must be made, and if this is found on the dry side, watering with weak guano or clarified liquid will be advantageous. The evaporating pans must be regularly replenished with the same, the beds and walls moistened, but not one drop of water must pass into the hearts, as this element, if only a drip from condensed moisture, frequently mars the finest fruit or crown. Air should be given at 78° or 80° and shut off early, whilst a chink at night, be it never so small, will tend to the health and vigour of the plants. Night covering is a great help, not only in economising heat through the pipes, but also in maintaining a soft, moist, steady atmosphere. The second or general stock of fruited still resting may be started about the end of this month, the treatment being precisely the same as that recommended for the earliest batch, and as some of these may start without making a growth they will follow close upon the heels of the others, or growers being too numerous in the early compartment, an exchange, not just yet, but later on, may be advantageous.

Successions.—Former notes having been observed, well-worked fermenting material, pots, and compost, the latter in a dry warm place, will now be ready for use when the plants are in a fit condition and the weather is favourable. Assuming that September suckers have nicely filled their pots with white healthy roots, the sooner they are shifted the better; whilst those, on the other hand, which have not reached this stage must be allowed to stand over for a short time, as shifting a rootless plant is quite as fatal as leaving the general stock to become root-bound. As it is not wise to shift a dormant plant, especially if it is at all dry at the root, early in February the temperature of the pit should be slightly increased, the walls and pit corners regularly syringed, and the balls thoroughly moistened. As this predisposing to growth of roots and plants will extend over a fortnight at least, this period should be devoted to the preparation of the bed and the cleansing of the house. A steady bottom heat of 80° is quite high enough for a start, and if there is danger of exceeding 85°, the pots must be plunged lightly. The one-shift system being the best form, all the strongest plants may go into 12-inch pots, the second size into pots an inch smaller. Firm potting in light, rich, turfy loam, enriched with bone-dust, but innocent of animal manure, is now the general practice, as rather tight ramming facilitates root action and prevents water from hanging in suspension. As the plants come to hand they should be divested of a few of the short stem leaves, crocks, and loose soil, and slightly pressed or picked with a pointed stick to set the coiled roots at liberty. When transferred to the fruiting pots, the layer of rough compost resting upon the drainage should admit of the tops of the balls being at least 2 inches below the level of the rims, otherwise the latter will barely be covered, as one clear inch must be left for the reception of water. When all the best plants are shifted, if space admits, they should be plunged,

light or otherwise, according to the bottom heat, not less than 2 feet apart, and kept close until the roots begin to work in the fresh compost.

Sucker plants of second size, including any that may have been found too dry, too wet, or badly rooted, should be left on one side until last, and treated according to their requirements. The first, say in 6-inch pots, may be transferred to 9-inch pots, whilst the others will be the better for shaking out and repotting into pots of the size they have occupied through the winter. When potted, they should be kept close and moist in a sharp bottom-heat of 80° to 85°, receiving no water until new roots have permeated the soil. If loss of roots is the only fault, sound fresh suckers which have been shaken out and put in light fibry compost should be fit for shifting on early in April, but unless they are thoroughly sound and satisfactory, the sooner they are destroyed the better.

MELONS.

Although the winter on the whole has been mild, it has been dark and almost sunless; consequently, forced growth is weak and deficient in colour. Young Melon plants, it is hardly necessary for me to say, are no exception, as they seem to feel the absence of sun more, perhaps, than any exotic fruit we grow. In such seasons, no matter how powerful the artificial heat or how suitable the house or pit, the plants persist in remaining weak-kneed or disappearing altogether, but seeds, fortunately, are plentiful enough. Therefore the best mode of meeting mishaps is by putting in a few every week, as it is better to throw away batch after batch of seedlings than to feel the want of them. Once young plants have taken to the soil and the bottom-heat is good, they improve as their heads approach the light, especially after they have turned the first wire of the trellis. Their wants through these early stages are small, but attention they need every hour, and this they must have; otherwise, April Melons are best left alone. Their requirements are a steady bottom-heat of 80°, and an air temperature ranging from 66° to 70° at night, 75° to 85° by day; moisture moderate, a breath of sweet fresh air, and a house quite free from the impurities brought about by the presence of decaying matter. The compost, heavy calcareous loam, made pervious to the passage of water by old lime rubble or charcoal, should be given in very small quantities and made very firm as the roots require it; and although the Melon under burning skies will stand daily flooding, in our winter hot-houses it requires very careful watering. The manipulation of what may be termed cordon Melons is as simple as is that of the Tomato. It consists in the removal of every stem lateral from the hill or seed leaf to the first wire of the trellis, and pinching at the first leaf, thence onward until the female shows are plentiful. When these are ready to open, the point is taken out of the vine, each flower in due course is fertilised artificially, laterals bearing the young swelling fruits are stopped at the first joint in advance, and two or three of uniform size are selected for the crop. These are supported on small squares of board or cradles of wire netting; every old leaf is carefully preserved from injury, and laterals are persistently pinched out to husband the sap and to prevent crowding. To keep up a continuous supply of ripe Melons, long ranges should be divided into several small compartments, as fruits which set within a few days and start evenly in the race do not maintain a long succession. This drawback, however, can be corrected by having a set of succession plants, a foot or two high, always ready to go in on the day the last fruit is cut from a compartment.

Frame Melons.—Where this good, but rather antiquated mode of growing Melons is still in force the first week in January is a good time to make a start, by building a substantial bed for a one-light running frame. The preparation of the materials being well understood, I may assume that they are now ready for use if not actually put into form, that the bed is very solid, barely an inch larger than the frame, which should be filled to within a foot of the glass with clean old tan, decaying leaves, or Cocoa-nut fibre. When thoroughly warmed through

and the heat of this plunging and rank-steam-intercepting medium touches 80°, like the beds it should be made very firm, as an extra preventive of the entrance of dangerous gases. Into this frame the amateur who has not a hot-water pit to call his own must introduce a small quantity of suitable compost, a few 3-inch pots, sundry bottles of soft water, and a thermometer. Thus equipped, he may sow a few seeds of some free, fruitful variety, and proceed forthwith to put up another bed for the frame which is to receive the plants when they are ready for transplanting. The nursing frame, of course, will be well covered with mats through the night, and if, with a chink of air at the back just to let out steam, it does not stand near 70° in the morning, the next operation will be the addition of good external linings.

FIGS.

If a steady bottom-heat of 75° has been maintained about the roots or trees growing in pots or cubes of compost, and the temperatures given in Jan. 12 have not been relaxed, the foliage will be fully developed and the young fruit swelling freely. As days increase in length and the sun gains power, the syringe may be used twice when the weather is bright and fine, the first time when the temperature begins to rise, the second about 2 p.m. or immediately after closing. On dark, cold days unfavourable to ventilation, it may not be wise to wet the foliage, but a moist growing atmosphere must be maintained by syringing the stems and walls, especially dry corners, and turning the fermenting material. The pots being plunged and the cubes of compost surrounded by moist fermenting material will not readily become dry. Still, these conditions will not justify trusting to appearances, as any falling off in the supply of warm diluted liquid may result in serious consequences. Another very important matter is the removal of superfluous fruit. It is a very common practice to allow the most fertile trees to carry all the fruit they show; whereas the only rational mode of preventing dropping is judicious thinning before they come into flower. Brown Turkey, one of our most prolific and best forcing Figs, may be fed up to the ripening of two distinct crops of unthinned fruit, but why the break or interlude, when by timely thinning a tree which shows at every leaf may be made a perpetual bearer? The pinching and tying in of the most forward shoots will now require attention, especially upon trees which have attained full size and cannot extend without becoming crowded. Pot trees we pinch at the fifth or sixth leaf; others upon trellises are branch-thinned in winter to make room for continuous growth in summer. The night temperature may still range about 65°, 75° through the day, and 80° to 85° after closing, with sun-heat and moisture.

THE HARDY FRUIT GARDEN.

The work in this department is still of a preliminary or preparatory character, but important nevertheless, as every operation performed now will save time when all hands are busily occupied. The weather at the present moment is dry, but sunless, and the ground is in the best possible condition for the resumption of planting where this work was cut short unusually early last autumn. All wall trees, as a matter of course, were rearranged in October, and young ones are 'biding their time for shortening back and nailing in. I say shortening advisedly, as I do not approve of cutting back the shoots before the roots have taken to the new compost; but finding that young trees, Peaches and Nectarines especially, which have made anything approaching to strong growth, will die back if they are not cut back, consequently the knife must be used when all danger of frost has passed away. The trade, who never put off until to-morrow work they can perform to-day, cut over wholesale in March, but after such an extraordinary summer the private grower will do well to defer until the roots and buds are moving freely. Young trees that were planted a year or more ago and left full length to recuperate do not come under this treatment, as their roots and the little growth they made are ripe enough to stand decapitation. The planting of standards and bushes in orchards will now go on

well, especially where the ground has been trenched as all new ground should be, and the trees are ready to hand upon the premises. I have been accused of advising all private growers to establish a home nursery, and I plead guilty to the impeachment; but those who have followed me closely will find that the young stock is to be obtained from the trade not only on the score of cheapness, but also on that of the fitness of the stocks and the clever work turned out by professionals. Once on the premises, the gardener can grow and train and transplant annually, and he can take advantage of a few fine days for transferring his trees from the home nursery to their permanent quarters. If, on the other hand, a fine time induces him to send an order to a distant nursery, his bundles of expensive trees may be overtaken by frost and snow, when the nurseryman's advice to defer packing may land him in very late spring planting. If still in arrear, the mulching of all newly-planted trees should now be brought to a close; and the same remark applies to the manuring of old-established trees which show signs of weakness and require stimulants. Materials for the first need not be particularly rich, as they have to make new roots before they can feed, and the fresh compost will be found quite good enough, but they should be capable of keeping in moisture throughout a dry spring. Heading back for grafting and the cutting of scions, too, must be finished, as every day now lost lessens the chances of success, particularly upon aged trees. Last year we cut down a great number of old Apple trees early in January, and although the winter was severe, the profuse flow of sap convinced me that many apparently unaccountable failures may be set down to delay in heading back the stocks.

VINES against walls and lofty buildings should be pruned and trained this month, otherwise they will bleed and much of their strength will be lost. The seasons of late have been unfavourable to the ripening of outdoor Grapes, but we never know when a cycle of better summers may set in; therefore we should endeavour to deserve, although we cannot command success. A few good cultivators who pay every attention to their Vines succeed in good average seasons, but the majority court failure by laying in in winter three shoots when there should not be more than one, and lay on the last feather by allowing the summer growths to become a tangled mass before they think of stopping and thinning. W. C.

GARDEN FLORA.

PLATE 687.

THE GREAT CAUCASIAN SCABIOUS.

(WITH A COLOURED PLATE OF SCABIOSA CAUCASICA.*)

An extensive genus of annual, biennial, and perennial plants, forming by far the largest proportion of the Teazle family cultivated in our gardens. The old English name of Pincushion Flower, from the resemblance of the flower-heads to that useful article, is perhaps a little more appropriate than it is elegant, although it serves its purpose very well, and, indeed, we have been told these plants are known by no other name in the country. Although comprising a large number of species, very few are found outside the botanic garden, and were all the known kinds hunted up, the sorts really worthy of the gardener's attention would certainly not amount to a dozen. By far the most common is the Sweet Scabious, which when grown in distinct varieties, as it is now sold by our florists, contributes immensely to the beauty of our mixed flower borders, as well as being largely used for greenhouse and conservatory decoration. The normal colour is said to be deep crimson, but under cultivation all shades of crimson, purplish-yellow, white, &c., may

* Drawn for THE GARDEN in the Royal Gardens, Kew, July 11, 1888, by H. G. Moch. Lithographed and printed by Guillaume Severeyns.



be seen. Many varieties have double flowers and are preferred by some growers, but I think the single varieties are best, and they are also extremely useful for cutting, &c. Under the name of Saudade the flower-heads of the Sweet Scabious (*S. atropurpurea*) are used for funeral wreaths by the Portuguese and other nations; indeed, the white varieties have attained such purity that they might well be employed in our own country, as they may be had at almost any season of the year by being sown and grown under glass. Those desirous of having gay groups for the flower borders can order mixed packets from their seedsmen, and the seeds should be sown in the reserve ground along with other annuals in May, or even later, to bloom the following year. If sown earlier, however, the Scabious will bloom the same year, for though considered a biennial by many growers we have always looked upon it as a hardy annual. By sowing the seed in the open

grow, as everyone knows, is very fragrant. Another species near the above is the Sea Scabious (*S. maritima*); it is equally beautiful, a perfectly hardy annual, yielding abundance of purple-crimson flowers, which we have found invaluable for cutting.

The Caucasian Scabious (*S. caucasica*), the subject of our coloured plate, is by far the handsomest and most useful to the gardener. It flowers from early summer to late autumn, a true perennial, and is usually of a robust, though neat and compact habit. It seems, however, to be a variable plant, although all the specimens we have seen in England belong to the same form. In De Candolle's "Prodromus," the Caucasian Scabious has been separated into two botanical varieties—(a) heterophylla, in which the stem leaves are divided, and (b) elegans, in which the stem leaves are entire, and a reference given to the *Botanical Magazine* (t. 886). The latter figure answers entirely to the description given of elegans; the stem leaves are entire, and the flowers smaller than on our cultivated plant. In the *Gartenflora*, however (t. 1212), our plant is also figured as variety elegans, but the stem leaves are divided, and in that case it answers better to the other name. In the same work (t. 1084), (a) heterophylla is figured, the flowers being represented as pink or pinkish, and the leaves much divided; indeed, it would be easily mistaken for another species. The easiest way out of the difficulty will be to let well alone and call the plant *S. caucasica*, a name by which it is known all over the gardening world.

S. caucasica is undoubtedly a most charming plant, deserving a place in every collection of hardy plants. It forms dense masses, which annually yield immense quantities of bright or pale blue flower-heads, each usually from 3 inches to 4 inches in diameter. They are produced on long foot-stalks, and are invaluable for cutting, as they last a very considerable time in a warm room. A native of the Caucasus and perfectly hardy.

THE GRASS-LEAVED SCABIOUS (*S. graminifolia*) is the species nearest to the above. It grows from 1½ feet to 2 feet high, with pale blue flowers and silvery white lance-shaped entire leaves; it is very useful for the rockery, owing to its neat compact habit. Southern Europe. June to October.

THE WING-HEADED SCABIOUS (*S. pteroccephala*). known also as *S. Parnassi* and *Pteroccephalus Parnassi*, is a very dwarf-tufted hardy perennial, rarely exceeding 1 inch or 6 inches in height even when in full flower and robust health. The flower-heads are numerous, pale purple. Its worst fault, however, is its readiness to grow away from the centre, which can always be remedied by transplanting. We find it very useful and less troublesome than most of the other species. Native of Greece; flowering all through the summer months.

S. WEBBIANA is another useful species for the rockery or border, forming neat little masses of oval-shaped hoary leaves, which are always attractive, especially when the plant is grown in poor soil. Its creamy yellow flowers, borne on long stalks, are pretty when in a mass. It flowers from July to August.

Other varieties are *succisa*, *arvensis*, *Portæ*, *suaveolens*, *Columbaria*, *gramuntia*, &c., but the above will be found a fair selection for most gardens. In addition to the annual species given above, *S. stellata* will no doubt find a place

in many gardens. It grows about 2 feet in height, the large florets spreading open like a star, of a pale purple colour, perhaps more curious than beautiful. A near ally of the above is *S. palestina*. It grows a little taller than the above, flower-buds larger, but paler; both are hardy annuals, but not to be compared with the Sweet Scabious and its varieties.

D. K.

ORCHIDS.

W. H. GOWER.

VANDA PARISHI AND ITS VARIETY.

I AM induced to draw the attention of the readers of THE GARDEN to this comparatively little-known Vanda from recently noticing the largest plant I ever saw of it in splendid health and showing flower in Mr. Tautz's collection at Shepherd's Bush. It is one of the small growing Vandas which I recently spoke of, although it is a slow growing plant, and not so elegant when out of flower as many others of the tricolor and *suavis* section, but when seen in bloom it is massive and beautiful, while it commemorates one of the earliest and most indefatigable searchers for and importers of new Orchids from Burmah. This plant was first found by Mr. Parish about the year 1862, and I have some dim recollection of seeing a letter from that gentleman in which he stated that after a long and tiresome journey, and having collected a host of Orchids both new and rare, on the return journey his elephant, laden with these treasures, ran a-muck, cast off his load, and trampled them under foot, and if I mistake not, this very plant was amongst them. It was not until some eight years afterwards that it was again collected, sent home safely, and put into commerce by Messrs. Low and Co., of Clapton. It is a stout, though dwarf growing plant, and totally different from any other Vanda with which I am acquainted. The leaves are thick and fleshy in texture and light green, spike ascending, stiff, and bearing numerous large flowers, which as well as the plant are distinct in character; sepals and petals nearly uniform, although the latter are somewhat the broader, cuneate-oblong in outline and thick and leathery in texture. The ground colour is pale or greenish yellow, prettily and boldly spotted all over with bright reddish brown, the base white, the column also being white. The lip is produced behind into a short swollen spur, the front lobe being of a soft pale magenta, narrowly bordered with white, whilst at the base are a few faint streaks of deep yellow. The flower has a powerful odour, and I have heard some express a dislike to it, but there is nothing absolutely disagreeable to anyone in the perfume. The flowers of this plant, like those of all other seedling plants, present a somewhat diversified appearance, some being finer and others poorer than those described above. In the variety named *Marriottiana*, in compliment to Sir W. Marriott, with whom it first flowered, we have a striking and beautiful deviation from the type, and the flowers of the variety are, moreover, entirely destitute of fragrance. The plant does not differ in habit from the type, saving in having the leaves somewhat closer set on the stem, but the flowers bear not the slightest resemblance in colour, for instead of being spotted, the sepals and petals are of a bronzy hue, suffused with magenta, except at the base, where they are white; lip slightly larger than that of the type, and of a rich deep magenta, destitute of the white margin as seen in the species. It is truly a superb plant. I believe this plant comes from near the frontiers of Siam. It is mostly



The Caucasian Scabious (*Scabiosa caucasica*), showing detached flowers.

towards the end of March and thinning out as required, the plants will bloom well towards the latter end of summer. To get earlier bloom, those sown the previous autumn may be transplanted in early spring to their flowering quarters; the succession will then be continued from early summer until late autumn. The Scabious is a native of South-western Europe, and was known to Clusius, Parkinson, Miller, and indeed all the old gardeners. All seem to have had doubts as to its native country. Clusius received the seeds from Italy under the name of Indian Scabious, which doubtless led Linnæus to give its native country as India with a note of doubt. But after all, there may be some doubt as to whether this is the same plant as those veterans cultivated, as Parkinson, who is invariably accurate, describes the flowers as scentless, while the plant we

treated to basket culture, in which position it can perhaps be better grown, although in the Studley House collection it is grown in a pot. It appears to like shade at all seasons saving the winter. It enjoys a copious supply of water to the roots, but during winter very little is necessary, and on no account must it be allowed to become dry or it will speedily shrivel, and from its fleshy nature it is a somewhat difficult plant to restore to health. I trust we shall soon see the two plants more frequently than has hitherto been the case.

Cœlogyne cristata.—These plants have come through the fog well in the garden of Mr. Larkin, Highbury Park, where we noted that the ordinary variety, the form called *maxima*, and the Chatsworth variety were blooming well in the middle of January. It is a superb Orchid which cannot be too highly commended as a winter bloomer, the flowers being as white as snow.

Orchids on cork.—There can be no doubt that the treatment of growing Orchids on cork is very varied. No doubt Mr. Brettelle (p. 71) has not been successful, but as we seldom or never hear a reasonable cause assigned why cork should not do as well as a piece of Teak wood or charred deal, we may reasonably suppose that with proper treatment cork will answer as well as either. I believe from experience that it is advantageous to have the cork quite new and clean. I use cork largely for *Lælias*, *Cattleyas*, *Oncidiums*, *Dendrobiums*, &c., and it is pleasing to see how the fleshy roots thread their way through the interstices. The advantages of cork are lightness, durability, and neatness. It is important to well secure the plants, use perfectly new cork, and dip frequently in sunny weather. With this treatment, and giving positions close to the glass, I have not only proved for years that cork is the handiest material that I have yet tried, but especially so for starting all newly-imported plants. My experience in Orchid culture extends over 15 years. In that time I have heard many say that they do not like cork, but I could never get a reason why. I have also seen many plants thriving on cork in other places than my own.—J. WOOD, Woodville, Kirkcaldy.

Temperature for Vandas.—In answer to Mr. Douglas's question in THE GARDEN, Jan. 26 (p. 73), as to whether any cultivator has been successful in growing the Indian Vandas in a temperature of 50°, I have succeeded with them in this temperature. Of course, I infer that the temperature stated is for the winter months during the resting season. *V. cœrulea* I have kept during the resting season in a cool house that in cold nights fell to 45°, the plants being kept perfectly dry at the roots. *V. tricolor* and *V. suavis* will pass the winter comfortably in a temperature of 50°. In Mr. James's nursery at Norwood I saw *V. tricolor* in excellent condition grown in a house that often touched as low as 40° in cold weather. Where a house is set apart entirely for this class of plant my practice is to aim at a temperature of 57° as a maximum, and 53° as a minimum, with fire heat. The reason why Vandas are often met with in bad condition is not so much the cause of high or low temperatures as it is to the want of proper attention to moisture. The heat of the *Cattleya* house and the moisture of the *Odontoglossum* house combined all the year round will be found a safe guide to all who grow this beautiful class of plants. *Vanda Sanderiana* I find thrives best kept well up to the glass in the East Indian house all the year round.—R. C. FRASER, Ardarauch.

Cœlogyne corrugata (C. J. P.). This plant was sent to England, I believe, in 1862-3, and it first flowered with me in 1861. It appears to grow freely, but flowers very rarely in cultivation, and this I attribute to its being kept too warm. I know it was kept by me in the coolest house. A friend of mine who has collected it on the Neilgherry Hills says that it grows at almost the highest elevations, and always on the north side of the hills. This should teach growers that it does not require much artificial heat. I have seen it fre-

quently grown side by side with *C. cristata*, but *corrugata* does not flower so treated, and, curiously enough, I cannot persuade growers of this species to put it with their *Odontoglossums*. Many growers ignore the fact that there are cool Orchids in India as well as in South America. If "C. J. P." will act upon this advice he will be successful, but I think it very doubtful if the plant will flower upon the growth now made. I am under the impression it will require to make a growth in the cool house first, and, therefore, flowers would be forthcoming in the spring of next year. One mistake is frequently made with this plant as well as with many other Orchids. It is usually overloaded with peat; naturally it grows with the smallest covering to its roots, and this a little Moss.—W. H. G.

ORCHIDS AT CROYDON LODGE.

THIS charming garden, the residence of Mr. Stevenson-Clarke, although fast gaining a reputation for an excellent collection of Orchids, is by no means devoted to this class of plants, as in it almost every branch of gardening is practised, and the details are carried out skilfully and well. Hardy plants are largely grown, special attention being given to Lilies and Violas; shrubs and trees receive their due share of attention, fruit is extensively grown indoors and out, and the cropping of the kitchen garden is well managed. Stove and greenhouse plants are largely grown; Ferns are in quantity and remarkably good, and so also are the Orchids. Another favourite flower, the *Chrysanthemum*, is both largely and well grown. The Orchids are all in first-rate health, and being grown with the collection of stove plants and the Ferns have not, therefore, that stiff and ungainly appearance that *Lælias*, *Cattleyas*, *Oncidiums*, and many other Orchids have when grown by themselves and when not in flower. Foremost amongst these I must note *Cœlogyne cristata*, the ordinary form of which is represented by a magnificent specimen bearing some 300 flowers, and which, on approaching the house, has the appearance of a mound of snow. The plant is well elevated above the rim of the pot, thus affording a greater surface for the creeping stems and roots to spread over, and, therefore, the flowers are disposed in a far better manner than when so closely packed together; there are also smaller plants of this form, as well as some of the Chatsworth and Trentham varieties. Grand as these are, they have been finer, and the flowers now are fast passing away, the fog even here showing its baneful effects. I should have thought Croydon was sufficiently distant from London to have escaped this pest. *Lælia albidia* was in great beauty. This Mexican species appears to have been conquered at last, and may now be said to flower annually in most places. Formerly, it was much avoided by Orchid growers on account of its uncertainty. *Dendrobium nobile* is always well done here, and the plants this year have plenty of flowers, but they appear somewhat small. This, I think, comes about from the excessive crop of bloom borne last season, and which in all probability was kept upon the plants too long. In *Cattleyas* there is the last remains of the pretty warm-coloured *C. Percivaliana* bearing numerous flowers, and a magnificent large specimen of Mr. Clarke's variety of *C. Trianae*, which was originally bought as an unflowered imported piece from the Tooting nurseries of the late Messrs. Rolliison, and proves to be one of the very finest forms of this kind extant at the present time; the flowers are larger than those of the variety *Dayana*, sepals and petals broad, pale lilac-rose, lip very large, of a deep crimson-magenta. *Dendrobium Wardianum* is also a very beautiful early-flowering species, but I do not find it good anywhere at present this year. *Lycaste Skinneri* is also flowering in variety, a superb form called *delicatissima* being very noteworthy. *Saccolabium giganteum* is also grown here largely, and its numerous handsome pendent racemes of flowers are delicately scented and very beautiful. *Calanthe Veitchi* has been a striking feature, but the flowers are fading fast; many of the plants indeed are now resting before the growing season commences. Nearly all these plants have carried spikes 3 feet

and more long. Here, also, I find it the rule that the straighter the bulb the brighter is the colour of the flowers. I do not lay this down as an absolute rule, but I feel sure it will be found a useful guide to observe in purchasing. Beside the above, there are hosts of plants pushing up flower-spikes, such as *Cattleya amethystoglossa*, bearing five flowers on a spike, *Oncidium splendidum* which has thoroughly established its free-flowering character, and many others. W. H. G.

Cattleya Eldorado.—"G. M." sends flowers of this. It is late for this species. The flowers are remarkably well coloured, but they are small, and have the appearance of having been starved. It should be borne in mind that this plant comes from a much warmer district than most of the *Cattleyas*, and requires more heat; indeed some of the very finest examples I have ever seen of it were grown in a temperature which never fell below 65°.—W. H. G.

Dendrobium luteolum.—This is a very desirable plant for early flowering. It is a profuse bloomer, the flowers, from two to four in number, being borne upon the upper part of the erect stems on short racemes. The flowers appear whilst the foliage is green. They are a soft primrose-yellow, with a slight fragrance. I believe this species is one of the introductions of the Messrs. Low, of Clapton, from Burmah. The variety *chlorocentrum* is said to have been introduced from Moulmein, where in the dry season heavy dews prevail, and this coincides with my idea of the requirements of the plant under cultivation, viz., that it is not good to thoroughly dry it, but that an occasional watering through its resting time is necessary, whilst now when in flower it must perforce require some. The variety differs from the typical plant in its larger flowers, in the deeper yellow of its throat, and in bearing on its lip tufts of woolly green hairs. It thrives best as a basket plant.—W. H. G.

CHRYSANTHEMUMS.

E. MOLYNEUX.

INCURVED CHRYSANTHEMUMS.

NOVELTY FAMILY.—Last season a lilac-coloured sport, named Alfred Lynes, originated from this variety. As a rule, Novelty is too early to be of much service to exhibitors, the blooms generally being past their best before the shows come on. Neither is it to be depended upon to produce good blooms, as the plants seem to suffer as much from wet and cold summers as from very dry ones. The petals are narrow and much pointed, while the flowers keep badly. Two or three good blooms were seen during the late exhibition season. Only six blooms were shown at forty of the leading shows in the first prize stands, which does not speak much in its favour. The best blooms of this variety that I have ever seen were staged by Mr. J. Moorman, at Southampton, nine years since. Owing to the weakness of its peduncles, this variety is not of much value for growing in bush form, as the blooms droop too much to be effective. Novelty is bluish in colour, the lower part of the flower, soon after the blooms are thoroughly developed, quickly changing to pink. Alfred Lynes was shown last season by Mr. Lynes, Wimbledon, with whom it originated. In form of both flower and petal it very much resembles the parent, the colour being deep lilac.

GLOBE FAMILY.—This family is only represented by two varieties, which are seldom seen now-a-days, being considered too coarse to take a leading position among the list of varieties usually seen at exhibitions. When in good condition, the petals of the two varieties named below are very large, being thick and massive and tending to coarseness, as the petals do not incurve nicely, being much too erect in form.

White Globe is one of the old varieties thought highly of some years ago, the colour being pearl-white. Yellow Globe, a pale yellow sport from the above, introduced in 1886, has not been favourably received owing to the coarse, stiff habit of the petals.

PRINCE OF WALES FAMILY.—This family, also, is composed of only two varieties, neither of which are of much importance either to growers for exhibition or for home use. Good specimen plants of this variety might have been seen some few years since. Some few blooms of Prince of Wales are annually seen at the exhibitions, but they do not take a high rank, being too thin, and generally showing an objectionable eye. This variety takes much too high a position in the selected list of thirty-six varieties in the National Chrysanthemum Society's catalogue. Prince of Wales was introduced as long ago as 1865. The colour is deep purple, the petals being broad and incurving neatly, but they are too few to make a good bloom. Mr. Cobay is a sport from the above, bronzy red in colour. This variety is seldom seen in cultivation now, although it used to be well grown a few years since.

PRINCE ALFRED FAMILY.—To exhibitors of cut blooms this family is an important one, supplying them with what is an item toward success, viz., back row flowers, in some instances where the cultivator is situated so far south, that none but the latest blooms can be retarded sufficiently to be available on a given date, even in the early part of November. Everybody knows of what poor quality such flowers are as compared with the first flowers when produced from crown buds. The advantage gained by northern cultivators with this family is of much service to them over that of their southern brethren. Given reasonable treatment, no family that I am acquainted with is so certain of producing good blooms. Plenty of cuttings are, as a rule, available, strike readily, grow vigorously, and are certain to set either crown or terminal buds freely. When the plants are allowed to grow naturally, this being the best form for the plants of this family, tall growth is the result. In some seasons, notably the last, the tallest plants measured from 8 feet to 9 feet high. Some of the best specimen plants are produced from this family, notably at the Birmingham exhibitions. Another use which these two varieties are often put to is the production of small single-stemmed plants in 3-inch and 4-inch pots, each carrying one bloom, the vigorous growth, accompanied with fine foliage, being all in favour of small decorative plants. During the summer growth, plants of this family need, perhaps, rather more care than those of any other type to prevent the breaking of the shoots by heavy rains or strong wind. The growth being succulent and the leaves heavy, and having a tendency to droop at the points, the shoots are more liable to break, than those of any other variety. Prince Alfred was introduced by Mr. Davis during the year 1863, but it is being gradually superseded by its sport Lord Wolseley, which possesses a firmer build, the blooms having more solidity. The colour of the original is a peculiar one to describe. In the National Chrysanthemum Society's catalogue it is given as a rose-carmine, shaded purple, but I think it has some bronze or chestnut in it as well.

LORD WOLSELEY during the year 1883 was noticed as a sport in two widely separated places at the same time. Its habit and general characteristics are identical with those of its parent. The colour is bronzy red, assuming a paler hue with age. The blooms possess more

quality also, being larger in diameter, fuller in the centre, and deeper in build. The flowers of both varieties keep well. Immediately the buds are formed the peduncles should be supported by small stakes fastened to the stem, to which the peduncles should be tied.

CHRYSANTHEMUM COUNTESS OF LYTTON.

In my notes on the blooms staged at the midwinter show in the Aquarium on January 9 and noted in THE GARDEN, January 26, in referring to the above variety, which I stated was a sport from Ralph Brocklebank, of which I was assured by a person in whose company I then was, Mr. Kipling, Knebworth Gardens, writes me correcting this statement, and says "it is a sport from Meg Merrilies, and originated with me in 1886." In this same year Ralph Brocklebank was introduced. Mr. Kipling says that Countess of Lytton is, when well grown, about three shades lighter in colour than Ralph Brocklebank, and altogether a fuller and better formed flower. Mr. Kipling also states that he does not know how the sport originated, as it was not a sport from the stem in the usual way. All the blooms on the plants of Meg Merrilies showed not the least sign of departure from those of the normal type during the blooming period of 1885, yet three plants from the batch of that year's cuttings and which flowered the next season (1886) sported so much that every bloom was distinct from those of the original type. Mr. Kipling thinks this variety therefore originated as a root sport. This fact, therefore, opens up the question of sports originating from the roots. According to Mr. Davis, in his paper on "Sports" at the last conference, sports from the root never fix themselves. It would be interesting to know if Mr. Kipling has ever found flowers of Countess of Lytton revert back to those of the original Meg Merrilies. Mr. Kipling, in another part of his letter, says, "Regarding sports generally, an interesting question seems to open up respecting the colour of the blooms, or rather the depth or density of the colouring matter arising from each kind of sport. Is it known whether a root sport, as a rule, gives the lighter shade of colour, and that from a branch the deeper shade?" He also says, "Countess of Lytton is much paler than Ralph Brocklebank, which is a branch sport, as I saw the plant of Meg Merrilies from which the above variety sported the year following which the sport appeared. Mr. Winkworth grew it on as a curiosity another season after the advent of the sport and its fixing to see if any more blooms of the sported variety would appear on any other branches of the same plant. As far as I have heard there were not." If we could ascertain whether Golden Empress was a branch sport from Empress of India, and if Lord Alcester was a sport from the root of the same variety, we should arrive at a more definite conclusion. At present it is all supposition as to the origin of the various shades of colour. If the varieties referred to did sport in the manner named, the variation in the colour of each would be accounted for. At the present time we have here on trial a variety that showed a remarkable departure in colouring in all the blooms upon the plant, while other plants produced entirely different flowers, though all were grown from cuttings coming from one plant the year previously. The curiosity, as I term it, was in the centre of the bloom; there was a clear light purple-coloured ring covering quite half of the blooms, while the outer ring was pure white. The growth, leafage, and branches of this novelty in every way resembled those of the others, but the blooms on the other plants were dull white, with here and there a faint splash of colouring in the florets. To thoroughly test this variety plants are being cultivated in other localities besides this one; therefore, I hope to gain some information on root sports, which I believe this one to be, provided it retains, when it flowers this season, the same peculiarity. E. M.

Chrysanthemum Ne Plus Ultra.—I came across a plant lately which bore the above name. The blooms were of medium size, full and neatly

incurved, the colour being orange-yellow, that around the outer florets being bronze, presumably from age. On the whole, the flowers were fresh for this late date (January 19). I fancy some mistake had occurred in naming. I cannot find an incurved variety under this name. The National Chrysanthemum Society's catalogue describes this variety as Japanese. Have any of the readers of THE GARDEN seen a variety resembling the one described and of the same name?—E. M.

MIDWINTER CHRYSANTHEMUMS.*

So much has been said and written on the general cultivation of the Chrysanthemum by eminent writers and growers, that it is not necessary for me to refer to it. There is, however, one phase of the culture of the flower which has received but little attention, and is, consequently, the least understood by the majority of growers. I allude to what is now usually known as the cultivation of midwinter Chrysanthemums. A quickened and increasing interest is being taken in this branch of the culture of Chrysanthemums, and rightly so, considering that it enables us to have the flowers in perfection for at least two months longer than formerly, and at a time when there is a great scarcity of other flowers. By establishing the midwinter exhibition and the very liberal prizes offered, the National Chrysanthemum Society has no doubt done much to bring about and foster this new interest in late cultivation with the view to prolonging the season and decorative usefulness of this increasingly popular flower. Growers who essay the cultivation of midwinter Chrysanthemums will, by selecting the naturally late-flowering kinds, by late propagation, and by suitable treatment of the plants, find it a comparatively easy matter to prolong the blooming season to a much later date than at one time was considered possible. They will no longer be satisfied to see, as in the past, the greater part of their Chrysanthemum blooms pass away with the dying year. They will find it is possible to prolong the season, and to have blooms in quantity up to the end of February, into March, or even into April. Indeed, the production of mid and late winter blooms is only in its infancy. We have, so to speak, only just crossed the threshold of knowledge as to what can be accomplished in the direction indicated. Having been fairly successful in the cultivation of midwinter Chrysanthemums, I will, without troubling to give the minor details, describe the plan by which I have been enabled to span the year with Chrysanthemum blooms. Referring first to the cuttings, I would state that they are taken mostly from plants that have bloomed in November and December. After they have bloomed the stems are cut down, all weakly shoots removed, and the stools placed in a cold pit to keep them back. The cuttings are struck at three different times—namely, February, March, and April, in the last week of each month. Those struck in February are put under hand-lights in a cold pit, and those struck in March and April have the assistance of a slight hotbed. The cuttings selected are the latest sucker or root growths, preference being given to those that are stout and short-jointed. As soon as the cuttings are struck they are carefully hardened and placed in a frame with a north aspect. When sufficiently advanced the cuttings are potted and returned to the frame, kept close till the roots begin to run freely, and then gradually exposed. As soon as the weather will allow, the plants are stood out of doors on a bed of ashes, and before they become root-bound they are shifted into 6-inch pots and stood in a north aspect, with a view to keeping them back. By the middle and end of July respectively most of the plants are ready to be transferred to their flowering pots. Those intended for the supply of cut flowers are shifted into 9, 10, or 12-inch pots, three plants in each; and those intended for decoration are shifted into 7-inch or 8-inch pots. When all have been potted they are ready to be placed in their summer quarters, to the proper selection of which I attach much importance, as on this point

* Read by Mr. J. Kipling, Knebworth Gardens, at the Chrysanthemum conference, Royal Aquarium, January 9.

will depend in no small degree the success in procuring very late blooms. It will be seen that my practice differs somewhat from the generally accepted "full exposure to the sun" course of procedure.

In growing *Chrysanthemums* for late flowering it is necessary to defer to the latest date possible the formation of the crown bud. This can be done in two ways—first, by the constant pinching back of the shoots or cutting down the plants at a certain date, so as to produce late growths, and thus delay the production of the crown bud, which practice I find weakens the plant too much, and is the cause of poor blooms. The second method is to place the plants in such a position through the summer that the ripening of the wood is delayed, and the pinching back of the shoots reduced. It is well known that *Chrysanthemums* which are placed where exposed to the sun's rays throughout the day have the maturing process of the wood begun and finished early, and in consequence of this the early formation of the crown bud takes place; it follows then that if plants are placed in such a position as to have less direct sunlight on them through the day the ripening process will not begin so early, and will proceed more slowly. As a result the production of the crown bud is greatly retarded, which is exactly the result desired in growing them for late blooming. My plants are placed on the north-east side of a Laurel hedge, but are not overshadowed by it. They have the benefit of the morning sun up to ten o'clock, when, through the intervening of some trees, it does not shine on them again till three o'clock in the afternoon. In this position they grow slowly, the wood ripens late, but sufficiently to ensure a good crop of flowers. I may here state that a partly shaded position might not be suitable in very late or northerly localities; nor is it possible by this practice to have huge, or even very large blooms. But very large blooms are not wanted at the season of the year to which I am referring; smaller blooms, or trusses of blooms, are more serviceable for the various purposes of decoration, and also for personal adornment. They are certainly more appreciated by the majority of those who love the *Chrysanthemum*. In my case cut bloom is the principal requirement, and consequently but little attention is paid to the training of the plants, my object being to have good strong bushes with stout shoots, from nine to twelve on a plant, and containing plenty of stored-up reserved force. Shoots of this description will give a second crop of side flowers after the first or leading blooms have been cut. The plants which are grown principally to cut from are stopped only once—namely, at the second potting, and those intended for pot or specimen plants are topped three times, the final topping taking place in the last week in July.

The plants are carefully attended to as regards watering, tying, &c., but very little liquid manure is given them. If satisfactory progress is made, the crown buds will begin to show at the end of September, but principally through October. These buds I retain on one-half of the plants, while on the other half they are rubbed out, and the terminal bud selected later on instead, for the purpose of keeping up a succession of bloom. The plants are left outside to as late a date as is considered safe. They are then taken in and arranged in an unheated Peach house, from which the frost is excluded by two paraffin stoves. In this house they continue their growth and swell their buds very slowly, the terminal buds appearing at the end of November and through December. About the end of November I begin to draft the plants as required to a very light and airy vinery, where, with the assistance of a little artificial heat and supplies of liquid manure the flowers gradually expand.

As fast as the blooms are cut from each set, the flower-stems are slightly shortened, and the plants are encouraged to make side breaks or shoots, which some varieties do very freely, especially those with not over-ripened wood. These side growths give us a goodly supply of small flowers through March and April. From the side and basal shoots of cut-back plants I cut a quantity of

flowers on the 20th of April last. My notes show that the last blooms were cut on the 29th of May, and at that date I had blooming in pots, under glass, the early pompons, St. Mary, La Petite Marie and Nanum, of which varieties I usually pot a good stock in the early autumn to propagate from for a summer display. These pompons carried on the blooming period, and shook hands, as it were, with similar kinds which bloomed outdoors on June 20. Such was the manner in which I was enabled to wreath the year with *Chrysanthemum* blooms.

With reference to the varieties which are best for growing for late blooming, I would say that there are sorts which naturally bloom late, and are invaluable for the purpose. But there are a few of the mid-season varieties, which, as I have proved, cannot be excelled by any, especially for giving second crop flowers. They all, or mostly all, belong to the Japanese section. I have found very few of the incurved kinds worth the time and labour spent on them for giving late blooms. They are not free enough; the blooms open indifferently and do not keep well; at least, such is my experience of them. Of the Japanese varieties, I have found the following to be the best: Belle Paule, Kämpfer, Etoile du Midi, Ethel, Mrs. C. Carey, Cérés, Mlle. Cabrol, Gloriosum, Cry Kang, Comtesse de Beauregard, Meg Merrilies, and its sports Ralph Brocklebank and Countess of Lytton, the last-named sport having originated with myself. M. D. B. Chapman and W. G. Drover are also proving very late, but not over-free in blooming. For pot specimens I find the best to be Père Délaux, Virginal, Miss Margaret, Snowdrop, Golden Gem, and Boule de Neige. The two last named cannot be surpassed by any that I know for late pot work. There may be others quite as good for late blooming, and if there are, I hope those who have grown them will give us their names.

STOVE AND GREENHOUSE.

BROMELIADS IN BLOOM.

It is strange that bromeliaceous plants should be so popular throughout the Continent, while in this country they are almost ignored, and certainly from no lack of interesting forms to be found amongst them, nor from a dearth of blossoms, for they include among their number many whose flowers are remarkably showy, and in most cases retained for a considerable period. One that usually flowers about the early part of December and remains in full beauty for three or four months is *Vriesia brachystachys*, whose bright green leaves are arranged in a vase-like manner, while the flower-scape reaches a height of about a foot, and stands well above the foliage. The blossoms are arranged in two opposite rows on the upper part of the stem, and each bloom is subtended by a large keel-shaped bract, which forms the most conspicuous feature of the flower. The bracts at the base are of an intensely bright crimson, shaded more or less with purple, which gradually merges into the orange colour of the upper part. The blossoms themselves do not remain long in perfection, and though of a yellow colour they are at no time very conspicuous, as they protrude but a short distance beyond the bracts. The beautiful *Tillandsia Lindenii* vera in one respect resembles this last, and that is in the floral bracts which retain their beauty long after the blossoms are past. Still a succession of flowers is kept up for some time, in proof of which I may mention that a plant here has been flowering for the last month, and is not yet over, while the beautiful pink-tinted bracts (so widely different from the rich purple blossoms) are still quite fresh. A remarkably graceful growing plant now in bloom is *Billbergia nutans*. The leaves of this species are narrow, gracefully arching, while the drooping blossoms bear a certain resemblance to those of a *Fuchsia*. In this the segments of the flower are

prettily reflexed and of a pea-green colour, margined with blue—a most singular combination. It is one of those that can be depended upon to flower every year. In this species the bracts are of a bright rosy tint, while in another *Bromeliad* now very conspicuous they do not play any part whatever in the embellishment of the plant. This is *Æchmea fulgens*, a bold-looking plant with deep green leaves and an erect branching panicle of blossoms. The individual blooms are roundish, of a bright coral-red colour, tipped with blue and black. The *Nidulariums* are a very showy class, one of the finest being *N. Meyendorfi*, the flowers of which, however, are by no means remarkable for beauty. They are arranged in dense terminal heads, which do not rise above the leaves, and are, therefore, scarcely seen; while the innermost leaves (that is, those immediately surrounding the head of bloom) are of a deep crimson colour, and retain their beauty for a lengthened period. The *Pitcairnia*s are a numerous class, the most of them having rather long, arching leaves, generally of a green hue and long spikes of pendulous blossoms. *P. staminea* is the only one we have in bloom. The flower-spike reaches a height of about 18 inches, while the tubular-shaped pendulous blossoms are of a bright crimson colour. The bolder growing *Pitcairnia fulgens* is also a showy kind, larger in all its parts than the preceding. *Tillandsia* or *Vriesia splendens*, known also under the names of *Tillandsia picta*, *speciosa*, or *zebrina*, usually blooms during the summer months, but a plant here has been in flower for some time—in fact, throughout all the dull winter days. Even when out of bloom the foliage is very handsome; the colour of the leaves is a bright green above, and underneath they are of a lighter tint, transversely barred with blackish brown. The flower-scape stands well above the foliage, the whitish flowers being hidden beneath the large fiery-coloured bracts, which are arranged in two rows and closely imbricated. The above include but a small proportion of those that might now be had in bloom where a large collection is grown, but they include among their number some of the most distinct and beautiful. It is, indeed, difficult to account for the apathy with which these plants are regarded in this country, for, in addition to their beauty, they are of very easy cultivation, and may be kept in health with less than one-half the trouble often bestowed upon inferior subjects. Where they are grown in pots, good fibrous peat is a very suitable compost for them; and the roots may often be kept in perfect health in a comparatively small pot; indeed, over-potting must be avoided in the cultivation of *Bromeliads*. The cup-shaped centre of many of them will often be found full of water, and this should always be allowed to remain, though it is frequently emptied out to prevent its injuring the plant, of which there is really no danger, for the plant itself is greatly benefited by it. The soil of most of them should be kept fairly moist, and then, given heat and a good light position, *Bromeliads* will grow well. The only insect pests that trouble them are the different forms of scale, and they can be removed by means of a soapy sponge.

H. P.

Ficus Parcelli (*Chester*).—It is not always possible to name plants from leaves only, but those sent by you of this Fig are so striking, that it is not possible to make a mistake. The plant requires strong heat, and should be potted in good loamy soil. It is, I believe, a native of some of the Pacific Islands. You say, "Are not the leaves beautiful?" In this I cannot concur, for it is one of the few variegated plants that I dislike. The leaf gives one

the impression that it has been splashed with a whitewash brush. It grows to a large size, and produces small inedible fruits, which are also marked like the leaves.—W. H. G.

Senecio Ghiesbreghtii.—Whether known under the above name or that of *S. grandifolius*, this Mexican species of Groundsel is a valuable plant for the greenhouse or conservatory, as if planted out in the latter structure it will form a large specimen 8 feet to 10 feet high and flower profusely; while, as may be seen in the greenhouse at Kew, it is equally free when less than 2 feet in height. It is a stout-growing, arborescent species, whose peculiarly warted stems are clothed with large leaves, sometimes as much as 1 foot wide, while the densely packed heads of blossoms are as much in diameter. The individual blooms are about half an inch across, with rich yellow rays, the disc being of a still deeper hue. This *Senecio* is very easily propagated from cuttings at almost any season of the year, and it will grow freely in any ordinary potting compost. It is also useful for bedding out in sub-tropical gardening during the summer.—H. P.

Chinese Primulas.—These are fine just now at Croydon Lodge, the colours being exceedingly rich and the flowers well fringed. Mr. Carr tells me that he has been some years in obtaining these. He began with crossing Chiswick Red, which, although bright, is a somewhat thin flower, with alba-magnifica, and this year has produced some wonderful results, the flowers being large, well fringed, and richer than those of the first-named parent, and the plant has the good habit of that of the seed-bearer. There is also one or two plants of a rich bright purple which are very beautiful and very distinct from other flowers. It appears to me quite a new colour; blue appears to be the worst form to improve. This, I believe, is receiving Mr. Carr's attention, and I hope success will attend his efforts, as a well-fringed blue Primula would be an acquisition.—W. H. G.

Thibaudia acuminata.—This South American plant is an ornamental evergreen shrub that requires the protection of a greenhouse, and is especially noteworthy from the fact that it flowers more or less continuously throughout the year. It is a vigorous, loose-growing shrub of almost rambling habit, and may be trained to a pillar or employed to furnish a wall. The leaves are from 2 inches to 3 inches long, or more on very vigorous specimens, ovate in shape, and of a deep green colour when mature, but when first expanded they are prettily suffused with pink. When well exposed to the light this pinkish tinge is very noticeable. The flowers are borne principally on the ends of the shoots in short racemes, and when in the bud state they are covered by large, bright-coloured bracts. The individual blooms are of a thick, wax-like texture and tubular in shape. The outside of the corolla is bright red, tipped with whitish-green. Like most other Ericaceæ, this *Thibaudia* needs a soil principally composed of peat, and if planted out care should be taken that the soil is well drained, as the plant needs a copious supply of water when growing, but is very impatient of stagnant moisture. Cuttings of the growing shoots put in during the summer months are in no way difficult to strike if inserted in pots of sandy peat and kept close in a temperature rather above that in which they have been growing until rooted. So free is it, that I have a few small plants struck last summer, and consequently but a few inches high, that are now each bearing a cluster of blossoms. Besides the name of *Thibaudia*, this is also known as *Cavendishia acuminata*.—H. P.

Toxicophlæa spectabilis.—This stove plant has white fragrant flowers, that are produced in closely-packed corymbs from the axils of the leaves. The usual habit of the plant is to produce a few long shoots, and if required to be kept as bushy as possible, it must be freely pinched during its earlier stages, and pruned back severely after the flowering season is past. Besides this, it may be trained up the end of a structure or employed as a roof plant, a purpose for which its loose habit fits it. It is easily struck from cuttings, and I find that pieces of the branches, a foot or more long, will

strike root in a close propagating case, and flower as freely when the season comes as if they were still attached to the parent plant. There is a second species—*Toxicophlæa Thunbergii*—whose leathery leaves are of a bronzy hue, and for this reason it is very distinct, but it is not so showy as the first named.—H. P.

BEGONIA OCTOPETALA LEMOINEI.

AMONGST the many achievements of M. Lemoine, of Nancy, is the crossing of the white-flowered *Begonia octopetala* with, as described in his note, the "finest of the tuberous section." An engraving of the variety *Lemoinei* we are enabled to give, and this will show that a new race has been instituted which will, or ought to, interest English gardeners.



Begonia octopetala Lemoinei. Engraved for THE GARDEN.

We let M. Lemoine speak for himself as regards this novelty:—

"I beg to send you a photograph taken from a specimen of a new race of autumn-flowering tuberous *Begonias*, and which may, perhaps, be of some interest to your readers. It is the result of a cross which I made some years ago between the white-flowered species *B. octopetala l'Héritier* and some of the finest of the tuberous section. As you may judge from the photograph, the new *B. octopetala Lemoinei* is one of the handsomest that I have raised. The root is somewhat irregular, lengthened, black, and intermediate in form between the long root of *B. octopetala* and the spherical-shaped corm of a tuberous sort. The herbaceous stem is very short, so that the leaves seem to be radical. These are broad, undulated, of a

glossy green, and with round hairy stalks. The plant bears six to eight erect hairy flower-stalks, which are large, 2 feet high or less, and each supporting from five to seven flowers. These individually attain the size of 3 inches or more across, and are composed of six to eight large oval petals, which have somewhat the shape of those of *Anemone japonica* or *Anemone fulgens*. A great range of colours, from pure white to scarlet, with various shades of pink and carmine, is already to be found in this new class, which produces a beautiful show of blooms at a season when the brightness of the tuberous *Begonias* is over. The photograph was taken on November 10, 1888, in my nursery from a variety with pink flowers; they are one-sixth natural size."

V. LEMOINE.

Nancy.

Habrothamnus elegans.—This old plant has been very fine all the winter in Mr. Clarke's garden at Croydon, where its long festoons of flowers still hang in the greatest profusion. It covers the back wall of a large greenhouse, and I would strongly recommend it to everyone having such a wall. It does not require much care, yields an abundance of lovely deep reddish purple blooms throughout the winter months, and succeeds much better when planted out than as a pot plant. The kind known as *aurantiacus*, with deep orange-yellow blossoms, is an excellent companion, and affords a cheerful contrast when the two are in flower together.—G.

Acacia dealbata.—Next in its season of blooming to the peculiarly flat-stemmed *Acacia platyptera* comes this, the Silver Wattle of Australia; but as far as appearances go, they are very distinct from each other, for *Acacia platyptera* will flower freely in the shape of quite a small specimen, while the other is of tree-like habit, and needs a very large structure to be seen at its best. The temperate house at Kew affords ample scope for its full development, and there every year it blooms in the greatest profusion, and besides this, the beautiful silvery Fern-like foliage is scarcely less pleasing than the blossoms. A good deal may be done by continually propagating from cuttings to induce this *Acacia* to bloom in a smaller state than usual, but it is as a large specimen that its beauty is best seen.—H. P.

Solanum jasminiflorum.—I was glad to note "T. B." in THE GARDEN, Jan. 19 (p. 59), drawing attention to this old favourite. I take it for granted that it is the same variety as used to be grown under the name of *S. jasminoides*. It is not fragrant, rather the reverse, but the odour is not so strong as to prove offensive, and it is readily extinguished in a mixture of sweet *Bouvardias*, *Stephanotis*, *Jasmines*, *Gardenias*, &c. In fact, I once made hand and bosom button-holes for a lady who could hardly wear the more fragrant flowers unless toned down and also rendered more graceful by bunches or elegant fringes of this Potato-wort. We grew two large plants, one on the roof of a cool orangery, and the other on the roof of a Camellia house, and between the two we were seldom without a liberal supply of flowers for bouquets, vases, small baskets, wreaths, and dinner-table decorations. I can hardly, however, agree with Mr. Baines that the flowers are of the purest white; they may be or they may not, according to circumstances. In the open on a warm wall there is a large dash of bluish-purple in them. This also not infrequently occurs in a very light house glazed with large sheets of clear glass. In a more shady position and especially in a higher temperature, the blooms of this *Solanum* will be pure white. It would be as impertinent as superfluous to attempt to add anything to Mr. Baines's full and perfect instructions on propagation, cultivation, and general and special treatment. I may, however, add that green and black fly are especially partial to this

plant, and increase on its slender shoots with amazing rapidity. These pests soil and so ruin the flowers almost as soon as they appear, and hence they must be at once destroyed so soon as the first is seen if the flowers of this useful plant are to be had in quantity and of the purest quality.—D. T. FISH.

IMPORTED LILIU AURATUM.

DESPITE the report one sometimes hears of this beautiful Lily becoming naturalised, many of the imported bulbs die every year; in proof of which one has but to look at the notices of the various auction sales to see them sometimes offered by tens of thousands. Generally speaking, they now arrive here in very good condition, thanks to the way in which they are packed. Each bulb is hermetically enclosed in a ball of clay, which, of course, must be moistened sufficiently to allow of its being manipulated. The advantages of this mode of packing are, first, its air-tight character, and secondly, the fact that each bulb is entirely isolated, so that should one be affected by decay it is not all liable to affect its neighbours, unless too much moisture is present, as then the clay yields and the decay often spreads. In the case of bulbs just imported they should be put in soil as soon as possible after receipt, but an excess of moisture must be especially guarded against, as the bulbs are often somewhat exhausted, and if kept too wet they are apt to decay. While the treatment will, to a great extent, depend upon the conveniences at hand and the purposes for which the plants are required, it is a good plan to lay the bulbs in a frame out of the reach of heavy rains, and just cover with some sandy soil for two or three weeks before potting or planting them. By this means the partially exhausted scales if there are any become gradually plump and firm; whereas if planted in the open ground directly on receipt, much mischief might occur by very heavy rains just then. Besides this, two or three decayed scales will often infect the whole bulb, and when laid in for two or three weeks before planting in the manner above described, an opportunity is then afforded of removing any signs of decay that might not have been noticed when first received. In potting or planting drainage is a very important consideration, and I find very good results from surrounding the bulb with sandy soil, as it prevents any great accumulation of moisture. Notwithstanding the many beautiful specimens of *L. auratum* that one sees, we have much to learn from the Japanese as to their successful culture, but most probably the climate has much to do with it; at all events the fact remains that the Dutch bulb growers, successful as they are with many Lilies, do not succeed with this. The golden-rayed Lily is by no means the only one imported from Japan as above described, for some varieties of it are also sent, prominent among them being *platyphyllum*, of which huge bulbs are sometimes met with at the auction sales, *rubro-vittatum*, *pictum*, and the charming spotless *virginale*. There are also other species now imported from Japan in considerable numbers, such as *L. longiflorum*, of which a very good variety is usually sent to this country; *L. Batemanniae*, whose bright apricot-coloured flowers make a goodly show in the open ground, but it will not succeed in pots. Besides these the white *L. speciosum* Kretzeri is sent in great numbers, as well as a good dark variety, usually disposed of as *L. speciosum rubrum*. *L. Krameri*, which also arrives in large quantities, is a difficult Lily to establish, and besides all these there are a few usually imported in limited numbers, such as *L. Leichtlini*, the curious *L. cordifolium*, numerous varieties of the Tiger Lily and of *L. elegans* or *Thunbergianum*, and the rare sweet-scented *L. odorum*, usually sold under the name of *L. japonicum* Colchesteri.

H. P.

Choisya ternata (H. W.).—The above is the name of your pretty greenhouse shrub, which forces well, and should be borne in mind by gardeners, who are at a loss to know what to force to produce white flowers. I do not remember accu-

rately, but I think I observed this plant in quantity last year in flower about this time in Messrs. Laing's nursery at Forest Hill, but I have not observed it this year anywhere. It produces large, Ixora-like trusses of pure white, sweet-scented flowers, which are always appreciated when seen. It is a Mexican plant, and is, I believe, hardy in sheltered spots.—W. H. G.

Poinsettias planted out.—In a narrow border at the back of a low narrow lean-to Melon house I lately saw a very healthy plant of *Poinsettia pulcherrima*. Two years since it was put in as a single stem, which grew 3 feet high and flowered. This year it has produced fourteen large, highly coloured bracts which are much improved by the deep green foliage with which the plant is clothed. All the shoots being trained to face one way, the effect when they were in bloom was very fine. Provided a suitable position can be obtained for planting out the *Poinsettia*, the plants so treated will produce a greater number of heads than can be obtained from specimens grown in pots, while the attention required is far less.—M.

WORK IN PLANT HOUSES.

STOVE.—CLERODENDRON BALFOURI.—This *Clerodendron* is so superior to others of the section to which it belongs that most growers confine themselves to it. By starting it early it will bloom early in spring, and there is no difficulty in keeping it back until the summer is far advanced. So long as the roots are quite dry the plant remains completely dormant even when subject to a temperature high enough to excite growth, which is necessary to keep it in health. When quite dormant with the soil dust-dry, the roots are liable to perish if submitted to so low a temperature as some stove plants will bear. *Clerodendron Balfouri* is such a free bloomer that it will flower in a 6-inch or an 8-inch pot comparatively as well as when it has attained a large size, providing always that the preceding season's growth has been well ripened. Plants that were dried off in autumn, after having made the requisite amount of growth, will have cast all their leaves. The extremities of the shoots, more or less according to their strength, will be wanting in solidity. These must be cut back to the plump wood. The shoots should then be trained regularly round an ordinary wire trellis, or sticks inserted in the soil just within the rim of the pot will give the necessary support. To ensure the soil being evenly moistened through, the ball should be plunged for several hours in tepid water. Small examples that are required to be grown larger may have a shift now, before they begin to grow, in place of repotting them after blooming, but there must be no disturbance of the roots or it may interfere with the flowering. This *Clerodendron* will bear the heat of a warm stove, in which it will be in bloom in about eight weeks from the time of its being started. Where the plant is required for conservatory decoration, or to afford flowers for cutting, it is well to grow several medium-sized specimens, by which means, if they are started at different times, a long succession of bloom may be secured. As soon as a little growth has been made manure water should be given regularly. This *Clerodendron* does well as a roof climber planted out, but it is the most useful when grown in pots, in which way the time of flowering can be much better regulated.

BOUGAINVILLEA GLABRA.—Though this plant cannot produce such a quantity of flowers when the roots are confined to pots as when planted out, there are advantages connected with its being grown in pots that are not obtainable under the planting-out system. Under pot culture it can be induced to give three distinct crops of flowers in a season, but to give the requisite time for this the plants must be started early and be pushed on in a brisk heat. The best way of wintering this species is to keep the roots quite dry. This causes the whole or nearly the whole of the leaves to fall off. Previous to starting, all the weak shoots should be cut away, leaving nothing but the strongest branches of last season's growth, as it is only the eyes that proceed from them that will make shoots strong enough to bloom. See that the

soil is thoroughly moistened previous to starting the plants; if this is only partially done the growth will be weak. Train the branches evenly round the trellis, keeping them low enough down to furnish the bottom. This *Bougainvillea* will bear a brisk heat, but the young growth must have all the light that can be given. Syringe overhead once a day. From the time when the shoots attain some length until the formation of the flowers, they should be supported in an erect position. If the ends are allowed to hang down it often prevents their extending freely and causes the production of laterals that do not bear nearly so many flowers as the first shoots are able to do if they are kept in a position that admits of their drawing all the sap.

GLOXINIAS.—To keep up a succession of flowers during the summer, the tubers should be started at about three different times. The first portion ought to be put in heat at once. Give pots proportionate in size to that of the tubers; large old roots will require 8-inch or 10-inch pots. They would bloom with less room than this, but if too much confined at the roots the first lot of flowers will exhaust the plants, so that little in the way of a succession will be forthcoming. In potting, see that the crown of the tubers is kept well above the soil. Small roots, such as were raised from leaf-cuttings last summer or from seed, will not require pots more than 6 inches or 7 inches in diameter. A light compost suits the plants best, such as one composed of equal parts loam, peat and leaf-mould, with some rotten manure and sand added.

SOWING GLOXINIA SEED.—Fine varieties of *Gloxinias*, quite good enough for ordinary use, may be depended on from seed, provided that the seed has been saved from selected plants of a good strain. But to give time for young stock to attain sufficient size to bloom well in the autumn, it is necessary that the seed should be put in without delay. Large-sized seed-pans should be used if a considerable number of plants are wanted, for the seed ought to be sown thinly enough to prevent the little plants becoming weakly before they are large enough to pot off. If they get weak through being crowded no after treatment will remedy the injury. Soil of a like description to that recommended for growing the old tubers will answer for sowing the seed in; it should be passed through a fine sieve. When the pans are filled, press the surface smooth and water, allowing time for the water to pass off, and then sow the seeds about an inch apart, cover them very lightly, and again smoothe the surface. If sheets of glass are laid over the tops of the pans it will keep in the moisture sufficiently for watering to be dispensed with until after the seedlings appear. Stand in an ordinary stove temperature as soon as the seed vegetates, remove the glass and put the pans close to the light. If there happens to be a shelf over the path of the house where they will be near the roof, it is the right place for them.

AZALEA MOLLIS.—Amongst the hardy shrubs that are used for forcing, these *Azaleas* stand in the front rank. The size and colours of the flowers are such as to make them suitable alike for bouquets or for any of the many arrangements in which cut flowers are now used. The prevailing colour which many of the varieties possess—yellow or yellow suffused with red—meets the present fashion to an extent that few plants afford. If pushed on with much heat, the flowers will not stand many days either when allowed to remain on the plants or when cut. To some extent this applies to most hardy subjects, but these *Azaleas* are more affected by any excess of heat than most things with which I am acquainted. Plants that were forced last year, and that, after blooming, were allowed to remain under glass until they had made their growth and set their buds, will in many cases bloom more profusely than such as were grown out in the open ground. These *Azaleas* may be flowered at the beginning of the year, but those that are started now will generally be found to answer better than if they were pushed on at an earlier period.

GHENT AZALEAS.—This section of *Azaleas* must not be forgotten, as they flower remarkably freely, and in addition have a great variety in the colours of their flowers. In many cases the plants are not so

well set with buds this season as usual, the past sunless summer being unfavourable for the ripening of the wood; it therefore becomes necessary to select only those plants that promise to bloom satisfactorily. Like the mollis varieties, these Ghent Azaleas produce flowers of a much more lasting character when they are brought on slowly and receive all the light that can be given them.

ANDROMEDAS.—*A. japonica* and *A. floribunda* are two of the most useful hardy subjects for blooming in pots. The former kind is yet not much known. It is a remarkably free bloomer, and when brought out under glass the flowers are more pure in colour than they are in the open air. It is an early-blooming shrub, that often gets injured by frost out of doors. It requires little forcing; if a few plants are put in a greenhouse or cold pit they will succeed those that are now started in heat.

In the forcing of hardy shrubs, the reeking, moist atmosphere sometimes kept up and supposed to be necessary should be avoided, for though under such conditions the flowers will come on quicker, the excess of humidity weakens the texture so much that they are short-lived. With a view to avoid a like result, the syringe should be used moderately; once a day is often enough to moisten the plants in this way, and the syringing should be done sufficiently early in the afternoon to allow the plants to get dry before nightfall.

T. B.

Freeseas in bloom.—These charming and very fragrant plants should become the most popular subjects that we have for the embellishment of the greenhouse during the early months of the year. During the last two or three years large quantities have been imported into this country from the Cape of Good Hope. They are generally very fine bulbs, and will flower freely if potted in good open soil as soon as received—that is, if they come to hand about August, which is the usual season. When potted, the temperature of a greenhouse is quite sufficient for them, and after the plants make their appearance above ground they must be kept in a position well exposed to the light, otherwise the foliage will become drawn and weak. Freeseas are readily forced, but, in common with many other subjects so treated, they must not be shifted into a warmer structure till they have made a certain amount of progress, as if forcing is attempted directly they are potted it will end in failure. Few bulbous plants can be grown as readily from seed as the Freesia, for it does not take long to germinate and the young plants make rapid progress, so much so that from seed sown in the spring I have obtained flowers before winter; while the bulk of them bloomed in about a year from the sowing of the seed. The blossoms are very fragrant.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Saxifraga ligulata.—This is a plant one seldom sees forced. I, however, saw it beautiful a short time since, its flowers producing quite a contrast in colour, and reminding one of spring.—W. H. G.

Lace-leaf plant (*M. S., Bournemouth*).—I have no leaves of the Lace-leaf plant of Madagascar. It will grow in an ordinary stove, and no doubt can be supplied by any of the principal nurserymen.—W. H. G.

Boronia megastigma.—This is remarkably well grown in the gardens at Croydon Lodge. The plants were not large, but they were better furnished, and more bushy than usual, and they were flowering freely. Its delicious perfume should commend it to everyone having a greenhouse.

Erica melanthera is one of the prettiest winter Heaths, and is very distinct from all the other varieties. The flowers, which are very freely produced, are very small, like tiny wax bells with black anthers. The habit of the plant is very neat, as exuberant growth is checked by its free-flowering qualities. The flowers last a long time in good condition.

Eranthemum pulchellum.—At this time of the year small specimens of this plant bearing half a dozen spikes of lovely blue flowers are exceedingly useful for house decoration, especially when they are grown in pots 3½ inches in diameter. Such plants are much more appreciated than larger ones for many purposes.—M.

FLOWER GARDEN.

DAFFODILS FOR FORCING.

MR. DOUGLAS, at p. 85, tells us that—

In time all the most popular of Daffodils will be imported from Holland with the Dutch bulbs. They seem to have the advantage of us in soil and climate; but no one in England seems to have taken the same pains to cultivate bulbs as the Dutch have done.

This seems to me to be a most misleading view of things, and perhaps, on second thoughts, Mr. Douglas may modify his ideas, or at least try and prove the latter part of his statement. As a fact, all Daffodils grow better and are permanently healthier and more vigorous in well-selected spots in the British Islands than they are in Holland. Again, is it not a fact that Mr. James Walker has taken equal pains to grow these bulbs well, and has he not succeeded with Daffodils quite as well as any Dutch grower? In the Scilly Islands, as a rule, flowers of *Narcissus Tazetta* even are being cut and sent to Covent Garden Market almost before the bulbs have shot their leaves above the soil in Holland; and Mr. Hartland, of Cork, certainly has a better soil and climate for these flowers, and grows them as well, or better, than any I ever saw in Dutch soil. By carefully selecting suitable spots in the British Islands, not only Daffodils, but even Tulips, Hyacinths, and many other bulbs might be grown as well as ever they are, or were, by the Dutch growers. As Mr. Douglas knows better than I do, the florist's Tulip, as grown near Sheffield and other towns in Northern England, has never been excelled, not even in the native country of the Tulip itself. This is saying a great deal, but it is, nevertheless, true.

Those who wish for early Daffodils or bulbs for forcing will look to Italy or Spain for their bulbs rather than to Holland, where these flowers do not bloom much, if at all, earlier than with us in the latitude of London. The earliest of all Daffodils to flower here are always those from Italy and Portugal or Spain. Even *N. pallidus præcox*, from Bayonne, is equalled or exceeded in precocity by *N. Umberto I.* as imported from near Naples.

I am glad to know that Messrs. Dammann and Co., the great bulb growers of Italy, are collecting all the wild forms of Italian Daffodils, and also importing the finest of all the forms not wild in Italy, for the very purpose of supplying bulbs for early blooming in the more northerly parts of Europe and America. The earliest of *Narcissi* to bloom in our greenhouses will be those grown and ripened early in Italy, Spain, or Southern France, where their growth becomes finished almost before they flower in the open air in England—at any rate, long before those of Holland. These bulbs we shall receive in July, or early in August at the latest, and they will flower with but little forcing quite early enough to succeed the Chrysanthemums, just as the Paper-white and the double Roman *Narcissi* from Italy do now.

Of all the bulbs grown in Holland the Daffodil is the least satisfactory, being in all ways inferior to bulbs grown in the best soils and climate of our own land. When we come to speak of white Daffodils, the Dutch growers are not in the race; indeed, no finer flowers are to be met with than those from Irish grown bulbs. I should say that Daffodil bulbs are quite as well grown in Lincolnshire and in Surrey as ever they are or can ever be in Holland. Of course the Dutch have a system of culture, but even in Holland the soil that will grow good

Hyacinths and Tulips is very limited, and unless great care is taken, Hyacinth grounds sicken and the bulbs become diseased. Hyacinths and early Tulips may perhaps be grown better in Holland than elsewhere at the present moment, but Snowdrops, Crocuses, and Daffodils certainly may be and often are stronger and healthier as grown in the British Islands. As I have said, the bulb growers of Holland have hereditary traditions and a system of culture which, until recent years, was almost unknown to us, and we have become accustomed to buy bulbs from the Dutch without calmly weighing over the possibilities of growing them at home. Miller, 140 or 150 years ago, in his "Gardener's Dictionary," lamented the supineness of the British gardeners in not growing *Narcissi* from seeds at home:—

The not practising this method has occasioned our sending abroad annually for great quantities of flower roots, which have been kept up to a great price on account for the great demand for them in England; whereas if we were as industrious to propagate them as our neighbours, we might soon vie with them, if not outdo them, in most sorts of flowers.

It is pleasant to think that Mr. James Walker has set a very good example by growing many bulbs in Surrey quite as well as they are grown elsewhere, and the land culture of Scilly has within the past few years been revolutionised by the systematic culture of *Narcissi*, &c., for their bulbs and blossoms. F. W. BURBIDGE.

HERBACEOUS PLANTS FOR THE SEASIDE.

LITTLE fault can be found with the selection of herbaceous plants and shrubs made by Mr. Webster on p. 91 of last week's GARDEN, but there is one strange omission, the beautiful Tamarisk, that is fresh and green, even when so close to the briny ocean as to receive the full force of the salt spray. It is in luxuriant health at Brighton and many other of our southern watering-places, but has apparently only been planted there, and is not a native, as many suppose. Its feathery, Heath-like foliage and bewitching grace are never better seen than on the bare sea-coast, where the spray from the sea proves fatal to flowering plants of many kinds. It has small pink or white flowers, which cover the graceful branches and make a cloud of colour when a group is planted. I saw a beautiful effect of this kind last season at Kew. Turning into a kind of glen in that part of the gardens known as the Wilderness, several of the Tamarisks were in their finest character—one mass of flowers, that had the same beautiful aspect as a pink Thorn seen from a distance between a veil of foliage. This was evidence that the Tamarisk is as useful inland as by the sea; and this remark applies to the Sea Buckthorn (*Hippophaë rhamnoides*), that more should plant by the ponds and lakes. I saw this at the edge of the Round Pond in Kew Gardens last autumn, and from a distance it seemed as if on fire, an effect produced by the Dogwood in the hedgerow or the cardinal Willow. The twiggy stems were a mass of yellowish scarlet berries. It is a native shrub, but local in its habitats, and one that "A. W. N." may well try, as advised by Mr. Webster. Of the *Euonymus* nothing need be said, except that there are few better seaside shrubs, and the Box Thorn (*Lycium barbarum*) should also most certainly come in the category. *Escallonia macrantha* I have seen flourish near the sea, not, however, sufficiently close to feel the salt spray, and I have no knowledge as to whether it would do in exposed positions. It was at Battle Station, the one before St. Leonard's, that I saw a very fine specimen of this *Escallonia* high up among evergreen shrubs overlooking the platform, and as full of health and flowers as a shrub could be in its rather cramped situation. Passing to hardy flowers, there need be no lack by the sea, as Chrysanthemums, Statice, Arabises, and Pinks will flower abundantly, almost, if not quite, as well as in the village or town. Thrifts revel by the sea, and the common *Armeria* lives in sand that is sometimes covered with salt water. If the common kind

would succeed, there is no reason why cephalotes and some of the finer types should not be liberally planted, and we may say the same of the common Sea Holly (*Eryngium maritimum*). There is an untold wealth of beauty in the *Eryngium*. I have never seen *amethystinum*, *giganteum*, *Oliverianum*, *planum*, *Bourgati*, *alpinum* or any of the finer types close to the sea, but as our common wilding lives on the sandy shore, exposed to the full blast of every storm, there is no reason to suppose the admittedly more beautiful European kinds would not also do well in exposed seaside gardens. A few of the Roses will succeed, and Carnations will certainly do well. I remember the schoolmaster's garden at a little town called Seaford, between Eastbourne and Newhaven. It was near the shore, and nothing to intercept the wind or spray except a small fence that marked off the garden from the road. There the Carnations (self kinds) flowered as strongly and freely as inland, where they have shelter and warmth. These few notes may perhaps be of some value to "A. W. N." E. C.

bloom, and were found very useful indeed for blooming early in a warm conservatory. I have referred to this practice of Mr. Stewart's because the *Datura* is a plant that can be used with good effect in the flower garden during summer, as may be seen by the specimen represented in the annexed engraving.

R. D.

FLOWER GARDEN NOTES.

DAHLIAS.—As the propagating season is at hand, a note as to the varieties and ways of arranging Dahlias in beds and borders may prove helpful to those desirous of obtaining the best effects with the fewest plants, and, I will add, with the least labour as to tying, staking, and pegging. Having used only the single, pompon and Cactus varieties for some years past, my notes will only include these. Like all new plants and phases of gardening that are new and striking, and especially in such a case as that of single Dahlias, that, as a rule,

reasons, namely, because there is no autumnal flowering plant that can produce the gorgeous and, when well backed up with plenty of greenery, grand effect that single Dahlias do. Granted that the manner of arrangement has much to do with their effectiveness, this is not difficult work; say, for instance, that (from my point of view) the least desirable mode of arrangement has to be carried out, namely, the planting of whole beds, or massing for colour effect. In such a case I would advise that toning down of the necessarily loud colouring be effected by using a central standard plant, and specimens, if need be, equi-distant over the beds of *Acacia lophantha*, Giant Hemp, Gibson's Castor-oil, in fact, any graceful foliage plant that grows taller than Dahlias. I have sometimes got over the difficulty of the standard plants being too short by pegging down the Dahlias. What is known as the *gracilis* section are well adapted to this mode of treatment, because they are naturally dwarf and of a branching habit of growth, and, what is more, they bear pinching well, and the lateral growths resulting

DATURA SUAVEOLENS IN THE FLOWER GARDEN.

SOME years ago at Nuneham Park, Oxford, the seat of Colonel Harcourt, *Datura suaveolens* used to be employed with good effect in the flower garden during summer and autumn, and, indeed, when it was not in flower it was a stately and effective plant. It is probable that the style of bedding which prevailed in those days is now not nearly so popular as it was then; but the *Datura* can be employed for outdoor decoration in suitable localities, and always with good effect.

Mr. Stewart, the gardener at Nuneham Park, used to raise young plants annually by striking cuttings in autumn. They struck readily in bottom heat, were then potted as soon as rooted, and kept growing gently in a warm greenhouse all through the dull winter months. About the end of February it was the practice to shift and place the plants in an atmosphere of about 55°, when they were watered freely and encouraged to grow. Being free-rooting plants, as soon as the roots appeared above the surface they were treated to good doses of liquid manure and sometimes to a top-dressing of old cow manure. They were kept growing on in this way until the middle of May, when they had attained a size of 2½ feet, after which they were gradually hardened until they were able to bear exposure, and during a dull time the plants were taken out of doors, placed in a sheltered corner, and screened from the sun preparatory to being planted out.

The change would be certain to hurt the plants to some extent, the leaves showing its effects, but when planted out recovery soon sets in. Mr. Stewart always treated his plants in the most generous manner. When they became firmly established and a generous growth set in, the roots would soon begin to appear on the surface, when if the weather was dry the plants were treated to a good soaking of water, and a little liquid manure was given three times a week. The result was that the plants flowered with remarkable freedom, and a sweet perfume exhaled during the evening. Plants treated in this way began to flower in July or early in August, and continued to do so until early autumn frosts impaired their usefulness. But when disfigured in this way they had not ceased to be useful. They were dug up and the roots trimmed, so that the plants would go into 12-inch pots, and instead of being potted they were stored away under a stage in one of the greenhouses, or any temporary place where they could be protected from frost, and potted in the spring. They started into growth and soon came into



Datura suaveolens in the flower garden.

flower profusely in all seasons, the rage for them amounted to a craze, and when this happens the reaction is sure to extend to the other extreme, and end in the denunciation of the entire family. That this stage has been reached in respect of single Dahlias, I had proof last year. Whilst admiring the grand array shown at the National Dahlia Society's show at the Crystal Palace, a friend said, "I have done with single Dahlias; they take up too much time to keep them free of seed-pods, and they cannot be left on, or they cease flowering directly." My reply was, "Nonsense; what bedding plant is there that does not require as much attention, either in picking off bad flowers, pegging, or staking." An answer was attempted, but it is needless to say that I did not accept it, simply because the bestowal of an hour's labour once a week will rid the Dahlias of all seed-pods in the largest bedded-out garden. This, at any rate, is my experience. From the foregoing it will, I think, be seen that single Dahlias are still in favour here, and that for the best of all

from that operation quickly break into flower. There is no more telling way of arranging them than that of intermixing them in large beds with other plants that grow about the same height, as do Abutilons, the strongest growing forms of Marguerites, the perennial forms of double Sunflowers, and others, the names of which will occur to readers. Where flower borders are bounded at the back by Evergreens, nothing better of a flowering description can be used, but an entire line of them even in such a position as that is objectionable, because of its formality, and, therefore, they should be alternated with plants of less gaudiness. Plants of massive foliage, as Castor-oils, would be suitable, being of a totally different character. Colour has most to do with the question of what I call "quiet" or refined beauty. Of white, scarlet, and rose it is hardly possible to have too much, but yellow and purple of every shade should be very sparingly used. Varieties are now so numerous that I think it best to mention colours only. The Cactus sec-

tion is very beautiful, but unfortunately the plants do not flower well till very late in the season, and are so susceptible to injury—damping off—from rain, even before they are half open, that I have nearly given them up, as they are unworthy of being classed as bedding plants where plenty of flowers is a first consideration. In the hot, dry autumn of 1887 nothing could be finer, and last year nothing was worse in the garden. The flower-buds were a rotten mass ere the flowers were half open. They are, however, so beautiful in a good season that I shall continue to use them, but in reduced numbers, and only in such positions that if they should fail their loss would not be conspicuous. The bouquet or pompon varieties were at one time in great favour, and for large beds where colour and free-flowering were required they did very well as a change, but their stiffness was sufficient to make their popularity of short duration. The least objectionable way of arranging them is that of dispersing them in single file at irregular intervals over mixed flower borders, which they brighten up, and amongst such a mass of other totally different types of plants that their formality is not observable. For use as cut flowers they are valuable, and few flowers retain their freshness so long. The propagation of all the sections should now be commenced. They are something akin to Chrysanthemums in respect of young or newly-struck plants being superior to the old. Of course the latter (old tubers) will flower very well, but not produce the quality of flower that spring-struck plants do. A bottom-heat of 60° will cause the growths to push slowly, but strong. A bottom-heat of 75° or 80°, as often recommended, is fatal, because the growth being so rapid the shoots come weak, are longer in rooting, and consequently do not make the same rapid growth as do plants raised by the cool treatment.

VARIEGATED EUNYMUSES FOR THE FLOWER GARDEN.—These look so beautiful in the beds planted for winter effect, that we intend to use them in the same way in the summer garden. The small-leaved white variegated Japanese variety, *E. radicans* variegatus, will, by a little manipulation, grow in any form desired, that is prostrate, upright, or spreading, according to the will of the operator. In the prostrate form it makes an excellent undergrowth plant for *Aralia Sieboldi* and *Grevillea robusta*, and as small bushes it may be appropriately intermixed with scarlet or rose-colour-flowered tuberous *Begonias*. The broad glossy-leaved Japanese varieties, *aureus marginatus*, *aureus variegatus*, and *latifolius variegatus*, would be effective as standards among flowering plants of any kind. At the present time we have them planted as standards in blocks of *Mahonia japonica*, and nothing could be more beautiful for the winter season. As the variegation in the summer is still more distinct, I feel sure that they will be just as beautiful and serve the same purpose as do variegated *Abutilons*. The half-ripened points or shoots of the small-leaved variety *radicans* strike in heat with the same freedom as do ordinary bedding plants, but the others are more difficult and slow to strike. Cuttings of these should be taken in autumn and be inserted in cold frames or hand-lights. They will strike root in the following spring, and as soon as well rooted they may be transplanted to a sheltered border, or, better still, to cold frames, for the sake of shelter the following winter.

GENERAL WORK.—Propagation of bedding plants, potting of those in store pots and boxes and the sowing of such kinds of flower seeds as are of slow growth; pinch out the tops of *Calceolarias* in frames to induce a branching habit, and if *Violas* and *Pansies* cannot yet be planted out, these may be served the same. Other plants in cold frames will need an occasional picking over to prevent decay through damp and mildew; this and surface-stirring of soil, to prevent the growth of Moss, and the free use of sulphur will ensure safe preservation. Out of doors complete all new work and alterations that the final touch of neatness may be given to the walks—a fresh surfacing of new gravel. After this, roll as frequently as time affords, as a solidly

made gravel walk is inimical to weed growth and comfortable to walk on. W. WILDSMITH.

SNAPDRAGONS.

THE coloured plate of the homely Snapdragons which appeared in last week's *GARDEN* should do much to bring the fine self-coloured varieties forward. There are many named kinds of the common *Antirrhinum majus*, but an endless selection can be obtained from seed, especially if this is gathered from a well-assorted strain of flowers. It is surprising the apathy that still exists in regard to hardy flowers. The Snapdragon, or Rabbit's-mouth, as the children call it, is common, and therefore not fit to have a place in the garden; so moralise those who see no beauty except in a flower that has cost them much to obtain. The *Antirrhinums* may be grown in many spots, reserving a few seeds for the old and crumbling wall where the plants can find a foothold and flower freely. These are the kind of places where seeds of many of our simple flowers can be scattered—the common *Fumitory*, for instance—and left to chance. I know an old wall where the yellow *Fumitory*, Snapdragon, *Toadflax*, and other gems bloom with their wonted beauty and freedom. It does not occur to many, however, to try and obtain beautiful effects such as these, and that give a more lasting pleasure than all the geometric patterns, corkscrews, or paltry imitations of common objects that can be crammed into the garden. One thing the plate should teach—the superiority of the self varieties over the striped and bizarre kinds that seem to please some. There is a certain beauty in them, especially as grown in the north of Scotland; but they should never be grown to the detriment of the selfs, as is the case with the *Carnations*. The crimson of many shades, pure whites and yellows are clear and rich, and give a much finer effect in the garden than the too often exceedingly weak striped varieties that are usually exhibited at country shows. The great point is to secure a good strain—that is, a fine selection of colours, with the additional advantages of a robust bloom and a strong habit in the plant. When this is done a lasting show of flowers is obtained, especially when the plants are two years old, as they are then in the full vigour of both leaf and flower. Unless seed is required, the flowers should be cut off after they have faded, as this encourages continuous blooming and the bushy plants that may be sometimes seen in gardens. It is not often the *Antirrhinum* is killed, but a severe winter sometimes proves too much for it, though unless killed outright the plants shoot up again and seem to flower more freely from the trial they have undergone. It is the second-year plants that flower the strongest, and from which the largest crop of seed can be obtained, though older clumps will give unusual beauty. This is evident from the plant of the White Swan variety figured in *THE GARDEN* of Sept. 29, 1888. This is shown in its third year and at its greatest height, and in its second year, according to the note upon it, it flowers densely when about a foot high. The engraving presented shows the Snapdragon in its truest and best character, growing apparently in an odd corner with an Ivy-covered wall as a background. It is smothered with its pure white spikes of flowers and full of leaf. Those who wish to see what Snapdragons will attain to when properly grown should refer to this delightful engraving of garden beauty untrammelled by inartistic and formal creations. The spring will soon be here, and many have already obtained their seeds; then, if not already done, add a packet or two of the best *Antirrhinum* seed, and if sown in March, the plants will bloom the following autumn, and a sowing made in the open ground in July will give plants that will flower early in the following summer. A long list of named kinds will be found in the catalogues, but unless strikingly distinct it will not be worth while to trouble about these, as from mixed seed a fine selection of colour is obtained.

The Tom Thumb varieties are dwarf and compact, just the kind of plants to edge beds with, and the colours are decided. It is the selfs that we wish to bring more into cultivation. Avoid the bizarre

and striped varieties, as every lover of hardy self *Carnations* would the flakes and similar types, as it is not from these that the greatest amount of rich beauty is derived. Personally, I would not have a striped kind in the garden. But, of course, everyone has not the same tastes or the same conceptions as to what constitutes beautiful colouring.

T. W.

A GAIN IN HARDY FLOWER GARDENING.

ONE distinct gain in hardy flower culture, which all interested should realise, is leaving the stems of plants all through the winter instead of cutting them down in the old and orthodox way. Everybody knows how gardeners used to treat the mixed borders, which are very, very poor representations of what hardy plants would do. The plants were snicked and cut down often early in autumn, and the borders left raw all the winter, with a conspicuous array of sticks and labels. When the finer things are selected and grown in quantity, but naturally grouped, it is a decided improvement to leave the stems of the plants all the winter, only to remove them when there are signs of fresh growth in spring. This is not only worth doing as an aid to culture and arrangement, but it is decidedly worth doing for the beauty and the colour of the plants. Anybody having an eye for good colour and form will enjoy the plants' brown and sere stems in winter. Some kinds of plants are very pretty when dead. In a garden in Newry the other day, belonging to Mr. Hoey, we were pleased to see groups of large and favourite tall herbaceous plants looking nut-brown, and more beautiful dead than alive. We mean such things as the *Japan* and *Sachalin Knotweeds*, the *Michaelmas Daisies*, *Ferns*, and hardy plants generally. A single stem or two in the mixed border would not be noticed, but when plants are put in good ground in picturesque groups, either alone or naturally mingled with others, and relieved by evergreen or other shrubs, groups in that way are telling and most delightful. They give quite a new aspect of vegetation, helping to make winter in the garden more interesting and beautiful. We should not remove the foliage from any hardy plant till early spring, however poor the foliage might be. Among the good hardy plants that occur as the most striking in winter are the *Royal* and other bold native and hardy *Ferns*, the great *Knotweeds* above mentioned, *Sea Hollies*, the *Starworts* or *Michaelmas Daisies*, the bolder *Grasses*, of which there are not a few, and the larger composites, such as the *Cow Parsnips*.

The paradox above mentioned is true of these last, as they really are in some cases more beautiful dead than alive, their delicate browns and greys being so pretty. Hosts of other things might be mentioned, but we leave out all things evergreen and enduring in winter, such as the *Yuccas*, *Bamboos*, and *Pampas Grasses*, referring only to summer-leaving plants.

In addition to the pretty effect we gain, we have to count upon the great advantage of knowing exactly where the plants are in winter and spring, in case we want to move, exchange, or give away. The place is exactly marked, and there can be no mistake made by anybody with the slightest knowledge of plants. A plant's whereabouts cannot be better indicated than by its own stems.

Moreover, leaving the stems tends to destroy the old notion of annual digging in winter—a murderous and stupid practice, which should never be adopted.

In really good hardy plant culture there ought to be not infrequent removals. Some things are better for being annually removed; groups are constantly being changed and new ones made. We must never hesitate to remove, replant, or fill a vacant space at any time, but the more visible the plants are during the dull time of the year the simpler the work becomes. It is easy to see where things are crowded; when lifted, the plants are more conveniently handled; and, after dividing, when replanting, the stems are a useful guide towards grouping naturally.

When a plant is plentiful in the borders, a delightful thing to do is to make a group in good

soil in the shrubbery. The plants may either be thinly placed in open spaces between newly-planted shrubs, or may occupy a little bay or recess in an older and denser plantation. In either case, during winter, the brown stems have a pretty effect, relieved by the Evergreens. In borders filled with hardy flowers in that way we get two forms of life, the evergreen and herbaceous, and by leaving the dead stems in winter, we have the delightful contrast between their soft browns and greys and the verdure of the shrubs around.—*Field*.

BORDER POLYANTHUSES AND PRIMROSES.

WE ought to have an unusually fine display of bloom on Polyanthus this coming spring. I have never seen the plants so robust nor throwing up such fine leafage. They have literally had no check since last winter, and the summer proved to be for them a time of unusual growth. Not only should there be a large show of flowers, but the bloom should be early. We have had a fairly good late autumn bloom, and it might have been thought that so much of flower at that season would have weakened the plants for a spring show; but such is not the case. Not only are the last season's crowns crowded with embryo bloom heads, but the winter crowns are so robust, that the later flowers must be fine and abundant unless injured in any way by adverse weather in April. All flower stems thrown up in the autumn, even though all the buds have not yet opened, are best picked out, as any flowers from them would be imperfect. Did Polyanthus bloom only from the previous year's crowns the blooming period would be a short one, though early. The finest and most characteristic show is usually found on the late or winter crowns, as then Polyanthus show what they really are, whilst the early or previous season's crowns usually give us in the first bloom very many Primrose flowers, thus exhibiting that form which has led to their being termed by some Polyanthus or Primrose Polyanthus. Happily, just as the bulk of any good strain of Primroses still maintain their proper characteristic of producing Primrose flowers only, so also will any good strain of Polyanthus adhere to the correct Polyanthus form, but in each case seed must be saved from the truest forms to keep the strains as perfect as possible.

Putting aside all concern as to intercrossing of Polyanthus with Primroses to produce this tendency to run out—and no doubt there is some of that intercrossing going on naturally—there can be no doubt but that constant cultivation of strains absolutely apart from each other, by raising them from seed, will tend to the same direction. The Primrose verges somewhat towards the Polyanthus habit, and the Polyanthus apes the manners of the Primrose. But whilst my own tastes run in favour of true strains of each form, many persons think that this variation of character tends to greater blooming power and more extended flowering seasons. I cannot say that I have ever obtained from any Polyanthus strain a Primrose which I cared to seed from for own sowing, because, not so good, on the whole, as the best true Primrose forms always are. On the other hand, I have found some wonderfully fine Polyanthus come from out of Primroses, the flowers or pips being of the largest kind. Still, these, as a rule, lack that sturdy stiffness of stem which is essential in any good Polyanthus. During the month of March, when Primroses are with me, as a rule, at their best—and should the season prove kindly they will be so this season—nothing belonging to the great *Primula* family seems capable of giving so much of bloom and beauty; certainly at that particular time no other section can approach them in variety of colour and markings of flowers, in quantity, or in effectiveness. But a month later—for April is the usual time for the best showy Polyanthus—then the mass of bloom thrown up so well above the foliage, giving even more variety of hue than the Primroses do, seems to be unequalled for beauty and attractiveness. The Polyanthus gives to us now a wealth of rich yellows, both single and duplex, these latter being because of their twin pips very effective in the mass; whilst the Primrose does not afford that hue readily, although some are

content to regard washy sulphur hues as yellow. Buff, brown, and salmon tints do not ordinarily appear amongst Primroses, whilst in Polyanthus we find many of these novel colours. But, then, we get in Primroses many pure mauves and almost blues, colours found less frequently in the Polyanthus. The dominant hues in Primroses are white, sulphur, mauve, red, crimson, and purple, or varying shades, such as rose, magenta, and blue.

The truest and best rose-coloured Primrose I have seen came last year in the form of Hose-and-hose, and, to my mind, a lovely thing it is, and as I have numerous seedlings from it, I hope the form may be perpetuated. Seed saved from Primroses growing indiscriminately with each other give on the whole about 60 per cent. fairly true to colour. No doubt were plants grown in distinct blocks of colours remote from each other, fairly true returns from seedlings would result; but still I think any such result would be a misfortune, as to me, at least, one of the charms of Primrose culture is found in watching the expanding flowers of seedling plants which are so varied, because the parent plants were grown in contiguity to others. Whilst the duplex form is common in the Polyanthus section, it very rarely presents itself amongst true Primroses. The habit is a bad one in a seed-saving sense, as, like those oddities the Jacks-in-the-Green, the flowers have tubes from half to three-fourths of an inch long, and as the anthers are remote or the style is very low down, fertilisation is uneven, and often fails altogether. On the whole, duplex Polyanthus do not produce more than one-fourth the quantity of seed which a similar number of ordinary Polyanthus will. The wet season of last year proved to be exceedingly harmful to fertilisation amongst the duplex varieties. We get every colour in the duplex forms which the ordinary Polyanthus gives—white, sulphur, yellow, orange, lilac, red, magenta, crimson, buff, brown, salmon, and purple, with all sorts of markings; indeed, except in the case of whites and other light hues, it is difficult to find two alike. The old florist still thinks his gold-laced Polyanthus the gems of the family. They are refined and pretty, but small, miffy as a rule, and afford little variety. A bed of them, however, finely flowered makes a poor show after all as compared with the fine flowers, large bold heads, and rich hues found in the border Polyanthus, which also give an abundance of perfect thrum eyes and fine form in the pips. I find no plants of either Primroses or Polyanthus to bloom more freely than do those which are raised from seed sown in boxes or pans, or in a frame—as soon as ripe, the seedling plants being, if strong, dibbled out into the open ground in the autumn, or, if not strong enough, kept in a frame through the winter and dibbled out in the following spring. Then during the second spring, if full of vigour, they bloom in rich profusion. A. D.

VERBENAS.

THE absence of the Verbena from the flower garden is much to be regretted, for there is hardly a single flower amongst the list of bedding plants that accommodates itself to so many styles of planting. There is nothing that will present a more dense mass of colour if planted in bulk and kept closely pegged, or it will form interesting clumps in an old-fashioned border or semi-wild garden if allowed to ramble at will. The Verbena can also be associated in its different shades of colour with many other summer plants, and running amongst them and intermingling with other flowers and foliage it is invariably much admired. A sandy soil is admirably adapted for the Verbena, but where this is not available I have found a mixture of road-scrappings and leaf soil in the proportion of two to one necessary to its successful culture. This may be put on to the beds some 3 inches in thickness and well mixed with the natural soil just before planting time. It is a great point to strike early; cuttings inserted in the beginning of February will be ready for shifting by the end of the month. The rooted cuttings should be put into boxes, sufficient space being allowed for their

development, and grown on quickly until they require hardening off. By this time, if they have been pinched once or twice, they will be nice bushy plants, with quite a host of good shoots that will rapidly furnish the beds when the plants are put out. This is, again, a special feature, for if the cuttings are put out without being shifted they are a long time in making headway, and are not at their best much before the end of the season. If the weather is at all dry at planting time, a mulching of Cocoa fibre or leaf soil will be highly beneficial and tend greatly to the rapid growth of the plants. Of varieties suitable for bedding, there is nothing in the way of scarlets to equal the Hampton Court Scarlet, as it combines in itself all the qualities essential in a good bedding Verbena. There is nothing, at least I know of nothing, among named varieties in the purple and white shades equal to this kind, but the colours can be obtained by sowing a pinch of seed each year and carefully selecting varieties of vigorous constitution, sturdy habit and decided colours. Stock plants of Verbenas that are kept through the winter are very susceptible to many garden enemies, and fall victims to mildew, red spider, and thrips unless carefully watched; an application of sulphur and keeping the plants on the dry side will, however, generally effect a cure in the case of mildew, and thrips will succumb to repeated fumigations. For spider a capital remedy is to dip the plants in some of the many insecticides now recommended. This is, in fact, advisable under any circumstances before cuttings are taken. E. BURRELL.

Claremont.

CARNATIONS IN 1888.

WE quote the following, by Mr. Rowan, from the report of the Carnation and Picotee Union for 1888:—

“Another long winter, remarkable like its two predecessors for its length rather than for its actual severity, was followed by a season differing widely from either of them. Instead of the genial spring rains, so much needed after the long dry winter, to start the plants vigorously on their way, both the spring and the early summer were dry and harsh—all but rainless, in fact—so that at the beginning of June growth was very backward and in many instances seriously checked. Towards the middle of June commenced a time of almost incessant rain, which, with its lack of sunshine and low prevailing temperature—which on one July day gave us snow—might well be called a second winter. The July of 1888 will, in fact, be remembered for the heaviest rainfall and lowest temperature for this month hitherto recorded. We had got well into August before we emerged from this miserable period. Such a succession of adverse influences seemed little promising for the production of fine flowers, but in the end the blooms, though fully a fortnight later than an average, were the finest seen in the south for many years. The flowers developed very slowly, coming, as a rule, in fine character, attaining a greater size than usual, and showing a lasting power, whether on the plant or in the cut state, quite remarkable. This last quality it was, next after the lateness of the season itself, which enabled southern growers to show at Oxford on such a date as the 14th of August, fully three weeks beyond the time when, in a normal season, the flowers are at perfection.

“Of the more recent introductions, Robert Houlgrave, S.B., more than held its own at Oxford, taking premier there together with all the prizes in its class. *Alis-monde*, S.F., and *Thalia*, R.F., were again in fine form this season, as was *Amy Robsart*, H.P.P., the heaviest purple edge, and perhaps the most effective flower in its class. *Emma Lakin* was the finest self and Maestros the best fancy of the year. Old favourites worthily maintained their positions. *Tom Power*, S.B., and *Muriel* were premier Carnation and Picotee in London; *Mrs. Payne*, premier Picotee at Oxford; *Sportsman* and *Muriel* taking the honours at Manchester. New flowers certificated this season were few. *Silvia*, L.P.P. (*Douglas*), *John Harrison*, C.B. (*Hewitt*), *Emma Lakin*, *White Self* (*Lakin*), were the best, and all

were of high quality. Run flowers were with me much less numerous, and the bloom generally was purer in the ground and more refined in the markings than during the hot season of 1887. Complaints, as might have been expected after so wet and cold a summer, have been general as to failure of the layers in rooting; and another unpleasant feature has been the reappearance in force of the 'maggot,' which has again been very destructive, for the most part among plants in the borders, those in the pots being but little troubled with the pest. The fine autumn has done much to make amends for the unfavourable influence of the cold spring and summer on the growth of stock, the young plants, both since layering and potting up, having improved both in size and vigour to a degree which in many cases seemed at one time scarcely to be hoped for."

ROSE GARDEN.

T. W. GIRDLESTONE.

NOTES ON NEW TEA ROSES.

THE notes that have recently appeared in the columns of THE GARDEN about the new Tea-scented Rose Mme. Hoste (Guillot, 1887) all tend to confirm the good opinions formed of it during the past season, although Mr. Benjamin Cant rightly enough demurs to its description as a rival to Maréchal Niel. Nevertheless, that so good a judge as Mr. Cant should express his unqualified approval of Mme. Hoste, as recorded on pp. 65-6, will dispose many rosarians to make trial of Guillot's seedling. The blooms of it exhibited by Mr. William Paul, when a first-class certificate was awarded to it by the Royal Horticultural Society, were of great beauty, and the vigorous growth of the plants on which they were produced was also noted with satisfaction. Out of doors during the past season, in spite of the wet, some good blooms were produced on the young plants, especially late in the year, when several very beautiful examples managed to develop between the showers. That the variety has achieved a success in America is also satisfactory, as there the propagation of a promising Rose takes place on a scale sufficiently extensive quickly to find out the weak points in the character of a flower. The tendency of American growers seems to be not to grow a great number of varieties, but to grow an immense number of plants of a few good sorts, so that if a Rose is found to be worth propagating on a large scale over there, it must at any rate be a good forcing or pot Rose. The flower is well described on p. 66 by Mr. Benjamin Cant, except that he does not draw attention to two important qualities, viz., the great size and depth of the individual petals and the close pointed centre of the flower. The sustained beauty, however, of the lemon-tinted blossoms from the bud state until fully developed has not been overlooked either by growers in this country or in America.

Another of the half-dozen most conspicuous Teas of the past season is the last contribution of Lacharme, Henriette de Beauvau. This Rose is a climber, and therefore not likely to be valuable to cultivators "on the other side," where most of the Rose growing seems to be done under glass; consequently reports about it from America will probably not be forthcoming. But favourable opinions have already been expressed by good growers in this country, Mr. Cant among them, not only on its character as a vigorous climber, which is obvious, but also as to the quality of its flowers, which seem quite likely to prove useful for exhibition. Their colour is almost that of Perle des Jardins, while the habit and entire appearance of the plant strongly recall Mme. Eugène Verdier (Levet,

1882), though, unlike that very distinct variety, which is liable to be very considerably injured by frost, Henriette de Beauvau appears quite hardy, the plants having withstood the recent cold unharmed, while the shoots of Mme. Eugène Verdier were, as usual, killed back for a considerable distance from the tips. There is need of a good yellow climbing Rose that shall be hardy. Maréchal Niel is too susceptible of chills; most of the Dijon Teas are two tawny in colour to be described as yellow; while Cloth of Gold, in spite of "C. J. G.'s" note on p. 66 as to its beauty in Ceylon, may for all practical purposes be ignored as a climber out of doors in this country. Of course, there is Mme. Barthelemy Levet, very beautiful in colour, but very small and by no means free; and there is also Belle Lyonnaise, but the colour is very pale, the flower often quartered or malformed, while the plant is tender and generally loses its foliage early in autumn. So that if only Henriette de Beauvau's flowers are as freely and continuously produced as they are well formed and clear in colour, the last seedling that Lacharme sent out will, like so many of its predecessors, supply a long-felt want.

Another Tea whose handsome flowers have already won golden opinions is Lady Castle-reagh (Alex. Dickson, 1888). Here there is no question about the quality of the blooms, which are large, well formed, and of great substance, and which open freely. In colour they are of a soft yellow at the base, suffused externally with a rosy shade. Probably many rosarians, even if they have not yet grown the plant, have seen the flowers exhibited at various shows, at which they have already been awarded three first-class certificates; but it may be of interest to add further that the plant proves to be a good sturdy grower, with exceptionally handsome foliage, which is very persistent, and the wood does not appear in the least damaged by the frost.

Some pretty flowers were developed in the autumn of Mme. Philémon Cochet (S. Cochet, 1887), which was figured in December in perhaps the best coloured plate ever published in the *Journal des Roses*. The flowers are of a delicate pale rose tint, full and freely produced, though possibly with hardly sufficient depth to take first rank; but their stems being stiff and erect, they are displayed on the plant to the best advantage. The same good habit characterises Princesse de Sagan (Dubreuil, 1887), which produces in the utmost abundance flowers of the brightest velvety-crimson colour. If these can only be obtained as good in size and fulness as they are in form, the raiser of Marquise de Vivens will have made a most striking addition to the Teas. Of the freedom and brilliancy of the novelty there is no doubt, every little plant blooming directly; but the flowers, partly perhaps owing to their immediate production on diminutive plants, have been small, though well shaped. In colour, however, at any rate, Princesse de Sagan is not one of the conventional (and generally deservedly despised) red Teas, but is a genuine brilliant crimson.

The sixth of the new Teas which has attracted immediate attention is Nabonnand's climbing L'Idéal (1887), which has been recommended as a bud Rose. The raiser, attempting to describe its shades of colour, declares them *indéfinissables*, and he is not far wrong. It has been called an autumnal Fortune's Yellow, a climbing Ma Capucine, and sundry other things, to evade the description of tints of rose and yellow so blended and commingled as to render their analysis a seemingly hopeless task. The raiser's attempt

reads, "Yellow with shades of metallic rose, lighted with touches of bright gold," and, in spite of the allowance that it has sometimes been supposed to be necessary to make in converting the flowery language of the south into our colder northern modes of expression, this cannot be held to be exaggerated.

ROSE MADAME LAMBARD.

At the request of Mr. Girdlestone, whom I regard with that proud affection which a father of limited abilities entertains for a talented son, I send the results of my experience in reply to his inquiries concerning that Lady Beautiful and Lady Bountiful, Madame Lambard.

1. *What, in your opinion, are the distinctive excellences of this Rose, both as a plant and a flower?*

As a plant, its vigorous growth; as a flower, its certainty, beauty, and abundance.

2. *On the other hand, in what respects do you consider that it falls short of what a perfect Rose should be?*

As a rule, with glorious exceptions, in symmetry and size.

3. *As compared with others of its class, would you regard it as hardy, moderately hardy, or tender?*

One of the hardest Teas in cultivation.

4. *In what soil or situation would you prefer to grow it?*

The best soil I could get, a rich deep loam preferred, on a wall looking south or east.

5. *What stocks do you find suit it best, or does it do better on its own roots?*

My experience is limited to the seedling Brier as a stock. The Rose should, of course, be budded, so that it may have roots of its own, and, like a conscientious and dutiful offspring, do something for its own maintenance.

6. *How should it be pruned to secure extra fine flowers, and how for general garden decoration?*

"Cut boldly," said the augur, "if you desire Roses large and few, disbudding also. Leave five or six eyes, amputate all that is weak and moribund, and be no Herod to those baby buds if you desire multitude."

7. *Is it well adapted for forcing or pot culture?*

Yes.

8. *What is its value as a market Rose?*

I cannot say. I have a stall in Rochester Cathedral, but not in Covent Garden Market. — S. REYNOLDS HOLE.

— This beautiful Tea is certainly one of those Roses that ought to be in every garden in which Roses will grow. As an exhibitor I have a special affection for her, as I well may, considering that flowers of this variety were staged by me in over thirty winning stands during last season (1888), while at the same time I was unable to stage a single flower of many of the Teas, greater numbers of which I grow than of the kind now under discussion. From the notes I add herewith it will be seen that Lacharme's red Tea is valuable as a producer of flowers for adorning the house or supplying the markets of our manufacturing towns:—

1. As a plant it is a sturdy grower, making large, well-shaped bushes with handsome foliage, which it retains till late in the season. The colour, although variable, according to the season or period of blooming, is always distinct from that of every other Rose, and the wonderfully erect manner (for a Tea) in which the flowers are carried makes it a most desirable garden plant.

2. Being one of the first to come and the last to go, good early and late, opening in sunshine or

showery weather alike, it would, if slightly larger, be a perfect exhibition Rose, as it certainly is a perfect garden flower.

3. One of the hardiest of all Roses.

4. Wherever I wished to have a good Rose. Growing here it does well on both the soils of the district, the warm red sandstone and the cold yellow silurian clay resting on a bad limestone, in both instances at an altitude of 500 feet above sea level.

5. The longest-lived and best stock for this and all other Roses is undoubtedly the cultivated seedling Brier. But this Rose also gives fine blooms in considerable quantity when grown on moderately short standards. Although I have not grown it on its own roots, from its healthy, vigorous style of growth, I have no doubt but that it would do well grown in this manner, when in all probability the growth would be more slender and not quite so erect as on the Brier.

6. To obtain large exhibition flowers I prune rather hard, but if quantity be the main object in view, have the growths somewhat long, cutting out the older wood immediately after the first bloom is over.

7. For forcing or pots, I can give no experience, and as mere opinion in this discussion will not help us to the attainment of "M.'s" excellent suggestion, I therefore refrain from giving one.

8. As a market Rose I believe that it will pay the cultivator of Roses in the open ground better than any other Tea now in cultivation, being hardy, a good grower, a free and continuous bloomer, with the additional advantages of having a beautiful pointed form and being distinct in its various shades of colour from any Rose now under cultivation.—W. J. GRANT, *Hope End Farm, Ledbury, Herefordshire.*

— Apart from its large finely-shaped flowers, the chief merits of this beautiful Rose are its perfect habit of growth and great freedom of blooming during the whole of the summer and autumn months, in this respect equalling the freest of the dwarf China Roses. The colour of the flowers is quite distinct from that of any other variety, and charming in the combination of shades of rose, bronze, copper, and salmon, no two flowers being exactly alike in colour, and perhaps more variable in this respect than those of any other variety. As a cool season Rose it is of the very highest merit, either as an exhibition or garden variety, and, unlike many of its class, it is seen to the greatest disadvantage during hot, dry weather, the flowers then being much inferior to those produced under cooler conditions. Compared with others of its class, it is one of the hardiest, good alike as a standard or a dwarf. It succeeds best as a dwarf when budded on the seedling Brier, and being of such quick growth, requires hard pruning for exhibition purposes, but for garden decoration its great freedom of blooming makes it a matter of indifference whether short or long pruning be practised. If allowed to grow at random with little or no pruning it quickly forms large bushes covered with blooms, which, however, are not equal to those produced on carefully pruned plants. Like all Roses having a combination of several shades of colour, Madame Lambard has less value as a pot and forcing Rose than those of a more decided or self colour, which comes clearer and brighter under glass than in varieties of mixed shades of colour, the self or positive-coloured varieties being of higher market value than those of mixed shades. It is in the cool autumn months that Madame Lambard is seen in its highest state of beauty, as then the flowers lose much of their rose and bronze colour, and assume rich and delicate tints of copper and salmon. When seen in this stage, there is no more beautiful Rose in the garden at that season than Madame Lambard. — J. BURRELL, *Cambridge.*

— In reply to Mr. Girdlestone's queries with regard to this Rose in THE GARDEN, February 2 (p. 107), I give the following:—

1 and 2. The National Rose Society's catalogue calls Madame Lambard "The best and hardiest of the light red Teas." It is almost too daring after that to depreciate, but such is hardly my experience.

I have not Mr. Morley's list to refer to, but should have thought Mme. Lambard was going off and not so much shown now. Roses seem to deteriorate. Who ever now sees those wonderful boxes that used to be shown of twelve Baroness Rothschild and so forth? It may be superseded, but I think it is not so good; so for the last two or three years I have been disappointed in Madame Lambard. I seldom get an exhibition bloom, and I should put Jean Ducher before it in almost the same range of colour. Its principal charm is its extreme uncertainty. I doubt whether any Rose varies as much in colour.

Changeful as the changing breeze,
Sometimes friendly, sometimes coy,
Yet she never fails to please!

3. Moderately hardy.

4. Strong soil, against a paling.

5. Seedling Brier.

6. Prune hard for extra fine flowers; very moderately for general garden decoration.

7 and 8. On these two I am unable to give an opinion.—ALAN CHEALES, *Brockham Vicarage Surrey.*

— 1. Its great freedom of bloom, good habit, fine foliage, and distinct and beautifully coloured flowers.

2. Rather deficient in size and substance. Sometimes comes quartered.

3. Hardy.

4. South exposure on walls and raised beds. Soil, good turfy loam and plenty of manure.

5. Cutting Brier.

6. Prune hard and thin out well for fine flowers. For general garden decoration, cut out all weakly shoots, and shorten tips of those that are well ripened.

7. Well adapted for forcing, and a first-rate pot Rose.

8. We have a great and growing demand for this variety in a cut state, and get many orders for bouquets and sprays to be entirely made up of this Rose.—JAMES COCKER & SONS, *Morningfield Rose Nurseries, Aberdeen.*

— 1. Its beautiful colours and profusion of bloom.

2. It falls short in substance and form. It generally comes with a double centre in my soil.

3. Quite hardy.

4. For exhibition it should be grown in good strong Rose soil. In light soil it is very thin, and stands but a short time when cut.

5. I have only grown it on seedling Brier and Brier cutting, but believe it would do well on its own roots.

6. Severe pruning does not suit it, either for extra fine flowers or garden decoration, for which it is one of the best.

My soil being light and situation sloping to the south, I never cut an exhibition bloom off it.—F. PAGE ROBERTS, *Neole Rectory, Norfolk.*

— 1. In my opinion the Rose in question is excellent as a plant, from its free and vigorous habit and almost evergreen tendency. As a flower, excellent, being a very free bloomer and delightfully changeable in colour. Much paler in the autumn.

2. I hardly know in what respects it falls short of what a perfect Rose should be, except, perhaps, as an exhibition variety it is rather apt to give way at the wrong moment.

3. It is one of the best and hardiest of the red Tea section.

4. With me it has flourished in every situation, the soil being a light loam. I have never tried it on a stiff soil.

5. I grew it on the Brier cutting, seedling Brier, dwarf standard, and full standard, and find it succeeds equally well on all four stocks. I have never grown it on its own roots.

6. I always prune it tolerably hard for exhibition purposes, slightly for garden decoration.

7. I know nothing of its value as a pot Rose, as I do not grow Roses in pots.

8. As the Rose is a free bloomer it ought to be invaluable for the market, and to my mind it would be refreshing to see some of its blooms on the

market stalls in the place of the utter rubbish one usually notices.

The above notes on Mme. Lambard are my experiences of the Rose as grown on the North Cotswolds.—F. R. BURNSIDE, *Birch Vicarage, Hereford.*

— 1. It is a hardy, vigorous, and free-flowering Rose.

2. It very often loses its colour after it has been cut.

3. Hardy.

4. Rich sandy loam, and as a climber on a south wall.

5. Undoubtedly thrives best on seedling Brier, strikes readily from cuttings, but is not so strong nor long-lived as on the seedling Brier.

6. Prune back hard for exhibition, but not so hard for garden purposes.

7. Yes, one of the best.

8. A valuable Rose for its colour, but a bad one to pack for travelling.—ALFRED PRINCE, *Oxford.*

FRUIT CULTIVATION IN JERSEY.*

THE island of Jersey, being so noted for the growth and cultivation of fine fruit, especially Apples and Pears, I venture to offer a few remarks upon the modes of culture, and the varieties cultivated, thinking they might be acceptable to the committee, and also to the general body of horticulturists interested in the production of these health-giving and palate-pleasing fruits.

Jersey being the most southerly of the group of islands in the Bay of St. Michael's, and the slope of the land being from north to south-west, enjoys a very favourable climate, the general moisture, owing to its position and the saline air, which almost always may be felt blowing over its surface, renders it peculiarly adapted to the growth of Pears. The soil is a good loam, upon a substratum of clay retentive of moisture, which suits the Quince stock, upon which most of the Pear trees are budded or grafted. There are localities along the coasts of which the soil is much mixed with sand, owing to the continuous drift in stormy weather, whilst some parts of the western side of the island are so much exposed to the Atlantic Ocean as to be entirely unfit for fruit culture, and scarcely worth cultivating, the cereals and root crops growing upon them being very often subject to serious injury from the force of the westerly gales. Now it is easy to understand why the most protected and best sheltered situations are selected for the growth of the finest and best kinds of fruit. Apples are grown on the higher and drier parts of the island, where the land is stiff enough and the drainage good; hence the orchards, where the more ordinary kinds are grown for the manufacture of cider and general consumption, are generally surrounded by hedgerows from 5 feet to 8 feet high, and planted with Elm and other descriptions of forest trees. The Apple trees in these orchards are generally grafted 6 feet from the ground, and have spreading circular heads, which are very beautiful when in bloom. Very many of us can recollect when the Weigela was first introduced that the great recommendation of the flowers was that they were as "beautiful as Apple blossoms." Were not Apple blossoms beautiful before then?

These orchard trees, which make such a beautiful display of flowers and produce in favourable seasons such an abundance of fruit, are much neglected, and allowed to grow in a confused mass of branches. It seems a pity that, where Nature does so much, man should do so little in the way of pruning, so as to give the trees a more regular form and better appearance. You will, I think, agree with me that judicious pruning—i.e., removing weak and superfluous branches—would have the good effects of improved appearance, more healthy growth, and finer fruit. The general character of the growth is so vigorous as to render it unnecessary to prune the extremities of the shoots, except for the sake of

* A paper read at the Chiswick Conference by C. B. Saunders.

shaping the trees and balancing the heads, but "thinning out" is the style of pruning requisite.

The finer descriptions of Apples are grown in gardens sometimes against the walls, on espaliers, or on the long cordon system. The dwarf cordon is not much practised, nor is it desirable, inasmuch as the growth, in spite of the Paradise stock upon which the trees are usually worked, becomes so strong that it requires constant cutting back to keep it within the desired limits, and this constant repression of growth is not conducive to fruit-bearing.

The finest Ribston Pippin Apples are grown upon south walls in sheltered gardens and trained upon the fan system, the strong radiating shoots being selected to form the frame of the trees, and the lateral and weaker branches being pinched and pruned off so as to get fruit spurs to form. It is an excellent system, barring the disadvantage of the early maturity of the fruit. Very few other sorts are thought worthy of wall culture. The dwarf bush, the open standard, the rider or tall standard trees are all acceptable forms of garden trees where the space is sufficient, and such varieties as Early Stibberd, Red Astrachan, Lord Suffield, Hawthornden, Red Quarrenden, Hooper's Seedling, Downton, King, Golden and Walton Pippins, Grand Alexander, Cox's Pomona and Orange Pippin, Court of Wick Pippin, English and Dutch Codlins, &c., are grown freely on Paradise as well as other stocks, and take but little space. It is not unusual to see crops of fruit considerably above the weight of the trees producing them. Planting Apple trees on Paradise stocks in rows 6 feet apart, and the trees at 3 feet apart in the rows, suggests a system of culture which might be made remunerative, and were it not for the constant changing of tenants from one piece of land to another, might be advantageously practised. It is not so here; most of the fine fruit is produced on accidental trees, either found in gardens on taking possession, or planted by incoming tenants. Taking into consideration the time necessary to get a stock of trees into a good bearing state, few tenants would care to adopt any system of planting or training from which they would not derive some immediate advantage.

The cultivation of the Pear has been so very remunerative for years past, that it has been made a subject of more general study and system. Many of the old gardens, established half a century or more ago, offer evidence of the walks having palisades on both sides for the purpose of training Pear trees upon them, and in some cases the palisading has been double, so as to admit of trees being trained on both sides, 1 foot or less being the intervening space between the rows of palisades. Trees planted in this way are generally productive; the main lateral branches being trained and supported horizontally, a regular and continuous supply of sap is provided during the growing season for the development of the fruit. The system has and does answer well, and as long as the trees continue healthy they bear good crops of fruit, the size of which much depends upon the amount of thinning practised. Against walls, both horizontal, fan, and cordon styles of training are practised, all of which answer well in the hands of careful attendants. Dwarf bush and pyramidal trees are also grown, many acres of ground being devoted to the cultivation of the celebrated Chaumontel Pear. The great number of excellent varieties grown, and their exquisite, though varied flavours, make the Pear a fruit of general acceptance, though few varieties are much grown. Citron des Carmes, Jargonelle, Williams' Bon Chrétien, Louise Bonne, Conseiller de la Cour, Beurré d'Amanlis and B. Diel, Duchesse d'Angoulême, Doyenné du Comice, Chaumontel, Glou Mureau, and Easter Beurré are more often met with than other varieties; and amongst cooking Pears, the Belle de Jersey (syn., Belle Angevine) and Catillac, or Pound Pear, are considered the best.

A rich, strong loam suits the Quince stock best, a lighter soil suits the free stock for Pears. The advantage of growing Pears on the Quince as a stock is early fruiting; whereas, the generally

accepted axiom respecting Pears grafted on the free or Pear stock is, that—

He who plants Pears,
Plants for his heirs.

There are but few large Pears on the island; occasionally one or two are met with towering above the Apple trees in the orchards, but such trees are the exception; and land is so expensive in Jersey that no room can be spared for unproductive trees (which is the case whilst the tree is growing).

The Jersey farmer, cultivating 20 acres of land, and making a comfortable living off so small a surface, cannot afford to allow a single perch of it to remain unproductive, and every square yard is made to contribute towards the general expenses. The space allotted to kitchen gardening and fruit culture is generally near the homestead, the pathways being planted on either side with bush Apple and Pear trees, Currant and Gooseberry trees filling up the intervening spaces in the rows until the trees have grown sufficiently large to cover the whole space. These highly-cultivated and richly-manured pieces of ground are made to produce crop after crop in rapid succession. No sooner is one crop off the ground than another replaces it (organic, and not artificial manures being used). The trees get the benefit of these repeated dressings and the manipulation of the soil.

SOCIETIES.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE annual general meeting of this society was held on Thursday, the 31st January, at Anderton's Hotel, Fleet Street, when a large attendance of members was presided over by Mr. R. Ballantine.

The first business of the evening was to receive and adopt the report and the balance-sheet for the past year. From the reading of the latter it appears that the society has received for subscriptions £201 6s.; donations, £110 8s. 6d.; from the Royal Aquarium Company for prize money at the three exhibitions, £215 1s.; and from other sources, such as the Hull Society on account of the provincial show, affiliated societies, advertisements, &c., an entire income of £851 15s. 11d. On the other side of the account the society paid £70 in prize money at the September show, £222 6s. 6d. at the grand fête in November, £82 14s. 6d. at the provincial show, and £56 2s. 6d. at the late flowering exhibition held last month. The arrears due to the society, which amounted to upwards of £200 three weeks ago, are now only £34 1s. 6d.

A lengthy list of donations to the special prize fund was read, amounting to a considerable sum.

Mr. E. C. Jukes referring to the length of time and valuable service of the late president, Mr. Sanderson, moved the following resolution: "That the members of the National Chrysanthemum Society have heard with the greatest regret of the intention of Mr. E. Sanderson not to offer himself for re-election, and desire to convey to him their deep sense of the invaluable services which he has rendered to the society and their assurance that he carries with him into his retirement their heartiest good wishes, also that a copy of this resolution be sent to him." The motion was seconded by the hon. sec., Mr. W. Holmes, who paid a feeling tribute to the abilities displayed by Mr. Sanderson during the long term of service he had devoted to the society, and it was carried with acclamation.

The report of the committee appointed to reconsider the constitution and rules of the society was received. Mr. Jukes in calling attention to proposed Rule No. 3 observed that it was considered that the society ought now to have for a president and vice-presidents some well-known nobleman and titled gentlemen of standing in the country, and that the committee were in correspondence with some for the purpose of obtaining their consent. At present it was not possible to mention names, and it was resolved, as the election of officers was the next business on the agenda paper, to defer the election of president and vice-presidents to an ad-

joined general meeting to be held on Thursday, the 28th inst.

The new rules having been previously discussed and adopted, the following nominations and elections were proceeded with: Treasurer, Mr. J. R. Starling; chairman of committees, Mr. R. Ballantine; vice-chairman of committees, Mr. E. C. Jukes; honorary secretary, Mr. Wm. Holmes; foreign corresponding secretary, Mr. C. Harman Payne.

In the course of returning thanks for his re-election Mr. Holmes stated he had had the curiosity to have the letters counted which had reached him during the year 1888, and found they numbered 3037, which would show the members that the work of secretary was by no means a sinecure.

According to the rule, one-third of the members forming the general committee retire in rotation every year. There were sixteen candidates nominated, and the following gentlemen were elected: Messrs. Addison, Beavan, Owen, Drain, senr., Swift, Kendall, Prickett, Langdon, Cannell, Shoemith, Wm. Taylor, and Kemp. Mr. John Laing and Mr. E. Sanderson were also elected to fill two other seats vacated by Mr. E. C. Jukes and Mr. Harman Payne taking office.

The representative of the Brighton Society moved that a meeting be held at or soon after the November show to invite other societies to arrange the dates of their shows, so as to avoid clashing, but the proposition fell through. The hon. secretary announced that all arrangements for holding the next provincial show at Hull were completed, and that the National Dahlia Society had expressed their willingness to settle the points requiring adjustment in the September schedule of prizes.

Applications for affiliation were acceded to from the Scottish Horticultural Association and the Westerham Chrysanthemum Society.

Mr. E. C. Jukes will offer for competition at the provincial show at Hull a cup value £5 5s. in the class for Anemone blooms.

United Horticultural Benefit and Provident Society.—We learn that the annual meeting of the above society will take place at the Caledonian Hotel, Robert Street, Adelphi Terrace, Strand, on Monday evening, February 11, at 8 o'clock.

Covent Garden sales.—We are advised to recommend senders who are defrauded by market salesmen to communicate in confidence with the Superintendent, at the Market Office, Covent Garden.

Grubs in Amaryllis bulbs.—I enclose a bulb of an Amaryllis containing a large grub, and should be glad to know what the grub is and the best means of preventing it, or them, attacking the bulbs, as I have lost many fine Amaryllises in this way.—E. D. O.

* * In reply to the above, the grubs which attack your Amaryllis bulbs are those of the Narcissus fly (*Merodon equestris*, or *narcissi*). There is no means of killing the grubs without destroying the bulbs, for in their position in the bulbs no insecticide would reach them, and were they cut out of the bulb the latter would be of little or no use afterwards. Whenever you find a plant flagging or not starting into growth as it should, examine the bulb carefully, and if attacked by this insect it had better be burnt. When full grown the grubs leave the bulbs and become chrysalides in the soil, from which the flies emerge in April. The flies, which are black and yellow in colour, and somewhat resemble small bumble-bees, are nearly three-quarters of an inch long, and 1½ inches across the wings when expanded. They lay their eggs probably near the base of the leaves. I doubt if any attempt to catch the flies would be of much benefit.—G. S. S.

BOOK RECEIVED.

Bulletin of Miscellaneous Information. No. 26.—List of Seeds of Herbaceous Plants. Royal Gardens, Kew.

Names of plants.—*Chester*.—*Ficus Pareolli*.—*G. F. G.*—*Dendrobium fimbriatum oculatum*.—*R. Freshy, Preston*.—*Rhododendron Nobleanum*.—*J. H. Reynolds*.—We do not name florists' flowers.—*G. Taylor*.—*Oncidium carthagenense* (fine form).—*T. Record*.—1, *Dendrobium chrysotoxum*; 2, *D. suavisimum*; 3, decayed.—*H. W.*—*Choisya ternata*.—*G. M.*—*Cattleya Eldorado*.

WOODS & FORESTS.

FORESTRY IN HAMPSHIRE.

THE following extract is taken from a paper read before the Southampton Chamber of Commerce by T. W. Shore, F.G.S., F.C.S., on "The Proposed National School of Forestry considered as a Hampshire Commercial Question":—

"I think that most people will agree that Hampshire is capable of growing a much greater value of wood of various kinds than is now produced, and in view of the agricultural depression our landowners are beginning to recognise this, and more trees and coppices are being planted. In some parts of Hampshire at the present time Chestnut coppice wood of seven years' growth sells at from £13 to £17 per acre, for hop poles and hoop making. At the end of the nineteenth century to secure good commercial results people must not use the same means which succeeded centuries ago, but as regards tree planting consider the probable requirements of the twentieth century. In several manufactures at the present time there is a demand for new woods, which are now imported, but which might be grown here. For example, in the cabinet manufacture American Walnut and Sequoia are in demand. I have lately heard of a landowner making extensive plantations of American Walnut. At the present time this wood fetches from 6s. to 7s. per cubic foot in the market, and the tree is quick-growing. I will give you a few other instances. Alder wood is imported for making gunpowder, and yet I imagine it could be grown at home to any required extent and very quickly. Box wood, again, which is so much in demand for wood engraving and other purposes, and which grows well on limestone soils, is largely imported from the Caucasus in billets 3 feet to 8 feet long and 3 inches to 18 inches in diameter, and fetches from £4 to £15 per ton. I could show you in Hampshire as fine Box timber as these billets, and our neighbouring county of Berks is believed in ancient times to have had so much of it as to have got its name from it. Box could certainly be grown in Hampshire, and although a very slow growing tree it is ornamental and fetches a good price.

"As an illustration of the possibilities of experiments in tree culture in Hampshire, I may remark that Mr. S. J. A. Salter, F.R.S., of Basingfield, Basingstoke, has 120 species of Willows growing in his private grounds. As a possible economic use of the Willow and other similar woods it may be mentioned that charcoal from its wood is in demand for gunpowder, and the Aspen and other light woods afford a valuable paper pulp. Another of the Willow family, the common Osier, has been shown to be very valuable in connection with sewage farms. It is a quick-growing wood and rapidly absorbs sewage matter, and has thus produced good economic results. With a properly organised forestry school brought into touch with our manufacturing industries and requirements, and having connected with it men able to make any investigations that may be required, I can imagine that the possibilities of commercial economic results would be great.

"Lastly, I again ask, what other part of England could offer such advantages for a national undertaking of this kind as Hampshire? For experiments in the acclimatisation of trees of economic value from warmer countries, it is clear that some area in the southern counties of England must be chosen if such experiments are to be conducted with

the greatest chances of success. To acclimatise the Eucalyptus globulus or Blue Gum Tree alone would be an economic result of considerable value. This tree produces a most valuable timber, unsurpassed for building purposes, telegraph poles, and railway sleepers. Its nature is such that owing to the extremely rapid absorbing power of its roots, and the equally remarkable evaporating power of its leaves, it quickly improves damp soils and ameliorates a damp climate.

"At present the forestry of the New Forest concerning which so many conflicting Acts of Parliament, either in the interest of the Crown or in that of the commoners, have been passed, is, in my opinion, a national disgrace. Look at the many thousands of young trees choked by their nursing Pines in all parts of the New Forest, a condition of things becoming annually worse, in my opinion, instead of better, and yet we are told that all this is strictly regulated by Acts of Parliament passed within comparatively recent years. One of these Acts, we are told, says that the expenses of making and preserving the plantations are to be paid by the sale of decayed and other trees, 'other than ship timber trees,' so that I suppose if such sales do not produce money enough, the plantations cannot be properly thinned out and preserved. This is presumably the reason why we see so many young trees killed before they are grown, and see the Pines growing so large and thick in many parts of the forest as to be at the present time actually killing each other. This is a sad state of things, considered from a national point of view as well as from our local point of view. Does not this make it all the more desirable that the national school of forestry for England should be established here, where forestry could be practically taught and the greatest of our national forests saved from decay by its means? The area of the existing plantations, or perhaps half that area, would, if judiciously used, be ample for such experimental work as would be required by a national forestry school to be conducted in the New Forest. Other experimental work could be easily carried out in the other Crown forests of Hampshire, and be adapted to the particular soil of each. A national school of forestry for England could nowhere be established so advantageously for the nation as in Hampshire. It would be both a direct and an indirect cause of prosperity to Hampshire, and I hope this subject will receive the attention of our new County Council."

The Poplars for timber.—The Black Italian Poplar (*Populus monilifera*) is perhaps the most rapid growing tree we have in cultivation, and will produce in a given number of years more available timber than any other tree yet introduced. This Poplar is now very extensively cultivated, and its wood is now used for various agricultural purposes, as well as for railway wagons, &c. The wood of the Black Italian Poplar, as well as that produced by some of the other species, all being equally free-growing, is worthy of being experimented on for railway sleepers, so as to ascertain its duration when compared with the ordinary sleepers now in use. If prepared and laid on broken metal, as sleepers generally are, it may last a very long time.—J.

Pinus insignis as a seaside tree.—The great merit of this as a seaside tree is well shown at Bodorgan, in Anglesea, where many specimens are in perfect health within a few yards of the sea. There is perhaps nowhere a more wind-tortured district than Anglesea, judging by the appearance of the few stunted native trees that withstand the blast. Plants of the most beautiful kinds are, however, established almost on the seashore. On the margin of the shore the Sea Buckthorn, Furze, and

Darwin's Barberry first meet the south-western gales and almost continual winds. A few paces behind these the first plants of *Pinus insignis* and the common evergreen Oak appear, and soon with the aid of these excellent shore trees almost any kind of evergreen planting may be carried out. The whole place is most instructive as regards planting near the sea. The contrast between the wind-swept surface of the island and the noble avenue of evergreen trees leading from the entrance lodge to the house is very striking.—V.

THE PINE WEEVIL.

(HYLOBIUS ABIETIS.)

THIS insect (*Curculio Pini* of some authors) appears to be often confounded with the Pine-destroying beetle (*Hylurgus piniperda*), but the two species are so unlike in size, colour, shape, and mode of attack, that one is at a loss to know how they could be mistaken by practical men. It is a well-known fact that the beetle and weevil are both winged insects, and I have had the leaders and branches of trees of considerable size destroyed by both insects. That the weevil delights to crawl about and conceal itself among surface herbage is certain, and I have found it of great advantage to keep the ground clear of surface weeds and rubbish around the plant. As the *Hylurgus piniperda* never attacks plants by eating the bark on the stems and branches, and as there appears to be considerable confusion regarding the habits and modes of attack of the *Hylobius abietis* and the former, I shall give a brief description of the two species.

The *Hylurgus piniperda* is of a jet-black colour, from two to two and a half lines in length, and feeds upon the pith of the terminal twigs and leaders of Pine trees. They generally pair about the beginning of April, and use for breeding purposes unhealthy Pines, recently felled trees and branches lying upon the ground, as well as fresh roots and stumps left in the ground. At first they bore a hole through the bark, and then form a sub-cortical tunnel some 8 inches or 9 inches in length, along both sides of which the female deposits an egg here and there as the work proceeds. The eggs are hatched in May, and the larva eats its way in an opposite direction from the original tunnel. In June it turns to the pupa state, and by the end of July or August it is generally completely formed, makes its escape, and attacks Pine trees in the way specified. The larva is of a whitish colour with a yellowish head, and as it requires a certain amount of sap to feed upon, I have never found it in trees or stumps that had become thoroughly dried up.

The Pine weevil (*Hylobius abietis*), on the other hand, is generally from seven to nine lines in length, dark brown in colour, with bright yellow lines across the back; legs, six in number, and very powerful. The female is rather smaller than the male. They pair in March and April, and select for depositing their eggs the roots of sickly Pines and the roots and stumps of recently felled Pine trees. I have likewise occasionally found their nests under the bark of recently felled trees lying on the ground, but never in the stems of trees before they were cut down. The insect goes through its different transformations and attains a perfect state in August and September. The weevils hibernate in surface rubbish and the roots and stumps of coniferous trees of different species; hence the propriety of burning surface herbage in spring with the view of destroying them. As the weevil, however, deposits its eggs in the solid timber below the bark, this burning never affects the eggs. I have found that nothing short of a roasting fire of branches on the top of the stumps was capable of penetrating the spot and destroying the eggs. This fact appears not to be taken into account, or perhaps imperfectly understood by some planters, who tell us about burning surface herbage to destroy the eggs. In addition to eating the bark around the stems of young Pine trees, the weevil often attacks trees of considerable size of the Spruce tribe by eating the bark around the leaders and terminal points of twigs and branches, and I have likewise known it to attack deciduous trees in a similar manner.

J. B. WEBSTER.

No. 900. SATURDAY, Feb. 16, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

T. W. GIRDLESTONE.

TEA ROSES ON MULTIFLORA STOCKS.

By multiflora is not here meant the garden variety known by the name of *De la Grefferaie*, which is of no value as a stock for Roses; only some of the Dijon Teas do at all well upon it, and these no better than upon Brier, while for moderate growers it is a complete failure.

The species itself, however, *Rosa multiflora*, more generally known in this country by the name of *Rosa polyantha*, under which it was re-introduced from Japan by Siebold and Zuccarini, makes a most useful dwarf stock, particularly for the Tea-scented Roses and their hybrids. Its merits are that it strikes root as a cutting more quickly and more certainly than almost any other Rose, not even excepting the *Manetti*; that it makes a mass of vigorous healthy roots; that it will grow in any soil even of the sandiest description; and that it is as easy as the *Manetti* to bud. Some people, when its employment as a stock was first suggested, prophesied that it would sucker so much that it would be of little value. This has not in any way proved to be the case. Among some 200 plants of Teas and hybrids of Victor Verdier race budded on multiflora which have now passed successfully through their fifth season, there have not been so many suckers as amongst an equal number of plants on dwarf Brier stocks. At the same time the plants are equally fine, their vitality as well maintained, and the flowers as handsome and as abundantly produced. The finest plant of *Comtesse de Nadaillac* in the garden is one that has stood for the past five years in the open, exposed to every wind that blows, on poor soil, and budded on *Rosa multiflora*. Other Teas, budded at the same time, that are also doing well are *Marie Van Houtte*, whose flowers during the last two seasons have been thought to come larger on the multiflora stocks than on the Brier, *Hon. Edith Gifford*, *Etoile de Lyon*, also admirably suited, and *Jean Ducher*. Of each of these varieties there are between twenty and thirty plants that have now been grown for five years, and a good many others have since been added, including *Maréchal Niel*, of which the plants look well and have carried good blooms the last two seasons. In fact, the experiment has been considered so satisfactory, that not only have many sorts been budded on multiflora during 1888, but there is a good batch of stocks ready to be planted out next March or April for budding in the ensuing summer of 1889.

Now there is no intention of attempting to prove that *Rosa multiflora* is a better stock than the dwarf Brier, but there are many districts in which very few wild Roses are found, and where there is consequently a lack of heps from which to raise seedling Briers. Again, it is a matter of three years at least from the sowing of the seed to the time when the seedlings can be budded, and also the fact remains that,

In spite of all temptation
To pooh-pooh the operation,

the budding of seedling Briers requires more practice and patience for its successful accomplishment than that of any other kind of stock.

To those, therefore, who cannot readily obtain

a supply of dwarf Briers, or who have not the patience to wait until Rose seeds become Rose stocks, or, again, who do not for some reason or another succeed with the budding of seedling Briers, the employment of *Rosa multiflora* as a stock is likely to prove a boon, especially for the Tea-scented Roses. For these the *Manetti* out of doors is notoriously useless, but upon the multiflora, which has all the conveniences of the *Manetti*, the stocks being just as easy to make and to bud, the Teas thrive well.

If in September well-ripened cuttings about 9 inches long of *Rosa multiflora* be put in out of doors in sand, leaving only 2 inches of the cutting appearing above the surface, about 95 per cent. of serviceable stocks will be ready for transplantation by the following autumn.

As an indication of the rapidity with which the cuttings of this Rose strike root, it may be mentioned that one season cuttings inserted in September in the open ground were found to be rooted by the end of the year. They were transplanted the following March, and budded in July—within ten months from the time of their insertion as cuttings.

This rushing of the manufacture of stocks is not to be commended as a general practice, as the result is liable to be a certain thinness of bark which involves great care in budding; but an insufficient number of stocks having been provided this expedient was resorted to, and in spite of the slight tenderness of their bark, causing some little trouble at the time they were budded, the Teas worked on them, now four years old, are all flourishing.

In addition to the Teas, all the smooth-wooded Roses of Victor Verdier race, which have probably a large proportion of Tea blood in their veins, appear to like *Rosa multiflora* as a stock. These Roses, including *Marie Finger*, *Victor Verdier* itself, *Hippolyte Jamin*, *Madame Bois*, and such like, will not thrive upon *Manetti*, but upon multiflora they do well. Other Hybrid Perpetuals have not been at all extensively tried, though from what has been seen, the impression exists that for smooth-wooded kinds clearly showing some Tea parentage, such as *La France*, *Captain Christy*, or the Victor Verdier family generally, *Rosa multiflora* may be most successfully employed as a stock.

It has sometimes been suggested that *Rosa rugosa* might make a good stock for Teas, and owing to the success that has so far attended the employment of *Rosa multiflora*, a considerable number of seedlings have been raised of *Rosa rugosa*, and also of *Rosa lucida*, in the budding of which a further experiment is contemplated next summer.

In the meantime, those who have any difficulty in obtaining, in propagating, or in working dwarf Brier stocks, knowing the inutility of *Manetti* and *De la Grefferaie* for the Teas and the smooth-wooded hybrids, may well make trial of *Rosa multiflora* (syn., *polyantha*), which will be found easy to grow, easy to propagate, and most easy to bud.

Maréchal Niel Roses.—When visiting a well-stocked market we are sometimes astonished at the enormous quantities and variety of flowers, &c., offered for sale, and naturally wonder whence they come and how they can be produced at the price they are sold for. An illustration of this may be seen at Derby, where in the spring after a little extra sunshine the market is glutted with *Maréchal Niel* Roses. It is hardly the locality in which one would expect to find one of the largest plants in the country, yet such is the case at Chellaston, a place noted for its fine gypsum pits. The plant in

question, I am told, was budded on the common Brier some eighteen years ago, and planted in stiff marly loam on a raised bed in a dilapidated greenhouse, trained to a single rail along the centre of the house, and allowed to grow into a dense thicket. By its appearance pruning has never been attempted, and being such a dense mass, the growths are of moderate size and flower freely, as may be imagined from the fact that the blooms from this plant alone realise some £30 or £40 annually. The blooms are never very large, but good in colour and substance of petal. They are gathered for sale when about half open, as this is the favourite size with the public. The whole house is devoted to this one plant, and very little, if any, fire-heat is used. I am unable to say whether the gypsum soil is of any advantage in Rose culture, but this plant is remarkably clean and healthy. Some difference of opinion exists as to which is the most suitable stock for this Rose, but nothing could succeed better than this one does on the common Brier from the hedgerow.—J. H. GOODACRE.

ROSE MADAME LAMBARD.

THERE may be, I think, a good deal of interesting opinion, if not of information, elicited by the course proposed to be adopted with regard to description of Roses. In former years, when Mr. Hinton, of Warminster, used to conduct the election of Roses, it was always a matter of considerable interest, made still more so when the selection was tested by the experience of exhibitors. It was found then how very little discrepancy there was between the two, and that the Roses which stood highest in the elected list were those also which stood highest in the exhibition list. There may then be, in lieu of a revival of this, an equal amount of interest by collecting the opinions of Rose growers and exhibitors on individual Roses.

I am not an exhibitor. I grow Roses for two purposes—my own gratification and that of my friends, for he must be a churl who does not wish to share such pleasures with others; and, secondly, to (as the cant phrase is) keep me in touch with the new Roses. I am so frequently called upon to judge, that I feel that this is necessary, for I think Mr. George Paul is quite right when, in the "Rosarian's Year-Book" for 1889, he says a judge ought to be, if not an exhibitor, a grower of Roses, so that he may know them by home inspection, and also keep up his knowledge of the novelties that from time to time claim the love of the Rose grower, so that I do not look at Roses exclusively from the exhibitor's point of view, and perhaps my estimate of them may be different from those who are in the thick of the fray. With regard to Mme. Lambard, there are many points of great excellence about it, while at the same time there are defects which prevent it, in my mind, from taking a place amongst the choicest Tea Roses for exhibition.

1. One great point in its favour is its great hardiness, and here let me say that I think questions 1 and 3 run very much into one another. I have had it for years in the open (in the south-east of England), and in some years it is almost evergreen. Our severest winters do not seem to affect it, while there is no Rose on which one can more confidently rely for autumnal blooms. Another great charm about it is its exceedingly variable character, and this in a decorative Rose is especially pleasing. I have gathered not from the same tree only, but from the same branch, a bloom of a very bright red and another pure yellow, and it comes oftentimes with all sorts of intermediate shades between these two extremes.

2. It is not a perfect Rose either in shape or colour; it is very apt to come with a confused centre. It has not, for example, the beautifully regulated form of *Souvenir d'Elise* or *Catherine Mermet*, and this seriously detracts from its value as an exhibition Rose. Moreover, there is a want of steadfastness (so to speak) in its colouring; it very soon begins to have a dirty look, and I have often seen a box of Teas very greatly lessened in its position by this defect of Mme. Lambard. While some other Teas and Noisettes seem to gain in point of

colour as they fade, this unquestionably deteriorates. Maréchal Niel, for instance, gains, usually the brilliant rich yellow being developed as the flower becomes older.

3. As I have said, the reply to No. 1 seems to me to embrace this also.

4. I do not think that it is at all particular. Every soil is not a Rose soil, and consequently I can say but little on this question. My garden is mainly composed of a rich alluvial mould, and where I grow my Roses I have added, from time to time, good strong loam, but I should never think, had I the opportunity, of coddling up Madame Lambard, as she will, I think, accommodate herself to any soil in which Roses will at all grow. In the same way, I can give no answer to

5. I grow my Teas exclusively on the Brier seedling or cutting, and, therefore, can give no opinion of the value of other stocks; but if there is any Tea Rose that would be likely to prefer Manetti (which I do not think there is), it would be such a vigorous and hardy variety as Mme. Lambard.

6. As far as a plant for decorative purposes is concerned, I think that it need not be pruned hard; it will bear a good quantity of blooms without any injury. As to 7 and 8, I must plead total ignorance. I never grow pot plants, and I know nothing of its value as a market Rose; but this I do know, that I do not recollect ever to have seen it well exhibited in a collection of pot Roses, and that in my walks through Covent Garden Mme. Lambard is not often seen.—DELTA.

1. In our opinion the distinctive excellences of Tea Rose Madame Lambard as a plant and as a flower are its vigorous branching habit, handsome foliage, and profuseness in flowering. Here it flowers almost as continuously as the old blush China, while its vagaries in colour are wonderful.

2. The only imperfection we find with it is its disposition at times to come "quartered."

3. We have always found it thoroughly hardy.

4. It succeeds well here grown in bush form in beds. On walls it is fairly free, and does well in almost any soil provided it has been liberally manured.

5. We prefer the seedling Brier as a stock for it.

6. For exhibition blooms we would prune very hard, and do not think that for garden decoration we would vary the pruning much owing to its growth being so free.

7. It is an excellent pot Rose.

8. We have no experience of.—ALEX. DICKSON AND SONS, *The Royal Nurseries, Newtownards, Co. Down.*

1. Vigorous constitution, free-flowering; good foliage; lovely variation of colour, ranging from cream to light vivid red.

2. In hot weather it opens prematurely, and is useless for exhibition.

3. Hardy.

4. On ordinary strong Rose soil suitable for Hybrid Perpetuals, and in the best available situation exposed to the morning and shaded from the afternoon sun.

5. Seedling Brier.

6. Close pruning is most suitable.

7. Not especially.—E. B. LINDBELL, *Hitchin, Herts.*

SHORT NOTES.—ROSES.

MR. GEORGE PRINCE, of Oxford, writes to point out that the name of his new white Tea-scented Rose is "Souvenir de S. A. Prince," not "Souvenir de Sarah Prince," as printed in the list of new Teas on page 41.

Rose White Perle. One more new Tea Rose has been announced, since the compilation of the list on pages 43-4, by Messrs. Wm. Paul, of Waltham Cross, under the name of White Perle. It is described as a white sport from Perle des Jardins.

Roses in South Carolina.—Mr. Berckmans, writing to us from Augusta, Georgia, Jan. 22, says: "My friends in South Carolina are the most advanced in horticultural matters of any section of the South. Their Rose shows in April and their Chrysanthemums in the winter are an evidence of most rapid progress in floriculture."

BOOKS.

THE ROSE GARDEN.*

A NEW EDITION—the ninth—of Mr. William Paul's "Rose Garden" proves, elaborate as were the previous editions, to be even fuller, better arranged, and more complete than any of its eight predecessors.

By the introduction of fresh matter, the complete revision of descriptions and selections of varieties, and the suppression of the least interesting of the earlier plates in favour of portraits of more recent favourites, this standard work has been brought up to date (even to the inclusion of a full list of the new Roses for the current season 1888-9), and now more worthily than ever fills the prominent position that has always by common consent been accorded to it in English Rose literature.

In Division 1 the amateur will find, upon every point and process of importance in the successful cultivation of the Rose, the most minute and careful instructions, which may be almost unreservedly recommended, although, of course, here and there some matter of detail may call forth a difference of opinion. As, for instance, in the advice given as to the treatment of seedlings (p. 127), "Do not disturb any of the seedlings the first year," an injunction condemned by the very next sentence, as well as by the description on the following page of the fate of many seedlings left in the open beds throughout the winter. For it is just because the germination of many seeds takes place so early in the second spring that it is desirable to remove the stronger seedlings late in October or during the November previous, according to the season, when the momentary disturbance of the soil of the seed-bed will do no harm, while the removal of the smaller and younger seedlings is essential to the prevention of their being drawn out of the ground by the frost, and so perishing during the winter. When the seedlings are all taken up in late autumn, the soil of the seed-bed can be at once pressed down firm again, so that still dormant seeds may germinate safely without risk of disturbance just at the critical time in March or April, and the seedlings themselves can also be laid in safe out of reach of winter frost.

It is, however, to the propositions laid down in his chapter on Tea-scented Roses (pp. 175-7) that Mr. Paul will find fewest adherents at the present time. That the Teas must be grown under glass to ensure the perfect development of their flowers is a contention which cannot, except in a phenomenal season like that of 1888, be maintained. Indeed, in the case of certain varieties the converse is more true, for the flowers of such Teas as Marie Van Houtte and Madame de Watteville, whose petals are margined with some shade quite distinct from the base, are rarely, if ever, seen in the most perfect phase of their beauty—that is to say, with their characteristic two colours clearly defined—when grown under glass. The colours of such flowers become confused and indistinct when the plants are forced at all, and in the case of almost all varieties a certain paleness and uniformity of tint, very different from the rich glow and variety of blooms developed out of doors, is rarely dissociated from Roses expanded under glass early in the year.

Again, the remark that "those who have a mild climate, dry soil, or sheltered situation may grow the Tea-scented Roses fairly well out of doors," sounds as though it might be just possible in the Isle of Wight or in Devonshire to keep Teas in existence during the winter; whereas it is notorious that there is hardly a county in the United Kingdom, or at any rate as far north as Aberdeen, in

which Tea-scented Roses may not be, and are not, grown in the utmost beauty and perfection in the open.

Mr. Paul concludes his chapter by saying, "If Tea Roses must be grown out of doors, bud them plentifully every year . . . it is here the lover of Tea Roses should look for the chief supply of these flowers out of doors." Now it may safely be asserted that almost every rosarian who has made a special study of the culture of Tea-scented Roses would be prepared to contest this statement. Whenever any exceptionally fine Teas are seen, other Tea men may generally be heard remarking that the grower "must have some fine old-established plants to get such blooms," for it is a matter of common experience that the maiden blooms of Teas are liable to be small and lacking in character, and the plants are not infrequently less free in autumn than cut-backs of some standing.

Among the most valuable additions to the present edition is the account of the growth and development of mildew and orange fungus, with admirable marginal illustrations by Mr. Worthington Smith, and Mr. Paul's remarks about stocks (p. 167) are also of great interest, his conclusion being that the native Brier or Dog Rose is the best stock, that the seedling Brier is the "best suited for light, dry soils," and that, though "the plants grow more vigorously on the Manetti the first year, their subsequent decline is also more rapid" (the italics are Mr. Paul's).

There follow very full and careful selections of varieties of Roses specially adapted to particular purposes, in which it is only to be regretted that Mr. Paul should employ so many unnecessary and consequently confusing prefixes. For instance, why should there be printed "Madame S. Fropt" and "Mademoiselle T. Levet" instead of the customary and far more pleasing Sophie Fropt and Thérèse Levet?

Division 1 concludes with a useful calendar of operations in the Rose garden, and Division 2 consists of a descriptive list of the principal varieties of Roses in general cultivation, arranged in groups or families, but also displaying the same inconveniences of nomenclature above noted.

Of the plates, the best likeness in the book is, as it always has been, that of Baroness Rothschild—a plate on which the artist's name does not appear; and Catherine Mermet is also good. Among the new additions, a somewhat ruddy presentment of Comtesse de Nadaillac gives a good idea of the character of the flower, and it may be hoped that the figuring of *clinophylla duplex* and of the Copper Austrian Brier will be the means of obtaining for these two beautiful Roses a greater share of the general recognition that they so well deserve.

The Duchess of Bedford's portrait, on the other hand, does not do anything like justice to the most beautiful of all Mr. Postan's seedlings, and the same may be said of the plates of Pride, Queen, and Star of Waltham; while it must be candidly admitted that the full-page wood engravings, of which the best is that of the charming Polyantha Perle d'Or, are utterly unworthy of their position.

The appendix contains two very valuable papers, one on the botany and one on the entomology of the Rose; and also a useful and comprehensive list of works published during the last ninety years on the subject of Roses and Rose growing.

T. W. G.

The weather.—The sudden change from mild to severe, but pleasant weather withal, has not come a whit too soon, as buds and spring flowers were getting rather forward. The glass on Saturday night marked 15° of frost, and 6° on Sunday morning. About 11 a.m. snow commenced falling, and continued without intermission until about 5 p.m., when the ground was covered to the depth of 10 inches. We had 9° of frost yesterday morning, 19° this (Tuesday) morning, and, judging from appearance, there is a fair prospect of its continuance. One of those intense fog frosts, which sometimes chill the marrow, after such a cold wet summer may prove fatal to our fruit trees, by no means too

* "The Rose Garden." In two divisions. Division 1.—Embracing the history and poetry of the Rose, the formation of the rosarium, and a detailed account of the various practices adopted in the successful cultivation of this popular flower; illustrated with numerous engravings on wood. Division 2.—Containing an arrangement, in natural groups, of the most esteemed varieties of Roses recognised and cultivated in the various Rose gardens, English and foreign, with full descriptions and remarks on their origin and mode of culture. By William Paul, F.L.S., &c. Ninth edition. London: Kent and Co., 23, Paternoster Row.

well ripened, but this sudden depression pervading the whole kingdom finds wood, foliage, and vegetables perfectly dry, whilst the deep covering of snow and absence of cutting winds justify the assertion that this check is a blessing, for which gardeners should be thankful.—W. C., *Eastnor Castle, Feb. 12.*

ORCHIDS.

W. H. GOWER.

LATE-FLOWERING CALANTHES.

IN my early days amongst Orchids, Calanthes of the deciduous section were seldom seen; indeed, they were new and rare, for *C. vestita* was first exhibited in England in the year 1848, before I knew anything of Orchids. In 1850, the first year I worked amongst Orchids, *Limatodes rosea* was introduced from the same country as the Calanthe, viz., Burmah. Some time after this, Mr. Dominy, by crossing *Limatodes rosea* and Calanthe *vestita*, raised *C. Veitchi*, a beautiful hybrid now well known and largely grown in gardens, and which takes the highest rank as a mid-winter bloomer. Both it and *C. vestita* have produced many varieties which bloom together about Christmas time, making a rich display of colour in the houses. These plants in the collections round London, however, suffered severely from the fog this season, but in the country they escaped this, and now, in the second week in February, even these have passed their beauty. This being the case, I wish to call attention to a few kinds which are of more recent introduction, and which invariably open their flowers when the other varieties are over, thus serving to prolong the season of the display of this family. I think these varieties are not so generally known, or if known are neglected, through its not being generally understood that they bloom late. This fact, however, is fully exemplified by the grand lot of them which are now opening their flowers in Mr. B. S. Williams' establishment, where this family in particular are held in the highest estimation, and are especially well grown. The treatment for these late-flowering varieties is the same as that required for the earlier flowering kinds. In flower at the present time are—

C. VESTITA WILLIAMSII, a plant, I believe, found in the Siamese or Cochin China territory, with bulbs resembling those of *Limatodes rosea* or Calanthe *Veitchi* in shape. This variety produces a spike 2 feet or more in length, and bears from fifteen to twenty-four flowers, which are of an entirely different colour to those of any form yet in cultivation. The sepals and petals are spreading, some 2 inches across, white, more or less densely streaked with rosy-crimson; lip in shape more resembling that of *C. vestita* than *C. Veitchi*; the whole of it being of a deep, bright rosy-crimson, which is paler on the margin.

C. TURNERI is another handsome form of the genus from Burmah, and though known for many years it has never been plentiful. Its colour is white, saving the eye and the base of the lip, which are suffused with deep rose.

C. REGNIERI.—Another kind from the Cochin China district, for the introduction of which we have to thank the horticulturists across the Channel. I believe it flowered first in M. Regnier's establishment in Paris. In growth it resembles *C. Turneri*, but the flowers are very different, being white with a distinct and beautiful blotch of bright rosy-pink in the eye.

The above, and a form of *C. Regnieri* named *fausta*, with a very deep eye, *C. Stevensi*, which appears to be somewhat between *Turneri* and *Regnieri*, and a pure white form of *Turneri*

named *nivalis*, are all now just opening their flowers at Holloway.

Dendrobium Fytchianum roseum.—This variety was discovered by Major-General Berkeley in Burmah some two or three years ago, and sent by him to Mr. B. S. Williams, in whose nursery we recently noted it flowering profusely. It is a slender plant, seldom growing more than a foot high. The racemes are dense, and the flowers are clear rose colour, with the addition of a deep purple shade at the base of the lip. It is said to grow at a great distance from the typical plant, which occurs upon low trees overhanging water, and thus a supply of moisture is ensured all the year round. The typical plant, whose flowers are pure white, usually blooms some three months later. It should be grown in a similar manner to *D. barbatulum*, previously noted.

Cattleya Hensisiana.—I am at a loss to understand this plant, as it certainly has not proved itself to be according to description. It was introduced and sold publicly about twelve months ago for a yellow-flowered Cattleya. I have seen it several times with abortive flowers, from which one could scarcely obtain a fair impression of its beauty. From a plant, however, which I recently saw in Messrs. Seeger and Tropp's establishment at Dulwich bearing a few flowers, a better idea could be obtained, but certainly there was not the faintest tinge of yellow in them. The flowers are not large, measuring slightly under 3 inches across; the sepals and petals are spreading, the latter double the size of the former and pearly white; lip rolled round the column at the base, the anterior lobe spreading and ovate in shape, beautiful soft reddish violet in colour. It is very distinct, and if it produces a quantity of flowers on a spike, it will become a desirable plant, more especially if this should prove to be the correct season for it to bloom, although it has not fulfilled expectations as to its shade of colour.—H.

Dendrobium barbatulum.—This species, though an old inhabitant of our gardens, has apparently been much misunderstood, as two other nearly allied species, viz., *D. Fytchianum* and *D. chlorops*, have at various times been figured under this name. The present plant, though seldom seen, I have recently noted in one or two collections, and its slender raceme of delicate flowers should endear it especially to lady growers of Orchids. The raceme varies from 5 inches to 10 inches in length; the flowers dense, each a little more than 1 inch across and pure white, saving a small tuft of greenish yellow hairs at the base of the lip. A single raceme, backed with Maiden-hair Fern, forms an elegant spray without any stiffening or making up in any way. The flowers, which are freely produced, last long in full beauty. This is a small-growing plant, seldom attaining more than a foot in height, and would appear to be common in Western India, where it is mostly found on small trees and fully exposed to the sun. When growing, I have found it thrive best on a block of wood with very little Moss upon it. It should be kept in a moist atmosphere, suspended near the roof-glass, and taken down frequently and dipped in water. After growth is finished, less water and a cooler temperature should be given it. The spikes are produced from several joints simultaneously and produce a pretty effect, and as it blooms in the early part of the year, it becomes specially useful for the purposes noted above.—W. H. G.

Dendrobium lasioglossum.—This plant first flowered in English gardens some twenty years ago. It is a Veitchian production. This firm, I believe, received it from Burmah, but it has somewhat dropped out of cultivation. This is much to be regretted, as it is a very pretty species and it usually flowers about this season. A very well-flowered specimen which I saw recently quite surprised and pleased me. It grows to about 18 inches in length, and the delicate flowers are produced with the leaves. The flowers are produced on short spikes, two or three together from the joint opposite the leaf, and form quite a raceme of white, ornamented

with green leaves; the sepals and petals are broad spreading, waxy white, and measure each about 1½ inches across; the lip is also white, the side lobes streaked with reddish-brown, and it bears a tuft of yellow hairs on the disc. One bunch of these flowers forms an elegant coat ornament. It is best grown as a pot plant, and although it enjoys abundance of light and air, it requires shading from the midday sun in summer.—W. H. G.

Odontoglossum cirrhosum.—I was pleased to see this plant in flower again in Mr. Williams' nursery at Holloway, where it appears to be receiving the attention it really deserves, and why it ever became so neglected it is difficult to tell. It is a very free bloomer, its white and chocolate spotted flowers, approaching more in shape those of *O. navium* than any other I know, being very attractive. As this *Odontoglossum* blooms during the winter, it should meet with general favour. Many less ornamental and useful kinds in this genus are highly esteemed. It thrives well in the cool house with *O. Alexandræ*.—W. H. G.

HARDY ORCHIDS.

THE genus *Habenaria* contains some most lovely species, nearly all natives of North America, and remarkable for their showy spikes of variously coloured flowers. Unfortunately, although perfectly hardy, they are difficult to manage, and have puzzled the most ardent admirers to cultivate successfully. Somehow, from watching their behaviour in our gardens, I am led to believe that our summers are not sufficiently warm and sunny to ripen off the tubers. They usually do well enough the first year, and sometimes the second, but afterwards they begin to decline and gradually dwindle away. Mr. Ellwanger, of Rochester, gets many of them to take well to his borders and rock-work, and he has more than once sent me the finest of plump, well-ripened bulbs, but only, I am sorry to say, to dwindle away and die. That they were planted as carefully as my friend's I have not the least doubt, but we may imitate soil and site, but we cannot climate.

THE PURPLE-FRINGED ORCHID (*H. psycoides*) is a gem with deep crimson spikes of deliciously scented flowers. *H. fimbriata* is not one whit behind; which may likewise, though in a less degree, be said of *H. ciliaris* with its long spikes of bright orange flowers and curiously divided or fringed sepals. Professor Macoun, of Ottawa, told me that he found these in greatest quantity on the edges of quagmires, and that they imitated nearly in choice of site our native marsh Orchid (*Orchis latifolia*). *H. blepharaglottis* I have had recently sent to me from North America, and the appended note that it is as easily grown in the garden border as is the early purple Orchid (*O. mascula*). I hope so, for it is a rare and pretty plant.

THE BUTTERFLY ORCHID (*H. bifolia*), though a native plant, must not be excluded from our list, for when properly grown and in full flower it is certainly a most ornamental plant. Then it is so deliciously fragrant, particularly after a shower of rain, that one feels tempted to linger long beside the plants.

Many persons have reported unsatisfactorily of their ability to cultivate the Butterfly Orchid, but such is hardly my experience, for by lifting with a sod of earth strong plants at almost any time of the year, I have got them to do well. From my own experience, I think that the good loamy sod brought from the field or mountain-side, and which encircles the Carrot-shaped tubers, acts as a magnet for wireworms and other injurious Orchid pests, particularly when the garden soil in which the fresh turf is put is of poor quality. To show off the full beauty of the Butterfly Orchid, I would suggest that it be planted in clumps of not less than six or eight, single specimens, be they ever so good, giving but a poor idea of what the plants appear when fully established in good bold masses.

THE LITTLE WHITE HABENARIA (*H. albidia*).—Another native Orchid I am always delighted to meet with, but, somehow or other, I always consider it a rarity, though there be a score of plants to the

square yard. By the side of some high-banked mountain rivulet and where the soil inclines to peat, one finds this pretty gem in greatest quantity; but occasionally, too, along with the Lady's Tresses (*Spiranthes autumnalis*), on the outskirts of some shady scrub Oak woodland. By lifting half a dozen of the strongest plants just as they are about to burst into bloom, and potting them carefully in a small-sized flower-pot, they usually do well and bloom freely, but I have also grown them very successfully when planted in the herbaceous border.

THE FROG ORCHID (*H. viridis*) is a rather inconspicuous plant and one that is easily overlooked, both flowers and leaves being grass-coloured. For its ornamental qualities it is hardly worthy of the trouble required in cultivating. Dampish loam amongst short Grass would seem to be its favoured resorts, but it is rarely found in quantity, and is usually very locally distributed. It is of low growth, rarely exceeding half a foot.

A. D. WEBSTER.

ORCHID NOTES.

At p. 588 of last year's volume will be found some notes as to the work necessary to be done at that season of the year. We are now into February, and work which was held back at mid-winter presses heavily upon us. We have been at work in the cool Orchid house since the last week in January, repotting every plant in it, except, of course, those that might have been repotted in the autumn. I fancy it is an error in culture to allow an *Odontoglossum* or *Masdevallia* growing all the year round in a cool house to remain more than one year in the same pot. My principal reason is this: that owing to the plants being quite wet for at least six months all the material decays rapidly, the result being that it becomes unfit for the roots to live in. Some growers say do not disturb the plants as long as they do well. The answer to this is, that if we wait until a plant shows signs of declining health or vigour, it may be too late to put it right again. Good cultivators do not allow their plants to show signs of waning vigour at any time. Repotting is done in a careful manner, and in this is contained all the elements of success. The roots of most Orchids are exceedingly brittle, and when the points are snapped off they do not readily form new ones, and thus a check which will take some time to get over is given. Sometimes a plant may look fairly healthy, but when it is turned out of the pot the whole of the roots will be found in a state of decay. A radical remedy is necessary in this case; the whole of the decayed roots are removed with the old potting compound, and the plant itself is repotted in fresh, sweet material, using a very small pot, and treating the plant altogether as if it were just imported. In fact, I would rather have a newly imported *Odontoglossum* than one that has been debilitated by the loss of its roots. The details of potting are simple enough. The pots are filled about half full of drainage material and the potting compost of picked well-washed Sphagnum, to which has been added some tough fibrous peat, is carefully worked in amongst the roots, pieces of clean potsherds and nodules of charcoal being also added. The temperature of the house has been kept rather low up till now—about an average of 45° at night, with the atmosphere not too moist. Now that the plants have been repotted the atmospheric moisture will be increased, and the temperature will range 2° or 3° higher. Of course, as the days lengthen, the increased light is very beneficial, and the plants, which, owing to fogs and dull, cold weather, do not look bright, begin to steadily improve in appearance. The distinct-looking *Odontoglossum Edwardi* is an excellent addition to the cool-house section. It likes the coolest treatment, and is the more useful, as the plants produce their flowers in a mass during the months of February and March. The lovely violet-purple flowers have an excellent effect amongst the others. Two important species of the genus *Odontoglossum* have found a home for the present in the *Cattleya* house, viz., *O. vexillarium* and *O. Harryanum*. The plants of the first-named species have been carefully looked over to see that they are quite clean, some of them being

re-potted, others only surface-dressed. Those who have unflowered plants from recent importations should look out for the dark-coloured varieties with a very dark blood-red triangular blotch in the centre. One of these has flowered in the most recent importation in the St. Albans nursery of Messrs. Sander and Co. The blotch seems as if it had been laid on thickly with a brush, and a spot of colour on the lower petals suggests the idea that a careless artist had dropped some of the colour on it. This variety is rare and of great value, but more of it may be found in the same importation. *O. Harryanum* does not seem as if it had yet settled down into a seasonable period to flower, as, like *O. crispum*, it seems to flower at any time. It appears to require a little more warmth than *O. crispum*. My experience with it led me to believe that it might be rather difficult to establish, but a whole houseful of it in the St. Albans Nursery in vigorous health proves that it can be easily established, and that it is a vigorous growing plant under cultivation. Another *Odontoglossum* always kept in this house is *O. citrosmum*. This will soon be starting into growth, and with the growth of the new pseudo-bulb come the flower-spikes. These are an attractive morsel for slugs, and the latter must be watched for. By far the best way to grow this species is to plant in teak baskets, and allow the flower-spikes to hang over the sides. Yet another excellent species that should be kept in the *Cattleya* house all the year round is *O. hastilabium*, which throws up tall branched spikes which produce their flowers in May, June, and July; indeed, the value of this species is in the long time a spike will continue to produce its flowers. I remember a strong spike continuing to produce flowers to its point for a period of nine months. I like the strong perfume of the flowers, while their distinct form and colour make them interesting to cultivators. It is best to repot all these species when they are starting to grow. I may allude to *Cypripedium caudatum*, a species that should be grown all the year round in the *Cattleya* house. It does not always do well, as the leaves have a tendency to die off at the tips under the usual treatment of peat and Sphagnum; whereas I saw the other day a whole houseful of plants in Messrs. Sander's St. Albans nursery, and every leaf perfect. The plants had been potted in loam and leaf-mould and plunged in Moss, the Moss being kept green over the surface. It was an interesting sight to an Orchid grower to see a span-roofed house full on both sides of this one species, looking like two beds of Scotch Leeks, as the pots were kept out of sight by the green Moss on the surface.

We spent some time during the month of January in the warmest house, repotting all the *Cypripediums* that were not done in the autumn. The same remark applies to these as to the cool house *Odontoglossums*. The plants are never allowed to become very dry at the roots, and in a short time the potting compound becomes thoroughly decayed, more like powdered bog earth than the mixture of light brown fibrous peat and Sphagnum it was at the first. Of course, in this substance the roots cannot live, and the sooner it is removed from them the better. It also requires some experience to know what sized pots to use. It is easy to overpot some of the more weakly growing species and hybrids from them, and, in truth, the culture of these hybrids is becoming a matter of considerable importance. Hitherto they have been in the hands of the raisers and a few wealthy amateurs only, but many of them increase freely, and as the few have all that they require, the plants gradually pass into the hands of those of more moderate means. It is fortunate that most of the hybrids are of free growth; many of them in fact are more vigorous than the parents from which they were raised; indeed, the only weakly-growing varieties are those that have *C. niveum* for the seed parent; even seedlings of the miffy-growing *C. Fairieanum*, such as *C. vexillarium* and *C. Arthurianum*, are vigorous enough. Some of the newly introduced species, such as *C. Sanderianum* and *C. Elliottianum*, when well established, are likely to be very strong-growing. The last-named will probably be the most vigorous of the two, and when these remarkable

introductions have become hybridised with some of the fine things we already possess, some wonderful varieties may result.

J. DOUGLAS.

Cypripedium macranthum.—Mr. A. D. Webster, in *THE GARDEN*, Feb. 2 (p. 100), speaks of *Cypripedium macranthum* being difficult to manage out of doors. My experience with this charming Lady's Slipper is that it is almost as hardy and easily grown as *C. Calceolus*, with this exception, that, as it starts growing early, it requires a little protection. We have a clump of *C. macranthum* here at Tottenham planted about five years ago on a slope facing west in heavy clay, mixed with a few pieces of limestone (oolite). This seems to increase in size and beauty every year. We also grow *C. macranthum* with some success in pots. *C. pubescens* does well here in peat and protected during the early spring against severe frosts.—G. R.

Flor de Jesus (*Lælia acuminata*).—This is by some considered a white variety of *Lælia rubescens*, but it is rarely seen. It was originally found in Guatemala, and extends into some parts of Southern Mexico, but it is nowhere plentiful. It is highly valued by the residents where it grows, and who know it by the vernacular name given above. It roots but sparingly, and should be grown upon a block or in a small shallow basket, and very little material should be placed round about its roots. In my early days, amongst Orchids this was a difficult plant to grow, and one seldom sees its cultivation now-a-days attempted. Judge of my surprise, then, when I saw it the other day bearing seven spikes; the flowers are pure white, with a stain of yellow on the lip.—W. H. G.

St. Joseph's Wand (*Lælia superbiens*).—This plant has been much despised by Orchid growers on account of its reputed shy-flowering habit, but either a free-blooming variety has been introduced, or gardeners have learned better how to treat the plant, for I have observed for the last few years that it flowers in various collections round London, and again I notice with Mr. Carr, gardener at Croydon Lodge, a medium-sized plant bearing two strong bold spikes, each about 4 feet long, and bearing a cluster of flowers at the end. The sepals and petals are rosy mauve, the three-lobed lip being rosy purple in front, streaked with purple on a yellow ground in the throat. The large mass that hung years ago in the conservatory at Chiswick, in the days when the Horticultural Society had collections of their own, has indelibly fixed it in my memory. It was originally one of Mr. Skinner's discoveries, who says he found it growing on the open rocks, but in places which were sheltered from the north wind he says it had flower-stems 12 feet long. This is another reason why I fancy we have another variety in cultivation at the present time, as the spike is seldom half that length.—W. H. G.

Cattleya Bowringiana.—We have, I suppose, nearly or quite seen the last for a year of this beautiful introduction of the Messrs. Veitch's, and I think no more useful plant could have been introduced than this, flowering as it does at a time when something was required to maintain the *Cattleya* display all the twelve months. But it is curious how the enormous flowers of those of the labiate section have distorted the minds of some growers. Only last week a friend wrote to me, sending two flowers of an excellent form of this species. He said: "The enclosed are two flowers of a *Cattleya* you strongly recommended me to invest in, and through you I expected a fine thing. Is this what you call a good thing? or perhaps it is not true." Well, I must answer, the plant is true enough, and as it becomes strong, it will compel you to alter your cry. As a plant with one or two flowers, it makes a mean appearance, but as I have seen it this season with from one dozen to two dozen flowers on a spike, it is simply superb; the deep purple-maroon of its lip is charming. As a species, it may be said to require more warmth than the majority of *Cattleyas*. It should be potted very firmly, and given an abundance of water during the growing season, and even when at rest after flowering it enjoys moisture.—W. H. G.

MUNTHAM COURT.

THE beautiful seat of the Marchioness of Bath at Muntham is situated in the very midst of some of the best Down scenery. Muntham nestles in a natural basin, the house being on the side of the hill, with wooded slopes rising up behind, its own grounds sloping away to the sides and in front. The house is a noble-looking edifice, supposed to have been built about the thirteenth century by one of the Viscount Montagues. It was originally constructed of the old Roman red brick, but in 1872 it was faced with flint and Bath stone, the original style of architecture being preserved. Only those who know the great chain of hills or downs running through the entire length of Sussex can imagine the natural charms which surround Muntham. From the Weald of Sussex or from the sea these hills seem at times quite precipitous, so suddenly do they rise above the level, either by unclimbable cliffs or steep Juniper and Furze, or Beech and Yew-clad slopes. Standing, however, where Muntham does, the Downs

is very healthy, and when measured a few years ago was 30 feet high.

Nearly all the choicer kinds of Conifers may be seen thriving in various portions of the grounds. Some isolated tufts of *Erica mediterranea*, 4 feet high and 5 feet through, were noteworthy. This fine Heath seems well adapted for planting in this manner. The Cornish Heath was seen in broad masses fringing the native woodland trees and creeping out into the Grass. Near at hand *Rosa rugosa* flourished in a state of semi-wildness, but unfortunately the birds are too fond of its beautiful fruits. In a great mass were the pink and white forms interspersed with the rose-coloured kind. About the grounds there are some very fine specimens of the Californian Redwood Tree, also of the *Ailantus*, one of which near the house on the west front appeared quite a distinct variety, the growth being denser and the leaves shorter and lighter in colour.

Standing at this front of the house upon a small tiled terrace, hidden by the beautiful wall shrubs clustering against it, and looking down

The kitchen garden is quite picturesque. A Grass walk runs down the centre, and is prettily arched over with Apple trees, even the Blenheim Orange being sufficiently old to carry good crops of fruit under such restricted conditions. Hardy flowers fill the borders on either side of the walk—Day Lilies, Funkias, Tritomas, and Sea Hollies having been very fine in their season.

At right angles to this walk is one bordered by Fig trees. The trees, which are old and very large, and form bushes 12 feet to 15 feet high, usually carry and ripen good crops of fruit annually, but the crop of 1888 was a failure. Close to the kitchen garden is a hardy fernery, in which the American Maiden-hair (*Adiantum pedatum*) and many of the choicer *Athyriums* thrive well. *Calycanthus floridus* does well here, and upon a little rockery, the Edelweiss, simply sown and left to take care of itself, thrives admirably, while broad sheets of *Saxifrages* creep over the face of the rocks. Growing in a little Grass recess in the pleasure grounds are two fine healthy specimens of the Chusan Palm. They were planted in 1881, and are clothed with



Muntham Court, Sussex. Engraved for THE GARDEN from a photograph by Francis Tate, Worthing.

appear as a vast tract of pasturage, broken up into hill and dale, with here and there a farm or cottage. The average height of this vast upland tract being 500 feet, the loftier hills, which rise to 700 feet and 800 feet above the sea level, do not appear more than slight elevations when compared with their surroundings. Although the comparative scarcity of woodland is a marked feature of the Down country, yet at Muntham wherever trees have been planted, they have done well. Behind the house are sloping stretches of turf which merge into groves of Beech, among which wind quiet woodland walks. The carriage drive, which leads up to the north front, winds between woods of Beech, but the nearest portions have been cleared, and Grass verges, backed up by Pines and other Conifers, formed. Along this drive *Pinus insignis* is a feature. There are many trees, and all are fine specimens from 30 feet to 40 feet high, and in fine health. Their dense dark green growth is lightened by the background of native tree verdure. Near the north front, isolated on the turf, is a fine specimen of the Judas Tree (*Cercis siliquastrum*). It

upon the Dutch garden, the contrast between its clipped formality and the natural grace and beauty of the trees and shrubs surrounding it is very marked. Scrolls, stars and diamonds of Box and Yew, clipped to geometric evenness, prim and severe, present themselves to view. Curiously enough, the *Acanthus*, that clusters against the walls of Italian terrace gardens, was the most beautiful thing here. Frost had a few days previously destroyed all the tender plants used to fill in the scroll-work, but four masses of *Acanthus* remained conspicuously beautiful in their inharmonious surroundings. This is the prettiest front of the house, and if the spot occupied by this geometric garden had been a simple Grass plot it would have been much better. Close to this formal garden was a large mass of *Escallonia* interspersed with Monthly Roses.

Photinia serrulata does well at Muntham, and frequently flowers. There are some very old Yew hedges here that must have been in existence some centuries. *Cupressus macrocarpa* makes an enormous and very dense hedge 12 feet to 14 feet high.

foliage down to the ground. There is a male and female, the male specimen having a sturdier habit of growth, with a shorter petiole to the leaf.

A. H.

KITCHEN GARDEN.

ARRANGEMENT OF CROPS.

A SYSTEMATIC rotation of crops, although theoretically correct, is very rarely practised, for the simple reason that it is frequently impracticable. Nor, after all, does it much matter if the gardens connected with most private places are not cropped in an approved manner so long as those responsible succeed in maintaining the requisite continuous supply of vegetables. When there is no scarcity of manure, good land can be made to grow or do almost anything that any reasonable person ought to expect, and there is therefore no reason why those in charge should attempt to closely imitate farmers who cannot be constantly manuring ground, and must as a consequence carry out some system of rotation. If it were

not possible to restore to land both the mineral and organic substances absorbed by one crop previous to re-cropping it with nearly, or quite, the same class of vegetables, then strict rotation, which we read about and very seldom meet with, would have to be practised and fewer vegetables grown. This may appear to be a bold assertion, but as far as my experience goes it would be an almost utter impossibility to utilise a small garden to its fullest extent if strict rotation were absolutely necessary. When the garden consists of several acres of ground, all of much the same depth and character, a systematic change of crops may be more easily, and it must be conceded to a certain extent advantageously, practised. Such gardens, however, are few and far between, and most gardeners have a totally different state of affairs to contend with. In many instances the garden varies surprisingly in the character of its soil and its conformation generally; while there are other local circumstances that do, or ought to, materially affect the system of cropping. When it is found that the heaviest crops of Onions can always be had from a certain quarter, that another breadth invariably produces the best supplies of Peas and Beans, that the most profitable crops of Strawberries are obtained from certain positions, and that abundant crops of Potatoes of the best quality can generally be grown in particular quarters, and this for many years in succession, no notions about the necessity for strict rotation of crops ought to be indulged in. At least such is my opinion, and I have long ceased to trouble about the matter, preferring rather to arrange the crops more as they are found to succeed best or as vacancies occur, preparing the ground and manuring accordingly. I may further add that we have neither a superfluity of manure nor labour, and economise both wherever possible without apparently much injury to the crops.

With a clear course and plenty of space, a scheme might be mapped out on paper, and a fairly good system of rotation possible, but after the first season so many of the quarters or plots, into which small gardens are so freely divided, will, when they ought to be clear, be found partially or wholly cropped with some kind of vegetable, that confusion sets in, and the would-be votary of rotation, if he is wise, will give up the attempt. There are, however, a few simple rules which may frequently be adopted, some of which I will enumerate. Supposing there is an "upper part" in a garden, as well as the sunny wall borders, it would be a decided mistake to assign these to late vegetables. Such ought generally to be devoted to the production of the more profitable early vegetables and Strawberries. A few or many rows of Ashleaf or other early Potatoes would do well, and could be cleared off in time to be succeeded by early Strawberries, Cauliflowers, or salading. A like space could be devoted to early and second early Peas, these being removed comparatively early, and without any digging or much other preparation be at once followed by autumn Cauliflowers and the earliest Broccoli. The latter could also succeed Strawberries, which ought not to be allowed to bear more than two seasons, earliness rather than weight of crops being the principal consideration. Kidney Beans, as well as White Tripoli Onions, these in their turn being succeeded by winter Spinach, might also be grown in these warm quarters. If the Strawberries are gradually moved all through the quarter, there is bound to be a certain amount of rotation, but, as before stated, this need not be studied if plenty of manure is used at least once a year, the crops being located wherever the most suitable vacancy occurs. Wall borders

are usually cropped with early Peas, Potatoes, Kidney Beans, Carrots and salading, and the first-named only fail to do well when repeatedly sown on the same sites. Even this can be rectified by the application of light surfacings of phosphates and potash in a quickly soluble form. All the foregoing may annually be closely succeeded, without the ground being either manured or dug, by Autumn Giant Cauliflower, Endive and Lettuce in quantity for early winter use, these being cleared off and the borders well manured and dug before midwinter.

If strict rotation is not recommended, it does not follow that I am an advocate of scattering the crops in a somewhat promiscuous fashion over the rest of the garden. On the contrary, I always keep the main crop and late Peas and runner Beans all together, and as close to the water supply as possible. Very frequently these succeed Celery, and as they are all cleared off the ground in the autumn, this gives a good opportunity for manuring, trenching, or digging in time for frosts to well pulverise the ground. A quarter thus prepared could be either sown with Onions, Carrots and other root crops, which would monopolise the ground for one season, or Potatoes might be planted. We grow rather large breadths of Ashleaf and other short-topped, early maturing Potatoes, Brussels Sprouts and comparatively late Broccoli being planted between these. The greater portion of our Celery is grown in succession to the two last named-members of the Brassica tribe, the trenches being dug directly the latter are cleared off, and the ridges cropped with Lettuces and kidney Beans. Cabbages do well in close succession to Onions, no preparatory manuring or digging being necessary, and if they remain a whole year on the ground, Potatoes are frequently planted in succession. Leeks on a cool border or a strip of well-manured ground may be succeeded by Savoys. After the Savoys, summer and autumn Turnips may be sown. When these have been cleared off, the ground having been manured is again ready for Leeks. We utilise the north-east borders, which are unsuitable for various other vegetables, for these crops, and they never fail. The bulk of the Potato crop is frequently either grown outside a walled-in garden, or is purchased, only the quick-growing varieties being given these positions. With or without the assistance of solid manure of some kind and with that of superphosphates, soot, or special Potato manure, profitable crops can be grown without any change of site or even of seed for many years in succession. W. I.

TREATMENT OF NEGLECTED GROUND.

WHATEVER "D. W.," in THE GARDEN, Jan. 26 (p. 80), may ultimately wish to do with the old orchard and kitchen garden, he must in the first place thoroughly clean it. In ground that has been left some time in a neglected condition there is sure to be a lot of Couch Grass, so that if "D. W." carries out his implied intention of simply ploughing in the weeds and planting Potatoes he will in all probability create for himself a deal of trouble in cleaning the land later on. Moreover, the soil, especially if of a holding nature, is sure to have come into a more or less close condition, and ought to be well worked about before it is fit for any kind of vegetable crop. It is equally important to do so if any of it is to be trenched, for no greater mistake can be made than in turning down soil that is not in a free, sweet condition. Ground that has been neglected should have a season's cultivation before it is trenched. Were it the beginning of November instead of February, "D. W." could have done, as farmers often do with land that has been cropped the preceding summer. The Couch Grass could have been forked out, carted off, and

the rest of the weeds ploughed in. By spring they would have rotted, and once more ploughing would have brought the land into good condition for planting. The season being so far advanced, the weeds will have to be got out by means of harrowing after ploughing and raking them up. Should the weather in March be fine and drying, the weeds may be collected into heaps and burned, and so save the expense of carting off. This cleansing process will bring the ground into a nice mellow condition, and then manure can be put on and ploughed in. Taking all things into consideration, I think that planting with Potatoes will be the best thing to do, although, of course, any kinds of vegetables can be put on it. For ground, however, that has not been broken up for some time, I think there is no crop so good as Potatoes. The operations connected with the culture of this esculent are peculiarly adapted to prepare the ground for another crop. The planting, hoeing, moulding up, and digging of the crop have each and all a sweetening influence, so that nothing more is required to be done to it.

It is mainly for this reason that Strawberry growers are also Potato growers, as it is found that the best preparation for a Strawberry plantation is by means of a crop of Potatoes. I should plant *Magnum Bonum* and *Beauty of Hebron* in the proportion of say one-fifth of the latter, which coming off early will allow of getting in winter greens and Onions and making Strawberry plantations. There is no better time to plant Strawberries than early in September, as they get good hold of the ground by winter, and being well established they grow away and make grand stools the following year. As regards trenching, the nature of the soil must determine the necessity for it. Little in a general way is gained by trenching stiff moisture-holding soils, but they are much benefited by turning it over one spit deep and well loosening the subsoil. Heavy land does not so easily feel the effects of drought, as the particles lie closer together, but light porous soils ought to be trenched to a depth of 18 inches, so that roots can run down out of the way of the drought. If this is not done, subsoiling, as agriculturists practise, should be resorted to.

The cost of ploughing land here in Surrey is about 12s. per acre, and the cleansing would be about as much, but the price for such work varies according to locality. Manure at the rate of ten loads to the acre at least is required. The custom here is to kill two birds with one stone by ploughing in the manure and planting the sets at the same time. The furrows are run at 9 inches apart, and in every third one the Potatoes are put about 2 feet apart. Very good crops are grown in this simple way. J. C. B.

KITCHEN GARDEN NOTES.

TOMATOES.

EARLY crops are generally appreciated, and if not needed for home consumption they realise good prices when sold. In some instances old plants, or those that perfected good crops in the autumn and early winter months, are also depended upon to yield early fruit, or, say, during April and May. A few fruits may even be gathered in February and March, but, as a rule, the flowers open badly during the dull days of December, and they do not set well till February. There is very little to be said in favour of retaining old plants, as these are liable to be infested by insect pests as well as fungoid diseases, and they never yield such heavy crops of fruit as can be obtained without much trouble from young plants. Any that are preserved ought to have much of the old foliage removed, so as to admit light and air to the young shoots laid in wherever there is space for them. The latter will have already shown bunches of flower, and these when opened, ought, when the pollen is quite dry, to be fertilised with the aid of a camel's-hair brush or a rabbit's tail. It is also advisable to remove some of the surface soil and replace this with fresh loamy compost. Keep rather on the dry side till a crop is set, then water freely and give plenty of liquid manure.

Where young plants were raised last autumn

either from seeds or cuttings, it is possible to have them in full bearing in April and May, or when the fruit will fetch 1s. 6d. per lb., and sometimes more, in the markets. Those raised in January will also ripen fruit in May—that is to say, if properly treated. The former may be shifted direct from the pots they were wintered in, and the latter from those they were recently placed in, into either fruiting pots, boxes, or narrow borders, and this ought to be done before they become badly root-bound. The size of pots used may depend upon the positions in which they are to be set. For the back shelves, the plants to be trained up the glass, 10-inch pots are large enough, but where the plants will have good head room, or where they are to be grown on the pit walls and beds of forcing houses, 12-inch pots or those of a larger size may be used. One plant in each of the smaller sizes is ample, and a pair may be fruited in the larger pots; the pots to be lightly drained, the few crocks used being covered with rough turfy loam. Any good loamy soil will grow Tomatoes, but we prefer to use for pot culture a compost consisting of two parts of turfy loam to one of old Mushroom bed manure. It is warmed before potting, and is rather firmly packed round the ball of soil and roots. It is advisable to resort to deep potting, the pots not being more than three parts filled, thus allowing good space for subsequent top-dressings. Where the roots will not be much confined, nothing but good fresh loam should be used at the outset, a richer compost favouring a gross, unfruitful growth. If a number of plants are to be grown on a central bed in a forcing house and trained in an upright fashion, they ought to be placed 2 feet apart each way. Those intended to cover a roof may be planted 1 foot apart, the plants being confined to a single stem in each instance. Only sufficient water should be given at first to keep the young plants from flagging badly, and even when growing strongly they ought to be sparingly supplied with moisture. This treatment, coupled with free ventilation whenever the weather permits, favours a hard and woody rather than a gross habit of growth, and is the best calculated to ensure fruitfulness, as well as immunity from disease. A high temperature or a moist atmosphere is not desirable at any time, and ought specially to be guarded against when the flowers are opening. The temperature may safely range from 55° to 60° by night, and 10° higher in the daytime, air being freely given whenever possible without unduly lowering the temperature of the house. During the spring months artificial setting, as advised in the case of the old plants, ought always to be practised. After the lower bunches are set, a moderately rich top-dressing may well be given, and also liquid manure frequently. Keep all side shoots closely pinched out and do not top the plants while there is good head room for them.

MUSHROOMS.

Mushroom houses are rarely roomy, and by this time the majority of them will have been utilised to their fullest extent. More beds will have to be made if a good succession is to be maintained, and rather than break up any not exhausted, a fresh site should be chosen. This winter has been especially favourable to the growth of Mushrooms in well-sheltered, unheated sheds, while the open-air beds have never ceased to be productive. Those who have not tried either of these alternatives may make the attempt now, and with care the results are almost certain to be satisfactory, if not actually surprising. Ridge-shaped beds are the best for sheds where there is room enough for them, and are the only form of bed suitable for the open air. When the manure for the ordinary flat beds is being prepared, nearly all the straw is forked out of it, but a different mode of preparing manure for ridge-shaped beds must be adopted. All the manure and litter wheeled out from a stable in the course of a week or ten days ought to be sorted over, that portion of the straw only slightly stained being thrown on one side, and the rest well shaken up into a heap to ferment. Fully one half of the bulk intended for a ridge should consist of short straw, this, in addition to keeping the manure together, also contributing a lasting heat. As soon as the centre of

the heap is quite hot it ought to be turned inside out, this process being repeated about every three days. By these means much of the rankest heat and noxious gases will be got rid of without much impairing the heating properties of the manure. Should the heap become excessively hot or dry from other causes, it must be well moistened when being turned, as it is quite useless to form a bed of material that will neither decompose nor generate heat. It takes from a fortnight to three weeks to properly prepare manure for a Mushroom bed, and this may safely be done in the open air.

A dry floor in a shed and a well drained bottom in a sheltered position for the open-air beds are necessary. On these mark out a space 3 feet wide, and in length to suit the amount of manure prepared, and gradually form the bed, taking care to well separate the manure as it is thrown together, and to either trample or beat it down as firmly as possible. The bed should be about 3 feet high, and gradually narrowed till it is eventually 6 inches wide at the top. If there are no hollows, and the surface is raked over so as to give it a thatched appearance, rain will not affect it, and trial stakes being duly thrust in and frequently examined will prove the readiest index to the state of the bed as regards heat and moisture. Not unfrequently the bed heats violently, and in this case holes ought to be opened with stout rods from the top of the ridge to near the bottom, this permitting the escape of injurious heat and steam, which would otherwise quickly spoil the bed. Novices are, as a rule, in too great a hurry to spawn the beds, and a partial failure is the result. When the trial stakes can be comfortably held in the palm of the hand and denote a fall in the temperature to about 80°, the time has arrived for spawning the whole bed, including the ends, but not the apex, though if preferred, the much older plan of spawning the lower half of the ridges may be practised while yet the centre is too hot for the upper portion to be done in safety. The preference ought to be given to fresh spawn, this being broken up into pieces about 2 inches square. These must be inserted flatly with the hand, and just below the surface, 8 inches apart in rows a similar distance apart, and a good beating with the back of a fork given. Should the heat have declined rapidly, or say to about 65°, the bed may be moulded over directly the spawning is completed, otherwise it cannot be done with any degree of safety for another week, confined heat and steam being most destructive to the spawn. Experience is the best guide in this matter, and I can only advise generally. In any case the central holes ought not to be too quickly closed. A surfacing of not less than 2 inches of fresh fine loam, well beaten down with the back of a spade, but not watered, is necessary. Still keep stakes plunged in the bed, and when it is found the heat is declining considerably, cover the ridge with not less than 6 inches of the long litter first separated from the manure, an additional 6 inches on the open-air beds not being too much. If this is neatly distributed over the beds rains rarely penetrate through, and if all goes on well, Mushrooms should be plentiful in the course of about six weeks.

A GOOD BROCCOLI.

The Sandringham selection of Snow's Winter White Broccoli has fully borne out the estimate I have previously ventured to give of its character. Snow's Broccoli has long been a favourite variety with those who are called upon to maintain a continuous supply of either Cauliflowers or Broccoli, principally, however, owing to its hearting in very early, or when no other varieties are available. Raised and planted early, a great number of the plants developed into monstrosities, and sowing in May only to a certain extent obviated this difficulty. We have grown several hundred of the Sandringham selection, and there is not a rogue amongst them. The heads are rather small, and not so good in quality as those of Autumn Protecting Broccoli, but they were plentiful by the middle of January, and have done us good service since. Early Broccoli require to be looked over daily, any showing a heart being either cut

or covered with leaves, and we find it advisable to lift a considerable number and lay in either under glass or in a sheltered shed. W. I.

FLOWER GARDEN.

CHRISTMAS ROSES.

THERE has been rather an ominous silence this season as far as these popular flowers are concerned, and the reason of this silence is not difficult to account for, since we have rarely of late years experienced so bad and unsatisfactory a season. On all sides the report is the same, and even in Devonshire and at Bath, in Scotland and Ireland alike, the plants have not been so poor in healthy leafage and in flower for many years. This bad season, coming as it did after an exceptionally good one, makes the disappointment all the harder to bear. The hot, dry summer of 1886 suited the Christmas Roses, and their profuse blossoming during 1886 and 1887 will long be remembered with pleasure. Naturally, the Hellebores may often grow in shade, but in our gardens it seems pretty certain that they thrive better during a hot and dry season than they do during a cold, wet and sunless one. During the year 1888 the Hellebore disease was generally rampant, and this was especially the case, of course, on soils and in situations more or less unsuited to the plants. The disease itself is a fungoid one nearly allied to the Potato disease. Naturally it makes its prey of the lesser Celandine, but is infinitely more destructive when it attacks the Hellebores of the *H. niger* section. It is named *Peronospora ficariae*, and appears as a whitish mildew-like mould on the under surface of the leaflets. Spreading as it does with great rapidity, the tissues of the leaves and petioles become infested with it, and they ultimately become covered with blackish spots and blotches, and now and then these extend to the root-stock, and in extreme cases the whole plant perishes. Good culture is the best palliative, but any actual cure is unknown. Dusting with sulphur might possibly check the fungus, but, as a rule, the mischief is done long before it becomes evident, so that the best plan would be to dust the young leaves at intervals of a few days, commencing as soon as they unfold their leaflets in the spring. The thorough manner in which this *Peronospora* spreads to every plant in a large garden is very curious, and even strong two and three-year-old seedlings which last year were magnificent in leafage and in bloom have this year a most dilapidated aspect. Mr. Walter Ware, of Bath, one of the largest growers of these plants in Europe, tells me that the flowers this season were half a failure with him.

Last spring I planted some hundreds of collected roots from Lower Austria. Considering that the plants had been months out of the ground, and that their roots were broken and dead, it is perhaps not surprising that, having had such a chilly season to contend with, a large proportion of them died, and the remainder still living do not present a very happy appearance. Even if these Austrian forms were of the freshest and best, they are very much inferior to those found on the Italian side of the Alps, so that if we are to import Hellebores, we may as well procure the Italian varieties in preference to those from Austria. These Italian forms have dark spotted stems and narrow, long glaucous leaflets, being more like those of Miss Hope's variety than any other known to me. I do not think we shall ever beat *H. niger altifolius* as a really vigorous-growing and free-blooming variety; but the best of the Italian forms come pretty near it in good soils. In Devonshire, H.

altifolius is the Christmas Rose, attaining a height and floral luxuriance rarely seen elsewhere. Like a good many others of our best garden varieties, the origin of this Christmas Rose is shrouded in obscurity. It is quite distinct from the figures, &c., said to represent the H. altifolius of Heyne, which some of the plants found in Italy more nearly represent.

This loss of winter blossoms is a serious one in some gardens, and so disappointing, that any information as to the fungus and its prevention or cure would be valuable. Here in Ireland we do not find that these flowers like shade. Shelter from high winds is beneficial, but in deep moist soils the full sunshine seems an advantage. Even in England a hot dry season suits these plants much better than a cold and sunless one. It would be very interesting to know under what conditions anyone has secured a good harvest of Christmas Rose flowers this season. The Riverston variety, H. altifolius (maximus), and H. St. Brigid were the most satisfactory of all our many forms this year, but none were up to their usual standard.

F. W. B.

CARNATIONS SPORTING.

"YORKSHIRE'S" query in THE GARDEN, Feb. 2 (p. 92), What is the cause of Carnations sporting? touches rather a sore spot with Carnation growers who, with a perhaps too recent memory of some peccant new and expensive sort, may feel themselves tempted to reply simply, "cussedness." Some of them, indeed, indignant at the repeated "rogneries" of the Carnation, have transferred their devotion wholly to the sister flower, the Picotee; but there is a harshness in this attitude towards the erring one that scarcely becomes the true florist, and I own to a certain sort of satisfaction in thinking that instances are not wanting of even that pattern of propriety, the Picotee, herself going utterly wrong.

It used to be thought that an over-rich soil—that is, a soil with an undue proportion of the manurial element—was the cause of Carnations running. But experiments made with every kind of soil, from pure loam to manure alone, have given much the same results, and the soil theory is now generally discarded. Many think that an unfavourable season, by which is usually meant a cold, or wet summer, is mainly answerable for the trouble. Speaking from my own experience only, I am inclined to think but little of this either, for I have never had so many run flowers as in the droughty season of 1887, nor so few as in the wet one of last year, and if there are others who had a contrary experience last year, it only goes to show that there is little to hold by in the wet-season theory one way or the other.

In one of Mr. Douglas's papers on the Carnation, I think he said that he could during the winter often discern a plant that would bear run flowers by the colour of the grass being deeper than usual to the variety. If this be so, it is important, as showing that the cause, whatever it be, which determines the sport is at work at an earlier stage in the growth of the plant than usually suspected.

A run Carnation will often come true the next season, and some growers say that after its return to the original type it will not stray again. I cannot say of my own knowledge whether this is absolutely so, but certainly my best flowers of John Harland, c.b., the last two years were on plants propagated from run stock of 1886. My best flowers of Master Fred last year were similarly from layers off run plants of the year before. But though run flowers will often revert in this way to the highest form of their original purity, I have never known them to flower again as selfs in the same richness and beauty as in the first season of the sport. They are always thinner and duller.

It is curious to note the constant inconstancy of some varieties, and how some will have a spotless reputation in one locality and bear a positively bad

character in another. I see Mayor of Nottingham, p.f., shown every season in fine character at Oxford, but though I have tried it several times I get nothing but run flowers from it. My friend, Mr. Hewitt, of Chesterfield, the raiser of Master Fred, c.b., told me at Oxford, last year, he had never seen a run flower of this variety. I am but too familiar every year with them. On the other hand, I was surprised to hear from localities so wide apart as Reading and Todmorden that friends in both these places had given up the beautiful rose flake Jessica through their plants having all run. This sort being an especial favourite with me, I always have a good deal of it, and yet after growing it five years, I have only in that time had one case of a run flower. Instances of this variability could no doubt be cited endlessly.

Running in Carnations is one of those things we cannot cure, and, therefore, have to endure. We put up with it as patiently as we can in a variety of great merit, until there comes a new candidate for favour with all the sinner's good parts and greater constancy.

The solution of the mystery, why Carnations run, is a task for the vegetable physiologist of the future.—M. ROWAN.

— This is the term the florist has for years employed to designate those flowers which are what "Yorkshire," on page 92, describes as sporting, that is, breaking away from the bizarre or flaked character and becoming either self-coloured, in which form they are designated selfs or Cloves, or else having the white ground entirely suffused with some colour, but having flakes of some deeper tint laid upon the ground. These are now known as fancies. Mr. E. S. Dodwell in his book on the Carnation devotes a chapter to the question, "Why do Carnations run?" but it appears as difficult to reply to it in a satisfactory manner as it is to say definitely why the breeder or self form of the florist's Tulip breaks or rectifies, or breaks into a feathered or flamed character. Nearly thirty years ago Mr. Dodwell, who is a keen observer in all that relates to his favourite flowers, as well as a successful cultivator, observed in reply to a question:—

I regret that I am unable to offer any satisfactory solution of the problem proposed, the running of Carnations being one of those subjects which seem to defy explanation, and hitherto experiments have been so loosely conducted, or under such varying circumstances, that no positive deduction can be obtained from them. My impression is that Carnations are run more frequently by the use of crude material than from any other cause. For instance, the loam has not been sufficiently ameliorated by the action of the atmosphere, or the manure not sufficiently decomposed, or the mechanical arrangement of the soil has prevented a proper drainage, and the removal of the fibre is likely to lead to this.

And now at this distance of time Mr. Dodwell makes the avowal that he is not aware that any new facts have been accumulated warranting other conclusions than there given. I think that something in the physiology of the Carnation, which for the sake of a better term we speak of as chance, and which we cannot control, governs the phenomenon of running. One cultivator writing a quarter of a century ago said that he had an undue proportion of run flowers from plants grown in rich, middling, and poor compost, both in the open ground and in pots. I think this subject is one the scientific committee of the Royal Horticultural Society might take up with advantage, and carry out a series of experiments at Chiswick; say the effects of different composts; whether the whole of the flowers on a plant partook of the run character, the effect of shading, and the absence of shading from the sun; whether there are more run blooms during a dry, hot summer like that of 1887, or a wet, cold one like that of 1888; and whether the proportion of run flowers is greater from plants grown in pots in the ordinary way for exhibition as compared with those grown in the open ground.

Run flowers will sometimes hark back to their original character, but they cannot be relied upon to do so. A nurseryman marks all the run plants in his collection, and though he layers them he does not sell them but as run flowers. They are not nearly of so little value as they used to be, because they come in very useful for garden borders, and

they can now find a place upon the exhibition table among the selfs and fancies.—R. D.

THE FLORIST'S TULIP.

WHEN speaking to a company of gardeners a few evenings ago about this Tulip, one of them remarked that he had grown the early varieties in pots and for spring bedding, but he had never to his knowledge seen a florist's Tulip, and there is great danger, from the fact that there is scarcely a southern cultivator of this once popular flower, that it may be dying out of the knowledge of many who in the south love and cultivate flowers. My neighbour, Mr. Roberts, has this season planted a bed of florist's Tulips at Gunnersbury Park. Mr. Barlow kindly sent him a collection, the overflow of his Stakehill beds, and from another source he obtained some 100 bulbs, which came from a midland grower who had unfortunately lost the book which contained a record of his bed. These have been planted in a well-prepared bed, planting having been done early in November, and I hope a good display of bloom will reward Mr. Roberts' efforts.

Last spring twelve months, or probably a year earlier, a Dutch or Belgian florist sent over to one of the meetings of the Royal Horticultural Society a number of what he called breeder Tulips, but his conception of a florist's Tulip differed greatly from the estimate held by a Lancashire florist, for in nearly every case the flowers had a dark base. Now the dark base is opposed to all the traditions of Tulip growers and exhibitors. They were probably the progeny of T. Gesneriana, perhaps from a flower fertilised with the pollen of some broken variety.

That the Tulip came originally from Persia is generally admitted. From thence it reached Constantinople, and passed into Western Europe about the middle of the sixteenth century. Conrad Gesner states that he first saw it in the year 1559 in the gardens of John Henry Hawart, of Augsburg, a man very famous in his day for his collection of new exotics. It is said that both in Persia and Turkey the word Tulip signifies a turban. It is supposed to have reached this country in the reign of Queen Elizabeth, probably about the year 1600.

It would appear that the Dutch florists took the Tulip in hand and popularised it, and so much did its reputation increase, that it was deemed a proof of bad taste in any man of fortune to be without a bed of Tulips. It was soon after this that what is known as the Tulipomania set in, and the interest which centred about the flower during that stirring period may have had something to do with its being taken in hand by English fanciers; but any chronological account of its gradual development and improvement in this country appears to be wanting.

Berkmann, in his "History of Inventions," paints the Tulip with much claim to fidelity, but still with perhaps a little poetic license. He states: "There are few plants which acquire, through accident, weakness, or disease so many variegations as the Tulip. When uncultivated and in its natural state it is almost of one colour"—here he, no doubt, refers to the self or breeder form—"has large leaves, and an extraordinarily long stem. When it has been weakened by cultivation, it becomes more agreeable in the eyes of the florist. The petals are then paler, smaller, and more diversified in hue, and the leaves acquire a softer green colour." Here allusion is made to the breeder form becoming broken or rectified into the final stage of the flower's development. "Thus this masterpiece of culture, the more beautiful it turns, grows so much the weaker, so that with the greatest skill and most careful attention it can scarcely be transplanted, or even kept alive." That the plant as well as the flower undergo changes when they pass from the seedling into the broken state is quite certain. In one of his pleasant papers on the Tulip, the Rev. F. D. Horner states that when the bulb is about to produce a rectified flower the foliage is less vigorous, and shows long before the bud colours a mottling and streaking with lighter green, the habit of rectified

Tulips, and is a certain sign that such a bulb, whether it flowers that year or not, has passed from the transient to the permanent stage of its existence. The act of breaking invariably affects the height that the flower grows and reduces its stature. Let anyone look over a bed of Tulips in which seedling breeder and broken flowers are growing together, and they will find that the former are of taller growth than the latter.

It almost invariably happens that the breeder or self-coloured stage is the first in which the bloom appears. Very rarely indeed does an instance occur in which a seedling Tulip flowers for the first time in its broken form, missing the breeder stage altogether. A case occurred a few years ago at Middleton, Lancashire. An old florist there, by the name of David Jackson, raised some seedling Tulips, and one of them, at the first time of blooming, was found to be broken; it was in the character of a feathered byblomen, the ground white, the petal edges beautifully pencilled with black—a shining raven's wing black—the contrast being charming in the extreme. Mr. Samuel Barlow and another Lancashire grower purchased the stock between them, and though scarce at present, it appears likely to become a leading exhibition variety.

This breeder or self state of the Tulip illustrates a very curious occurrence in vegetable physiology, and it is scarcely known in any other flower. It takes from five to seven years to get a seedling Tulip into the blooming stage, and having appeared in the breeder or self form, it may keep to this stage of its floral life for three or four to nine or ten years. Thus a Tulip raiser needs to be a man of great patience. But it is not the final stage, and that is why his patience is fortified by hope. But what law regulates the changes from the self or breeder to the broken or rectified form is simply a matter for conjecture. Season after season, now one and now another, in no order of rank or age, will break or rectify either into feathered or flamed flowers or some mixed attempt at either. A Tulip may be lovely in the breeder state, but break into a flower of great ugliness and quite worthless. Some colours, especially in bizarre breeders, are accordingly dull, but we have it upon the authority of the Rev. F. D. Horner that, as a rule, the plainer and weaker colours in the breeder flowers generally produce the richest in the rectified state. It seems a pity that some breeders should become broken at all, for the change is for the worst from a decorative point of view; but the grower cannot hasten the process, neither can he prevent it. Mr. James Thurstan, of Cardiff, who has had considerable experience as a raiser of Tulips during the past ten years and more, states that some of the very brightest rectified Roses have broken from breeders having light blue or violet shades, which approach very nearly to the byblomen character. The transformation is remarkable, because it is "additionally strange that the breeder or mother colour is not simply driven or collected into beautiful markings on the rectified petals, but that it disappears from the flower altogether, as a mist or veil lifted off." The base colour, whether yellow, as in the case of the bizarre, or white, in the case of the rose or byblomen, floods the whole flower, and a new and marvellous colour strikes in to feather or flame the petals. But this is not all; the new floral revelation may represent a flower feathered only or flamed in addition. Either the colouring is laid on in beautiful styles of feathering round the edge only of the petals, or else the pencilling is joined by bold beams of colour that rise like fire flashes up the petal centre, and strike into the pencilling or feathering on the edge with their sharp tongues. One more curious fact in regard to the Tulip might be mentioned. It is not uncommon for a variety to flower one year in the feathered and the next year in the flamed character. The Rev. F. D. Horner states that "sometimes a flower that has bloomed in a feathered state for years will, without a note of warning, come flamed. Then in a year or two, or longer, it may pass back to the feathered stage again. Flamed flowers will also change to the feathered character, but the in-

stances are not so numerous as those in which the change is from the feathered to the flamed character." R. D.

THE BLACK LILY.

(FRITILLARIA KAMTSCHATCENSIS.)

THIS is one of those plants about which opinions differ. Some people call it a *Lilium*, and as such it has been described by several botanists, but it is now best known and widely distributed under the name of *Fritillaria*, which name Sereno Watson gives it in his revision of "North American Liliaceæ." Although not very beautiful, it is a highly interesting and curious plant, the flowers on well-developed specimens being nearer to black than those of any other flower I can



The Black Lily (*Fritillaria kamschatcensis*).
Engraved for THE GARDEN.

at present call to mind. It is a native of Alaska, North America, and Eastern Siberia, and of course entirely hardy in our gardens. It has often been spoken of as difficult to maintain in a thriving condition, but we believe this in a great measure is due to a misunderstanding of its requirements. It is quite true that in certain positions it will gradually dwindle and disappear, but when grown in a shady position, due north if possible, and in a thoroughly drained soil composed of sandy peat, we have never had any trouble with it. It must, however, be watched, as it has a habit of going together in clusters, the small bulbils apparently strangling the larger flowering ones, or at least impeding their usefulness by taking up the surrounding

nourishment. We transplant every two or three years, leaving the flowering bulbs in the most important position, and taking away the small ones to grow on under similar conditions.

The woodcut shows the habit well, though it hardly does justice to the size of the flowers, which are usually three on fairly strong specimens. The plant grows about a foot in height. Mr. John Horsley, 6, Selwood Place, South Kensington, S.W., by whom the plant from which the engraving was made was grown, writes us as follows regarding his treatment:—

The (so-called) Black Lily of Kamtschatka is at present somewhat rare in this country. The bulbs, which are rather small, were potted in October in a mixture of loam, sand, and leaf-mould, the pot being plunged during the winter in a box of leaves. In the spring they were taken into the greenhouse and grew rapidly, coming into bloom on May 20. The reverse of the petals is a purplish brown, the inside being a dark brown with stripes of a lighter colour. It has a strong odour, but, unlike most Lilies, it is not of a pleasant nature.

D. K.

Ranunculus Thora.—G. Edwards sends a specimen of *Ranunculus* which he says was gathered last year in Austria, asking what it is, and if it is to be found in English gardens. The name is given above, but I have never seen this plant alive. I should imagine, however, the most likely spot to find this beauty is in the rich collection of alpine plants at York. It is a plant which grows some 4 inches or 5 inches in height, producing a single reniform leaf, which is almost $1\frac{1}{2}$ inches across and deep green, prettily toothed on the edge, flowers produced singly or in pairs, not large, but bright yellow. It is a veritable gem for the rock garden.—W. H. G.

Ranunculus rutæfolius.—This, gathered near the former plant, also comes from G. Edwards. This I have frequently seen in our gardens. It is a dwarf plant with spreading leaves, which are several times divided, and remind me more of the fronds of the Moon-wort (*Botrychium Lunaria*) than Rue leaves. It grows about 6 inches high, and produces white flowers with a rich yellow centre. The flowers mostly come singly, but sometimes more are produced on a stem. This little beauty cannot be too strongly recommended.—W. H. G.

Ranunculus Lyalli.—In a letter written on December 12, Mr. Matthews, of Dunedin, says, "I have a quantity of *Ranunculus Lyalli* now in full bloom. It is a noble plant, attaining with me a height of 3 feet, the heads of flower measuring 15 inches in diameter. It is a grand plant, with large peltate leaves, and the flowers, which measure from 3 inches to 4 inches across, are of the purest white. It grows in moist places at some 300 feet altitude or more, and from its flowers it has obtained the vernacular name of the White Lily, and it is also called the Rockwood Lily." This superb plant should find a home in moist places in our wood gardens, where it would undoubtedly form a conspicuous and beautiful ornament. A coloured plate of this appeared in THE GARDEN, Dec. 31, 1887 (p. 606).—W. H. G.

Pentstemons.—There is much satisfaction in finding on January 31 that plants of these good border flowers have stood so well. It does not follow that they will look so well some two months hence as they do at present. The bleak winds of March often prove more destructive to half-hardy plants than sharp frosts, but, on the other hand, if the things have often suffered from frost attacks, they are less capable of withstanding the effects of the March winds. Now the plants are so vigorous and to some extent so seasoned by low temperature that they should stand March weather unusually well. Old plants which pull through the winter send up such fine spikes of flowers early in the summer, that Pentstemons then really become attractive border flowers. The colours found in them now are very bright and cheerful, whilst the blooms of the best strains are very fine and richly marked. Some to-
s

taken from selected seedlings and put in as cuttings during the month of September rooted freely, and are now making strong plants in a frame, where they are safe from all contingencies. Such plants would do admirably for pot culture, but Pentstemons like to root deeply and widely; hence ample root-space is desirable. If the soil be deep and good the quality of the flowers is also correspondingly good. The newer strains gave to us far more compact-habited plants and denser, stouter spikes of blooms than used to be found. No one will care to grow the old loose-spiked forms once they have enjoyed the better qualities of the later ones. Seed sown now in a greenhouse or frame will give strong plants to dibble out in May and which will bloom profusely and in great beauty during the autumn months.—A. D.

IRIS RETICULATA AND ITS VARIETIES.

I. CYANEA, MAJOR, CÆRULEA NELSONI.

HAVING recently described in your columns another variety of these pretty and early blooming little Irises under the name of *I. reticulata* var. *sophonensis* (see *THE GARDEN* for Jan. 5, p. 19), I have thought that some description of the three other varieties mentioned above may be interesting to the readers of *THE GARDEN*. The varieties rank in order of their opening. The first named opened about the middle of January, and, compared with the type form, is decidedly inferior both in size of flower, depth and brilliancy of colour, being of a dull leaden shade of blue with a prettily marked lip, which is by far the prettiest part of the flower.

The second named is a really lovely flower and by far the most desirable variety that I have yet seen. It came into bloom at end of January, and the flower was considerably larger than that of the type form, with broader sepals and lip and the colour was a rich, bright velvety purple, with the beautiful bright golden midrib specially distinct. It also exhaled the delicious odour of Violets in so marked a manner as to be perceptible to anyone; whereas in the ordinary form this perfume is only perceptible to those possessed of keen olfactories. This variety will doubtless prove an additional attraction to all lovers of sweet-scented flowers. Where this charming variety originated I have never heard.

The third named variety originated in the garden of that well-known and much esteemed florist, the late Rev. J. Nelson, of Aldborough, and came into flower on February 6, about simultaneously with the first blooms of the common type form, with which I was able more accurately and closely to compare it. The flower is about the same size as that of the type form, and the markings of the lip are identical, but the ground colour of the flower is of a much lighter shade of blue; it is quite a distinct and pretty variety. There remains still one more variety named Mrs. M. Foster, raised, I believe, by Max Leichtlin, of Baden-Baden, and which I hope to bloom within the next fortnight. This should be the most distinct and beautiful of all, if its cost bears any fair proportion to its beauty.

W. E. GUMBLETON.

Jasminum nudiflorum.—This Jasmine is grown in various ways. Although I have seen it in many positions, I never have seen it look so beautiful as at Torquay last December. It was growing in tufts on the side of a hill or bank facing the sea. These plants were about 2 feet high and about as much through, and planted in a natural way. This Jasmine was a blaze of yellow flowers every shoot being covered to the tips with bloom, thus showing the good effects of well-ripened wood.—J. C. F.

Laced Auriculas.—I am anxious to draw the attention of the committee of the National Auricula Society to the position occupied in their schedule of prizes by laced Auriculas. There they are simply tolerated as abnormal forms, and may be shown, says a foot-note, with those floral monstrosities called fancies. That is, indeed, putting the beautiful laced forms into odd company. Laced flowers have very beautiful characteristics; the flowers are of the best form, have pleasing colours and clearly

defined markings, which some people think are hardly less pleasing than are those found in the laced Polyanthus. It might have been supposed that a National Auricula Society, delighted with any probable expansion of Auricula form and cultivation, would have been only too pleased to take up, encourage, and even offer some prizes for the new laced section. Not so, however; indeed, these laced forms seem to be regarded as a nuisance. Perhaps the double-flowered forms are put into the same category, but as raisers of show varieties from seed invariably get in their seedlings a lot of weird incongruities which they cannot retain as show forms, they have made a class specially for them. The laced forms have sometimes been staged in the alpine class; therefore, so far, have been tolerated as alpine. If, therefore, they really be alpine, why degrade them by classing them with degraded shows yelet fancies? Laced forms are very hardy; they seed well, and give really good true form from seed. They may be grown with ease, and they have much of beauty as well as of quality. Why, therefore, not have a class among the alpine for them? —A. D.

FLOWER GARDEN NOTES.

PERMANENT BEDDING PLANTS.—By this term I mean plants that can be left in the flower beds both winter and summer, and from year to year, until they get too large and need to be replaced by smaller plants. This is a phase of bedding out that, by reason of a greatly reduced staff of workmen, we have lately had to make a special study of, and the following are amongst the plants intended to be used in this manner. As a matter of fact we have long used them to a limited extent. Several varieties of Yuccas are very suitable for planting in small beds, one in each, and the ground beneath carpeted either with *Sedum glaucum*, *Antennaria tomentosa*, or *Herniaria glabra*. The varieties *recurva*, *filamentosa variegata*, and *gloriosa* look well when planted in this way. If used with flowering plants they should be planted on a mound. A central plant and four others at the four central angles of a large square bed would greatly enhance the effects of the flowers. Several of the small, dense-growing varieties of *Retinosporas* are just as beautiful as the Yuccas are when planted in the same positions—*Retinospora plumosa aurea*, *R. pectinata alba*, *R. leptoclada nana aurea*, and *R. squarrosa*. Spiral-habited shrubs may by some be preferred for using in conjunction with flowering plants, and in beds arranged after a strictly geometrical fashion they are, perhaps, more appropriate than the foregoing. The best are the Irish Juniper (*Juniperus hibernica*), *J. stricta*, *J. virginica*, and *J. rigida*; *Cupressus Lawsoniana erecta viridis*, *C. argentea variegata*, and *C. aureo-variegata*. All the varieties of variegated *Euonymus* and *Osmanthus* may be used in the same way, and as these can at will be made into standards, or pegged down to cover the ground, they are doubly valuable for use as permanent bedders. Another direction in which I purpose to lessen the labour of bedding out is that of planting some of the beds thinly with small shrubs, and filling out the remaining space with *Violas* in mixtures of white, blue, yellow, purple, and lilac. The partial shade that the shrubs will afford will suit the *Viola* to perfection. *Calceolarias* and *Verbenas* will probably be used in the same way, as both these like a little shade, as well as *Violas*.

SEEDS TO SOW.—The sowing of the seed of Asters, Stocks, Zinnias, Everlastings, Phlox Drummondii, and other annuals and biennials for summer flowering seldom takes place before March, but this, I think, is too late. I prefer to sow about the middle of February and give the seedlings cool treatment from the first, and thus bring them up sturdily. The only covering our seedlings ever have is that of old lights that are put over the seed bed till germination has taken place, and after that a few sticks are laid over the bed, upon which mat coverings are put on cold nights. As soon as the seedlings are sufficiently large to handle they are pricked out in a prepared bed of light loam and leaf soil in any sheltered nook, the mat coverings still being used as occasion requires; but they are

seldom necessary after the middle of April. Early in May the plants should be ready for transferring to flowering quarters, which work should be carefully performed, each being lifted separately and with as much soil adhering to its roots as possible, and there need then be no anxiety about losses by transplantation, because there will be none. Hardy annuals for summer flowering are not so popular as they were twenty years since, probably because they are thought to be of little account, or because they will not continue in good flower the season through, nor for the matter of that does any other flower. Granted that there are many annuals that are comparatively worthless, there are also many of an opposite character, and a few of these I have sown and grown as regularly as the seasons have come round. The following are amongst the favourite varieties: Larkspurs, Lupines, Candytufts, Silenes, *Sanvitalia procumbens*, *Saponarias*, white and pink; *Eschscholtzias*, *Clarkias*, *Nemophilas*, *Godetias*, *Virginian Stocks*, and abundance of *Mignonette*. All of these we prefer to sow in small patches in the open ground from March onwards, careful sowing, which includes the covering of the seeds with fine light soil and the protection of the seedlings from being devoured by slugs, being really the only essentials to the securing of a good display of flowers.

GENERAL WORK consists of completing alterations and the planting of all kinds of trees and shrubs, the trimming up of shrubberies, and, if needs be, young plantations in particular should be given a good dressing of fresh soil or manure, which lightly fork in, taking care not to mutilate the roots. W. WILDSMITH.

The Coca Plant.—A recent issue of the *Kew Bulletin* contains a long article on Coca, a plant which has received much attention in recent years on account of the valuable anæsthetic properties ascribed to cocaine, one of its alkaloids, while Coca wine and other preparations from its leaves are also largely in use. As far back as 1580 it was described by a Spanish botanist, whose work found its way into English under the title "Joyfull newes out of the newe founde worlde, wherein is declared the virtues of hearbes, trees, oyles, plantes, and stemes." The uses to which Coca is put by the South American Indians are referred to by the author. When travelling they chew a paste made of the leaves mixed with lime, or the leaves alone, and this, he says, removes both hunger and thirst, "and they say that they receive substance thereby, as though they did eate meate." It was supposed until quite recently that the leaves were merely a source of stimulant to the nervous system, employed by the inhabitants of Peru and Bolivia as betel and opium are used in the East. The fact appears to be established that its use by the inhabitants of the Andean region enabled them to accomplish severe labour such as no European could perform. Travellers and scientific observers agree in ascribing to it marvellous sustaining power; it assists respiration and enables one to ascend the highest mountains without fatigue, but used in excess it produces highly injurious effects. Its true home in South America has never been clearly defined, but at present it is largely cultivated in the Andes of the Argentine Republic, Bolivia, Peru, Ecuador, and New Granada. The largest plantations are at La Paz, in Bolivia; the total production is estimated at forty million pounds, valued at about £2,000,000. Almost the whole of the produce is consumed in South America. It succeeds best in the mild, but very moist, climate of the lower mountains, at an elevation between 2000 feet and 5000 feet above the level of the sea, and the care and cultivation necessary are those suitable for the growth of tea and coffee. It is a leaf crop, and in favourable localities two or three crops may be gathered in the year; but, differing from tea, the largest and most matured leaves are sought, as they contain most of the alkaloids which render them a marketable product. The leaves, when unbroken, are of a fine green colour, and possess a delicate, agreeable, and somewhat aromatic odour, which has been compared to the combined odour of hay and choco-

late. Since the discovery of its anæsthetic properties the demand for export in South America has increased; but it has been noticed that during transit to this country there is a distinct loss in the alkaloids generally, as well as in cocaine, and consequently it has become the practice to extract the alkaloids from the leaves in South America and export a crude preparation, which is largely taken up by manufacturers of cocaine. The production in South America is so enormous that, without further extension of the cultivation, one-eightieth part of it would be sufficient to swamp the cocaine markets of the world.

PROPAGATING.

TREE CARNATIONS.—The varieties included in this section are those which may be flowered at any season of the year. They are sometimes termed perpetual-flowering, but this is misleading, as the same plants will not keep up a succession of bloom for any considerable length of time. By growing, however, the plants on and stopping some at different times, a succession of bloom may be obtained. It is for winter flowering that they are most valuable, and for this purpose good plants may be grown in one season. The best time for propagating is from January to the end of March. The best cuttings, or pipings, as they are usually termed, are those obtained from short side shoots. Good material can generally be obtained at this season of the year, but in any case where the plants do not branch out freely, a few plants should be stopped back and placed in a little extra warmth. They will then soon produce good pipings. In taking the pipings off they should be pulled out, not cut, and with a little practice they may be taken out very clean. It is sometimes recommended that they should be taken off close to the old stem with a heel, but I prefer pulling them out at a joint or so from the stem. These do not take so long to root, besides which the old plants do not suffer so much. If the pipings are taken out clean at a joint they will not require any making, except to take off the tips of the leaves. I use $\frac{1}{2}$ -inch pots, good drainage, and fill them with loam, peat, and sand in equal parts, and put a little extra sand on the surface. The pipings should be put in only just deep enough to keep them firm. They may be watered as soon as they are put in, and should be kept fairly moist until rooted. The best position in which to root Carnations is a close case where there is a moderate bottom-heat, and the surface should be kept as cool as possible. The case should remain open rather longer than for most subjects that are propagated in a close case, but must be closed before the sun gets too powerful, and should be kept well shaded. In the case of damping making its appearance, the plants affected should be removed from the case and the pots thoroughly cleansed.

SOLANUM CAPSICASTRUM.—This very valuable plant, the bright red berries of which are so attractive during the winter months, may be propagated either from seed or cuttings. Many prefer the latter method, as these generally form more compact plants, and produce berries more abundantly than do seedlings. Cut-back plants placed in heat soon produce good cuttings. The latter may be taken off as soon as the young growths are a little over an inch long, and treated similar to those of *Bouvardias*. As soon as sufficiently rooted they should be potted off singly, and given every encouragement to make as much growth as possible early in the season, stopping them as they require it until they have formed good bushy plants. Plenty of heat and a moist atmosphere will suit them well during the early part of the season, but later on they may be more exposed.

CLIANTHUS DAMPIERI (the Australian Glory Pea) is one of the most beautiful of all the Pea tribe. It is easily obtained from seed, which may now be sown at once. It is sometimes recommended that the seed should be sown in the pots the year to remain in for the season, but I have

several times succeeded in establishing plants, and have treated them somewhat as follows: Sow the seed thinly in pots filled with light peaty soil, giving the seeds a fair covering. They generally germinate freely, but it is afterwards that they are a little difficult to manage. The roots are exceedingly brittle; consequently, they require the greatest care when pricking them off or repotting them. As soon as large enough, prick them off singly into small pots, taking care not to bury the stem too deep. They should be grown on in a cool position, but not in a dry, draughty place. A cool, moist bottom suits them best. As soon as they are well rooted they may be potted into $\frac{1}{2}$ -inch or 6-inch pots, using coarse fibrous loam, leaf-mould, a little rough peat, and plenty of sand. In potting the plants, the balls should not be broken, and may be kept up nearly level with the rims of the pots; if kept well up in the centre of the pots it will prevent the water settling round the stems. They require great care in watering, over-watering being sure to prove fatal, but the other extreme must also be avoided. If the seed is sown early the plants will generally flower the same season, and the curious parrot-like blooms, which are of a brilliant crimson colour, are very attractive. A.

TREES AND SHRUBS.

THE SCARLET-FRUITED THORN.

(*CRATÆGUS COCCINEA*.)

WHERE the ornamental qualities of the specimen are the planter's principal consideration, this North American Thorn certainly deserves more than a passing notice, for both flower, fruit, and decaying leaves form a prominent feature of the tree at their respective seasons. The Scarlet-fruited Thorn is a native of a considerable tract of country in North America, and though known here for the last two centuries, its merits are not sufficiently recognised. It is a free, vigorous growing tree, reaching a height of 20 feet or thereabouts, and is amply furnished with large, bright green, shining foliage. About the end of May the clusters of large white blossoms are borne in great profusion, while the berries which succeed them are, when ripe, of a bright coral-red colour, and in this state are remarkably conspicuous. In autumn before the leaves drop they become richly suffused with yellow, and here and there occasionally a flush of scarlet. The spines of this Thorn are long and formidable, but in most cases are but sparingly produced. As a medium growing tree for an isolated position on the lawn, the Scarlet-fruited Thorn is well suited; its ornamental qualities are then brought prominently forward. From the frequency with which it occurs in its native country, and the readiness with which it can be raised from seed, it is obvious there must be some well-marked varieties; still none of them are superior to the ordinary form, and some not equal to it.

Besides this, several other North American Thorns are very ornamental, prominent amongst them being the Washington Thorn (*Cratægus cordata*), especially noticeable on account of its late-flowering habit, in which respect it is even more tardy than the European *Cratægus tanacetifolia*, which is usually regarded as one of the very last, but I have seen the American species in full bloom when the European one was over. *C. cordata* forms a small tree, rather compact and regular in outline, with dark green shining leaves and large clusters of white blossoms. The berries are deep red, but no larger than those of the common Hawthorn, and are seldom borne in any great profusion. Thorns of the Cockspur class, represented by

the typical species (*C. Crus-galli*) and several varieties, are all handsome, while among them are to be found some well-marked forms. In the typical Cockspur Thorn the leaves are bluntly ovate, of a bright shining green, and the whole aspect of the tree low and spreading. A fine bold variety is *arbutifolia*, in which the leaves are larger and the whole plant more vigorous than the type; while quite a curiosity is furnished by *linearifolia*, or *salicifolia*, as it is sometimes called, the leaves of which are narrow, while the branches extend in a horizontal manner, so that if grafted at a height of 4 feet or 5 feet from the ground the plant forms a flattish head, which renders it very distinct. A near ally of the Cockspurs is *C. macrantha*, whose most prominent feature is the large curved spines, which in size surpass those of all the others and present a most formidable appearance. The greenish yellow fruits of *C. flava* stamp it as a distinct North American Thorn, but it is certainly less ornamental than any that precede it, while the same remarks apply to *C. spatulata*, a low, but neat-growing kind with peculiarly shaped leaves, which are retained till late in the season, so that it is often quite sub-evergreen in character. The flowers are not particularly conspicuous, while the sealing-wax-like berries, though bright, are too small to be very showy. From a fruiting point of view, one of the most distinct of North American Thorns is *Cratægus Douglasi*, which attains the dimensions of a small tree. It belongs to the early flowering section, and though pretty when in bloom, its most interesting stage is when laden with haws, which are freely produced. The berries are of a deep, almost blackish purple, and larger than those of the European *C. nigra*, the berries of which more nearly approach a black hue than do those of the American species. All the Thorns herein mentioned are perfectly hardy, and in no way particular as to soil or situation. T.

The autumn-flowered Mezereon.—This *Daphne* is a very beautiful shrub, as, indeed, are all the other varieties, among which may be mentioned that usually met with in nurseries under the names of *rubra*, *atro-rubra*, or *purpurea*, the flowers of which are darker than those of the ordinary form; *alba*, in which the blossoms are pure white; and *flore-pleno*, a double-flowered form of the last. The berries, which are borne in considerable numbers, are as showy as the blossoms, and remain on for a considerable period. In the white-flowered variety the fruits are yellow, and thus afford a pleasing change from those of the ordinary kind. *Daphne Mezereum* and all its varieties will not thrive in hot, sandy soils; indeed, so situated they will scarcely exist, but they all delight in a cool, moist, but well-drained spot. A good, open, loamy soil suits them perfectly, and when once established they are very impatient of being disturbed. Should it be intended, however, to transplant any of the *Daphnes*, the autumn is the best time for the work, as the new leaves on the points of the shoots are often pushed out soon after Christmas.—T.

Dwarf Japan Holly (*Ilex crenata*).—This is different in general appearance from the other members of the genus, as its usual character is that of a dwarf, very dense, twiggy evergreen bush, with deep green leaves about an inch long. Its branches grow in rather a horizontal manner, so that the upper part of the plant is usually somewhat flattened. It is naturally of slow growth, and is very seldom met with a yard high, the limit generally being from 1 foot to 2 feet. It is one of the most beautiful evergreen shrubs that we possess, for it is bright and cheerful at all seasons, and is never injured by severe frosts. The slow rate of growth, no doubt, prevents it being cultivated to the extent that its merits as a perfectly hardy little Evergreen deserve; still it is one that nurserymen

who make a speciality of such subjects would do well to devote a little attention to. There is an extremely pretty variegated variety, in which the small deep green leaves are variously mottled with a rich golden colour, some being nearly all yellow, others almost green. There is yet a third form known as *Fortunei* or major, which is rather more vigorous in growth than the others, the leaves also being larger and rounder, while the habit of the plant is less spreading. The propagation of these Hollies is best effected by means of cuttings, which strike readily enough if kept close in a frame till rooted. The cuttings may be put in at almost any season, but the best time is early in the year before the young growth commences, or about August, that is when the current season's shoots have lost their succulent character and become woody. In the case of cuttings put in now, they will root during the coming summer, while those inserted in August will strike by the following spring.—T.

EVERGREEN OAKS.

THE common Evergreen Oak (*Quercus Ilex*) is the largest evergreen tree exclusive of *Coniferae* that is hardy in this country. For planting as a lawn tree the Evergreen Oak is well adapted, and when standing out thus singly in a good loamy, well-drained soil, an unusually severe winter makes far less impression upon it than when the specimen is in a sheltered position. This may be often noticed in the case of many other subjects, which in rather a low-lying position and sheltered by neighbouring trees fall a prey to frosts, which leave unscathed the same species or varieties growing in an elevated spot. Such a result is, of course, owing to the fact that in the case of the sheltered plants the season's growth does not get thoroughly ripened, while the more elevated specimen, though it may not make quite such rapid progress as the other, is altogether more sturdy, and better able to withstand any unusual strain put upon it. The fact that condition and situation have a great deal to do with the hardness or otherwise of a specimen deserve more attention than is usually bestowed upon them, for many a plant of doubtful hardness is killed in a snug spot through the season's growth commencing before the spring frosts are past. I especially noticed this in the case of the Evergreen Oaks during the unusually severe winter of 1859-60, and again in 1866-67, while the same thing was observed in the intense frost of 1837. A peculiar feature about the Evergreen Oak is that occasionally after very hard frosts it will lose a great many of its leaves, while those that remain appear to be dead. When in this state it is often looked upon as past recovery. I once saw a fine specimen sacrificed owing to an idea that it was irreparably injured, while some close by that were not interfered with, in the course of the summer pushed out young shoots from all parts, even from the large branches, and the succeeding winter being mild they continued to grow away rapidly, so that no trace of damage could be seen. The only noticeable feature was the increased density of the specimens, owing to the additional number of young shoots. Evergreen Oaks are especially liable to be broken during heavy falls of snow, and even when young they are often injured in this way. Probably owing to the fact that they grow but slowly, especially during their earlier stages, the Evergreen Oaks are rarely met with to any great extent in nurseries, but as there has been much attention directed towards them within the last year or two, it is probable that ere long it will be more easy to obtain good plants from nurseries than it is at present. Their transplanting requires a considerable amount of care, and

this, no doubt, prevents many from growing them. Besides the typical form, there are some well-marked varieties, but the common kind is, from an ornamental point of view, quite equal to any of them. The best variety is *Fordi*, the leaves of which are narrower than in the type, and of a deep glossy green above and whitish underneath. It forms a much more compact specimen than the common Evergreen Oak, growing naturally into a pyramidal-shaped plant. Besides this, the other most distinct varieties are *latifolia*, with very broad leaves, thick in texture, and almost entire; *crispa*, leaves curiously twisted; and *integrifolia*, serratifolia, and *laurifolia*, whose distinctive characters are indicated by their respective names. Besides these, there is a group of Japanese Oaks of an evergreen character, with several of which Messrs. Veitch have made us familiar, and which are somewhat largely grown at their Coombe Wood Nursery. Among these Japanese Oaks may be especially mentioned *Quercus Buergeri* or *acuta*; *Q. cuspidata*, of which there are two or three forms, notably one with variegated leaves; *Q. glabra*, and *Q. salicina* or *bambusæfolia*. The North American Live Oak (*Q. virens*), though it does not appear likely to attain the dimensions reached in its native country, forms a very distinct specimen; while the little South European Kermes Oak (*Q. coccifera*) is a remarkably interesting little bush. It forms a dense much-branched shrub, thickly clothed with small, somewhat crisped leaves, very hard in texture, and more or less furnished with spines. It is, indeed, a formidable shrub, and almost as prickly as the Holly. A very distinct Oak of an almost evergreen character is *Q. glandulifera*, known also as *Q. austriaca sempervirens*. This is naturally of a much branching habit, forming as it does a close roundish-headed specimen. It is very bright and pleasing at all seasons, except for a little time in early spring, when the old foliage is often a little rusty. The Lucombe and Fulham Oaks also turn rusty during the spring, and the same thing usually happens to the South European Cork Oak (*Q. Suber*). Turner's Oak (*Q. Turneri*) is very bright and cheerful, the foliage being of a much lighter hue than that of the common Evergreen Oak, which last, however, I think, is fully entitled to be considered the best of them all. T.

Two good Ivies.—I lately saw *Hedera Ragnæriana* and *palmata* growing together on the north side of a church tower, and the effect was very fine, the two sorts being evenly mixed. The leaves of *Ragnæriana*, owing to the poor soil in which the plant was growing, being small, contrasted better with those of *palmata* than if they had been of the usual size, and being of a fine bronzy hue were rendered all the more handsome when mixed with the lightly striped leaves of *palmata*.—M.

Sweet Brier hedges.—The common Sweet Brier is so valued for its fragrance and is so well suited for forming those screens or hedges that often serve to divide one portion of the garden from another, that the wonder is that it should not be more frequently employed for such a purpose. I know a garden where it is much used in this way, and very pretty the neat little hedges look when covered with flowers and also in autumn when in fruit. In summer after a shower the fragrance they give off is most refreshing. J. C. B.

The Swiss Stone Pine (*Pinus Cembra*).—The fine-leaved section to which this belongs is represented by such dissimilar forms as *Pinus excelsa* and the subject of this note, *Pinus Cembra*, which during its earlier stages, say from 6 feet to 20 feet in height, forms a remarkably handsome specimen. This Fir when young assumes the shape of an elongated pyramid, while from the number of its branches and the persistent character of the

foliage, it is very dense and somewhat formal in habit. The foliage is of a light glaucous green, and valuable as a contrast to that of the deeper-hued *Coniferae*. The limited spread of the branches fits it for planting where a subject that will not soon outgrow its bounds is desired. It is thoroughly hardy, and does well in elevated and exposed positions where but few other species of Pine will thrive. To the same class as this, that is, with five leaves in a sheath, belong such widely dissimilar species as the two above named, and also the Sugar Pine (*P. Lambertiana*), an enormous North American tree; *P. Ayacahuite*, whose huge cones are a well-marked feature, but it is too tender for general planting; *P. monticola*, *flexilis*, and *koraensis*, as well as the *Weymouth* or *White Pine* of the United States (*P. Strobus*), which is valuable both for its timber and its ornamental qualities. There is a variety of this (*umbraculifera*) which will commend itself to the lovers of miniature *Coniferae*, for it assumes the shape of a close, compact little bush, seldom more than a yard high, and I have seen it bearing freely when less in stature. The cones were in shape just like those of the species, but in size they corresponded with the plant on which they were borne.—H. P.

GARDEN FLORA.

PLATE 688.

ROSE MARQUISE DE VIVENS.*

SOME years ago it would seem to have been generally held that a Rose must either be very large and full, or else not be worth growing at all. More recently, however, other merits than mere size and doubleness have come to be recognised in Roses; especially amongst the Tea-scented varieties, and now-a-days not a few Roses whose expanded flowers are hardly more than semi double have attained a wide popularity on account of their unique and beautiful colouring, or for the grace of form of their buds and partly opened blossoms.

Such a Rose is *Marquise de Vivens* (Dubreuil, 1885), charming and most distinct in colour and exceptionally attractive in the half-open state. The three blooms here portrayed give an excellent idea of the varying shades that distinguish the variety, although perhaps it is rather the exception, until late in the season, to find a flower so far expanded, and at the same time so pale in colour as the exquisite "back view" at the top of the plate. Externally the petals are almost white, with a yellow shade at the base, but on the inside they are margined with rose, deepening at times almost to lake which gradually spreads through the flower, until eventually the petals are entirely suffused with rosy carmine.

In all probability, even six or eight years ago this pretty Tea would have been promptly discarded as worthless, in spite of the novel and telling shades of its long buds and handsome petals; but now that the value of the bud Roses is better estimated, *Marquise de Vivens* is not likely soon to be lost sight of.

Rose buds have always been amongst the most popular of all flowers for bouquets, especially for bouquets to wear in button-holes and upon dresses, and the conviction has at last come home to most people that the bud of a fully double Rose of the conventional type is too round, too heavy—in a word, too "lumpy" for the purpose. For their successful employment in bouquets intended to be worn, Rose buds must be long and tapering in form, and must also at an early stage display their charm of colour, for many beautiful Roses whose buds even have a most graceful outline are otherwise singularly un-

Drawn for THE GARDEN at Gravetye Manor, Sussex, by H. G. Moon, August 20, 1888. Lithographed and printed by Guillaume S. Veysen.



attractive until too far developed for employment in small bouquets, generally because their characteristic colour exists only on the inside of the petals, and is therefore no addition to the beauty of the bud. The most conspicuous instance of this in the Rose garden is the copper Austrian Brier, the back of whose petals, and consequently whose bud, is of a pale buff tint, the characteristic brilliant scarlet colour existing only on the inner surface of its petals. In the case of *Marquise de Vivens*, however, a charge of unattractiveness on account of the pale exterior of its buds cannot be maintained, for though it is true that the back of the petals is nearly white, yet their margins recurve just as the bud opens, as is well indicated in Mr. Moon's central flower, and the effect then of the carmine bordering to the pale petals is very striking. In order that Rose buds may be of graceful form, they must not contain too many petals, but at the same time, to gain length of bud, these petals must naturally be large and deep; and, consequently, in the selection of bud Roses it will be necessary to look for flowers not of too great fulness, but of great delicacy and distinctness of colour. In addition to *Marquise de Vivens*, other beautiful bud Teas, which, like the subject of the accompanying plate, are also equally charming in the cut state and in the garden, where they make most attractive groups on account of their free-flowering qualities and telling shades, are—

MA CAPUCINE (Levet, 1871).—One of the most beautiful colours amongst all the Teas; flowers not large, but of a rich orange-yellow, pervaded by warm rosy shades.

MME. CHEDANE GUINOISSEAU (Guinoisseau, sent out by Lévêque, 1880).—A lovely clear yellow flower, almost an ideal bud, the colour being as bright on the outside of the petals as on the inside.

LUCIOLE (Guillot, 1886).—A bud of great length and of shades of rose and yellow, so mingled as to be difficult to describe.

CAMOENS (Schwartz, 1881).—Generally classed as a Hybrid Tea, but really almost entitled to rank as a China; flowers of the brightest pure rose colour with yellow base.

MME. PERNY (Nabonnand, 1879).—Buds of a rich tawny yellow, becoming paler as they expand.

NARCISSE (Crozy, 1859).—Rather over-full, but so free and so delicate in its pale lemon tint, as to be valuable.

WILLIAM ALLEN RICHARDSON (Veuve Ducher, 1878) is generally recommended, though the buds are rather too thick and short; but it has the recommendation of retaining its striking colour when forced under glass.

L'IDÉAL (Nabonnand, 1887), however, is a climbing variety, whose wonderfully coloured buds, more of the shades of Fortune's Yellow than any other Rose, seem likely, in addition to being produced in the utmost profusion early and late, to prove what its name implies, as a bud Rose of the greatest charm.

Anybody growing good plants of the above-named Roses would never lack a supply of the most exquisite buds throughout the season, and even if the flowers were not required in the cut state, all are most beautiful as they grow in the garden—none more so than *Marquise de Vivens*.

T. W. GIRDLESTONE.

* * The legend of the coloured plate reads "*Marquis de Vivens*," but this is incorrect, as it should be "*Marquise de Vivens*."—ED.

The Snowdrops are very charming just now in the wild garden with here and there a winter Aconite peeping up to give variety. The common *nivalis* is doubtless the best for planting in grassy places. It increases, and in time makes nice little tufts; whereas kinds like *Elwesi* and its

forms come up strong for a year or two, and then dwindle away almost completely. Both the single and double forms of *nivalis* are most useful, and give no trouble.

FERNS.

W. H. GOWER.

CASSEBEERA.

THIS genus includes two or three species of pretty Ferns, which in their technical characters have little to distinguish them from *Pellaea*, from which it will be understood that it belongs to the *Cheilanthes* group, and is closely allied to *Adiantum*. The genus, although familiar to some Fern growers as the *Cheilanthes farinosa*, is frequently to be found in gardens under the name of *Cassebeera farinosa*, but the true representatives of the genus I have never seen growing until a short time ago, when I observed a charming little specimen of *C. triphylla* growing in the collection at Kew. Only three plants are included in this family; they are all natives of various parts of Brazil, and they vary considerably in habit, and when cultivated they may exhibit characters which will lead to their separation. Plant collectors should have introduced them in a living state before now, more especially as Brazil is a country which has been so frequently visited. I believe these plants should be potted in a rough stony soil, and the drainage must be good. They do not appear to care for much soil about their roots.

C. TRIPHYLLA, the plant previously named, as its name implies, has its fronds divided in a digitate manner into three pinnae, although it is said in some instances to develop five. The stem is slender, jet black, and some 3 inches high, upon the top of which is borne its trifid frond, the segments being narrow and oblong; the texture is coriaceous, upper surface deep green, beneath paler. It is a charming plant, suitable for the summit of a jutting boulder in the naturally arranged fernery. At present I cannot determine if it thrives best in the cool or warm fernery, but as the plant is a native of Southern Brazil, I should think the latter would suit it best. At Kew it is growing in the temperate house.

C. PINNATA is a stronger growing plant from the same country, and, I believe, has not yet been seen in our gardens, but the increasing love for Ferns should induce someone to introduce it; the fronds attain to the height of a foot, the segments being about 3 inches in length, the edges incurved, and the texture stout and leathery.

C. GLEICHENIOIDES.—This is a remarkable plant, found by the collector Gardner nearly fifty years ago near Ciudad Diamantina, in the diamond district of Brazil, where it grows in stony, rocky places, which should be an indication for its treatment under cultivation. It is a distinct and pretty Fern, with something the aspect of an Australian *Gleichenia*, and entirely different to any other Fern hitherto cultivated. Its rhizome is creeping and furnished with blackish hairs. The fronds, which attain the height of a foot or 18 inches, are pinnate on the upper part, but the lower pinnae become again divided.

The above plants constitute the genus *Cassebeera*, the last two still being desiderata in our gardens, and I hope some readers of THE GARDEN may have both the will and the opportunity to introduce them in a living state.

SHORT NOTES.—FERNS.

Davallia Griffithiana.—This is a pretty member of the Hare's-foot Ferns, which we recently noted at Kew. It has somewhat stout rhizomes, clothed with white chaffy scales, and in this respect reminds one rather of *D. Tyermani*; the fronds, however, are neither so stiff nor so deep in colour, and grow from a

foot to 18 inches high. It is a native of Northern India, and is a most desirable plant in a collection of choice Ferns.

Lindsea guianensis.—It is quite refreshing to find members of this family in cultivation, and they well deserve record when found. The above-named species is now in fine condition in the Kew collection, growing in a large Wardian case. It is a native of Guiana, Jamaica, and is widely spread in Tropical America. The plant in question appears to represent the normal condition of the species.

New Zealand Fern (*W. Johnson*).—The specimen sent is that of *Gleichenia Cunninghamii*. It is one of the most difficult plants to establish that I have ever had to deal with. I have just received a most kind and interesting letter from a Mr. Matthews, of Dunedin, who says it grows plentifully in a spot about a day's journey from that town. He calls it the Umbrella Fern, and says that he has succeeded in establishing a good quantity of it, and he also says that my description of it does not accord with the plant as found by him, inasmuch as I described it in THE GARDEN, June 25, 1887 (p. 586), as having two whorls of fronds, whilst the plants he has have only one whorl. I have now a similar form to that of Mr. Matthews gathered at Waikoko—if I read the name aright. Other specimens gathered years ago by Mr. Watson, of St. Albans, at a locality which he gives as the Pucriti Hills, have two well-developed whorls of fronds, and they agree in other respects with *G. Cunninghamii*. It certainly is not *G. flabellata*. Perhaps Mr. Matthews or your friend who sends you the specimen will give us some information respecting this beautiful Fern, which unhappily is an extremely rare plant here, if indeed it is now to be found in English gardens.—W. H. G.

CHRYSANTHEMUMS.

E. MOLYNEUX.

INCURVED CHRYSANTHEMUMS.

LADY SLADE FAMILY.—Two varieties only constitute this family, the only quality they possess being their extreme neatness in their natural growth. The blooms of these varieties are remarkable for the manner in which they incurve without any assistance from the dresser. A few years since they were both in much request for front rows of stands, but now they are seldom seen, being much too small both in diameter and depth of bloom. Both varieties must be classed as of dwarf habit, growing as they do about 4 feet high. The two kinds composing this family are not of much value as decorative varieties, their stiff habit of growth and shyness to bloom debarring them from taking a high rank in the decorative class. The type, introduced during the year 1864, is lilac-pink in colour, the blooms being very thin. *Angelina* was brought out during the year 1881 as a sport from *Lady Slade*, and preserves the character of its parent in the form of the blooms as well as the growth of the plants. The colour is amber, shaded orange. Another variety, *President Sanderson*, was thought to be distinct from this, but was found to be the same.

VENUS FAMILY.—This family, which consists of only two varieties, was held in high esteem a few years since, especially in the north of England. Nowhere have I seen blooms of this family so good in quality as those Mr. Tunnington used to grow in the neighbourhood of Liverpool. At that time the two varieties were looked upon as indispensable to a collection, but now, owing either to the inability of growers to produce them in proper condition or because the public are more used to fuller and more compact blooms of other varieties, these sorts are little cultivated, as compared to what they were a short time since. The difficulty with plants of the *Venus* family is to get them

to swell their buds freely so that the proper development of the petals follows. This is found to be so much a defect that the majority of the blooms usually seen are very thin and only fit to be included in a good collection when many other varieties fail. Both sorts are free growers and easily distinguished from other incurved varieties by the close manner in which the leaves turn back to the main stem at their points, while the leaves also have remarkably short leaf-stalks. In the north of England crown buds of these varieties should be depended upon to produce the best blooms, while in the extreme southern counties terminals are the best. From 5 feet to 6 feet high is an average height for their growth when cultivated to produce large blooms without topping the plants in their early stages of growth. The white form of Venus does well when grown as a standard, the habit of growth being especially suitable for this method of training. As long ago as 1863 this variety was brought to light, being introduced by Mr. J. Salter; the colour is lilac suffused with pink. Nine years after this date White Venus came before the public, and in my opinion it is far the best of the two varieties. Neither of the two forms is well adapted for bush form of growth, as an objectionable eye is generally noticed in blooms which are grown from side shoots or from branches which have been several times stopped.

JARDIN DES PLANTES FAMILY.—This family, like the two preceding ones, is composed of two sorts only, but it contains one especially important variety. In no other variety in the incurved section do we get the same tone of colour as is produced in Jardin des Plantes. It is at once conspicuous amongst all others, its rich orange shade of yellow being very telling. The form of the blooms is most perfect when they can be had in the finest condition, which is unfortunately seldom. When the blooms are expanding the lower florets are apt to decay before the centre is fully developed. When this occurs the blooms are sure to be "thin," which, of course, depreciates from their value. Crown buds are the best to select for good blooms; early propagation is advisable also. For growing in bush form to produce late blooms the yellow form is very useful, as the dense green foliage is especially suited to this form of culture. The bronze form does well when trained as a standard. One of the best plants I have seen during the last season was this kind shown at Bristol, and carrying about a score of really good blooms, each one fit to cut for exhibition. Jardin des Plantes must be classed as an old variety, as it has been known close upon thirty years. Indeed, there are not more than five of the leading varieties that can boast of a longer existence than can Jardin des Plantes. The colour is a rich orange-yellow, the petals inclined to be narrow, incurving regularly towards the centre under good cultivation. In some instances, owing to a check in the growth, the blooms develop irregularities which are known as "ribs;" these are exceedingly difficult to remove. Bronze Jardin des Plantes came out in 1868 as a sport from the above. It is the exact counterpart of its parent in all respects except in colour, which is chestnut-brown, one of the least desirable colours we have. The blooms of this variety sometimes come larger than those of its parent.

EVE FAMILY.—Ten years since many Chrysanthemum growers pinned their faith on this variety for producing perfectly formed blooms, but now that the rage is for larger flowers with broad petals, Eve has declined in popularity considerably, owing as much to the difficulty experienced

in obtaining perfect blooms as to anything else. True it is that the petals of Eve are very narrow and much pointed, rendering it less attractive and showy than many of the broader-petalled kinds. Still when it can be presented in the best condition it tells with good judges, who know the difficulty experienced in obtaining such. One fault it has which is a drawback. When the blooms are developing, as many as four ribs will show, dividing the bloom, as it were, into quarters. No doubt this deformity is caused through a check to growth or mismanagement at some time, and seldom do such blooms develop into perfectly incurved specimens. Plants of both varieties of this family are easily discerned from any other of the incurved section, as the bark of the wood in the young state shows a bright green tint and is almost free from veins or other discolorations. When the growth is matured a smooth pale brown colour is the result. The leaves are set upon short footstalks and are blunt in shape, of a dense green, and only slightly cut at the edges. An upright stiff growth prevents this variety from being used for any kind of training. So few in point of numbers and of so poor quality are the blooms when the plants are grown as bushes, that the varieties of this family are not worth the trouble and space required to cultivate them for that purpose. When the specimens are allowed to grow until they make their natural breaks this family will run up to a height of from 6 feet to 7 feet. Even then the best blooms are not produced always. The best way to ensure good flowers of this family is to grow the plants with one stem till the middle of May, then top them. Select three of the best shoots resulting from these three branches, rub off all side shoots as fast as they appear, and take the first buds produced, which are early crowns. Plants grown by this method range about 4 feet in height and carry splendid foliage. Eve, which has been in existence twenty-three years, is creamy white in colour, the flowers being of medium size. Mabel Ward is a buff-yellow sport from Eve having exactly the same character in both flower and growth and should be treated in the same manner as its parent to obtain the best results. At one time it was thought by some that another variety, Bendigo by name, was in existence as a sport from Mabel Ward, but after repeated trials it was found that they were identical, the only difference ever existing being a greater breadth of petal, which was no doubt the result of cultivation.

CHRYSANTHEMUM SHOWS.

It seems odd that Brighton, with its southern position and climatic advantages, should not be in the production of Chrysanthemum blooms at least a few days earlier than the locality of the metropolis; yet, at a meeting of the members of the National Chrysanthemum Society, the representative of the Brighton Society urged that a conference of secretaries of societies should be held annually for the purpose of arranging shows in such a way that they should not clash, because this year the Brighton show, as well as the important ones of the National and Kingston, all fall on the same day. Southampton, which lies in about the same position, relative to climate, as Brighton, almost always holds its show during the week preceding that favoured in the metropolis. It might therefore have been expected that Brighton and even Portsmouth would do the same. So far from that being the case, the latter town is sometimes ten days later with its show than is Southampton; hence it would seem that the length of time over which Chrysanthemum blooms may be found at their best in one locality is greater than is usually admitted to be the case. But in spite of the reasonableness of the proposal of the Brighton representative, backed as it was by

the representative of another provincial society, the proposal fell upon deaf ears. No favourable response was given by anyone, and provincial societies are left to suffer from what it seems obvious is a perverse and arbitrary arrangement. We see how badly the present system works close at home, from the fact that shows of such an important kind as Kingston and the National are this year to be held on the same day.

That there will be plenty of exhibitors and blooms at both shows there can be no doubt, but there can be no concentration of quality, and the hope of finding some one or another formidable competitor absent from some of these exhibitions may lead to the sending of flowers of inferior quality which otherwise would be left at home. Judges cannot, of course, be at two shows on the same day, but there are plenty of men who can serve in these positions. Perhaps there has been of late rather too much avariciousness shown in some directions to pick up all the judges' crumbs possible, and the clashing of shows does very largely check plurality, in fees at least. The press, always sufficiently engaged during the Chrysanthemum show season, will find it more difficult than ever to discharge the onerous duties which are looked for in some quarters respecting shows. Everybody seems to want the best days of the week, to the exclusion of Saturday and Monday. A. D.

Chrysanthemum, Japanese early-flowering.—One of the best early-flowering Chrysanthemums I have grown is the variety La Reine. It was sent over from the Continent, amongst other varieties, about three years ago. In colour it is a bright orange-buff, and the shape of the flowers is much in the way of that of Belle Paule, although, of course, the individual blooms are not nearly so large as those of that variety. It is a plant of dwarf and sturdy growth, requiring no sticks, with foliage like that of Edouard Audiguier, and if grown on the decorative principle, the flowers are so numerous as to cover the plant. It is, however, quite worth being disbudded. I can only find it in one nurseryman's catalogue, although I do not think it synonymous with any other variety. If any of your readers have tried La Reine as a September flowering plant I shall be glad to hear as to its behaviour.—GEORGE WALL DUEK, *Chard, Somerset.*

FRUIT GARDEN.

MANURES FOR FRUIT TREES.

THE time and means of applying stimulants to fruit trees are subjects deserving of more careful consideration than is often bestowed upon them, as without artificial aid of this nature good and continuous crops of fruit cannot be secured; whereas, if, on the other hand, they are wrongly applied, injury will follow.

There are hungry soils and rich soils; some that are called warm, others cold, and others with various characteristics, all requiring different treatment in the application of stimulants. Some soils seem capable of swallowing up any quantity of food at whatever season it is applied, when others would be soured and poisoned if treated in a like manner. The nature of the soil should not, however, alone rule the supply of stimulants, as the condition of the roots is as much, if not more to be considered. The mere application of a certain kind of manure, although its beneficial effect will soon be manifest if the roots are all right, is not sufficient of itself to produce crops of fruit if these members are disorganised and diseased. Therefore, stimulants should not be regarded, as they sometimes are, as a panacea for all evils. Considering, then, that manure in some form or other is desirable to the production of satisfactory crops, when ought they to be used to obtain the best results? Trees

that are inclined to produce fruit instead of growth depend in a great measure for their continuance in this state upon artificial aid and its mode of application, because if erratically and injudiciously applied, the even balance between fruiting and growing may be again disturbed; whereas, neglect of feeding will result in scabby and worthless fruit. Such trees when growing in a naturally light and poor soil may receive liberal supplies of both solid and liquid manure at all seasons of the year, whilst if growing upon a heavy soil the supply should be limited to their period of growth. In the former case, what I should consider a good course of treatment in this particular for the year would be—commencing when the fruit has all been gathered—is if the soil is then dry, to give it a good soaking with clear water, to be followed in a few days with one of liquid manure, which may be again repeated in the course of a fortnight.

When the trees are dormant a good dressing of manure from the farmyard should be given immediately over the roots after these have been bared, returning the soil again upon the manure. If a stronger fertiliser, such as fowl's manure, is used, it is safer to mix it with the soil before applying it. This should suffice until the fruits commence swelling, when further assistance is needed. The grower is often puzzled to know which to select of the many stimulants that are now recommended, from the simple drainings of the manure heap to highly concentrated sulphate of ammonia. As a rule, however, it is well to avoid highly concentrated and quick acting manures; they are safe only in the hands of the most experienced. I would also advise a cautious use of all artificial fertilisers until their strength and nature have been proved upon a small scale. Soot, though less expensive, is, nevertheless, a very valuable manure. A mulching of rich farmyard manure is an excellent stimulant during the growing season, and liquid manure made from the same material is one of the most generally used. Two points should, however, be always observed when applying the latter, namely, to use it in a clear state and well diluted. If at all thick it clogs the border, and when too strong the roots are liable to injury. Over-feeding is an evil at all times to be carefully avoided, notwithstanding it is an error many fall into in their anxiety to obtain size. Not only does it impair the flavour of the fruit, but produces grossness, engendering disease and decay. Liquid manure should not be applied when the soil is dry, as the roots then absorb too much; it should follow, in a day or two, an application of clear water.

Where the soil is of a retentive nature, I prefer dispensing with mulchings to a great extent, and depending more upon liquid manure and stimulants which can be sprinkled upon the surface and washed in, because in treating heavy soils it is well to avoid the use of any material tending to clog the surface. Therefore winter dressings of manure are replaced by root-producing materials, such as charred refuse, crushed bones, &c.; neither would I mulch heavily in summer on such soils, unless for the purpose of checking evaporation during a time of drought.

Where trees, however, show signs of weakness and disease a cautious use of stimulants is to be preferred; in fact, in some soils their use only aggravates the evil they are intended to disperse, and they are better dispensed with altogether, with the exception of those of slow action, until health has been restored by means of a renewal of the soil, draining, &c., as may

be required. When weakness is the result of exhaustion and the trees in other respects present a healthy appearance, mild stimulating manures will, of course, prove very beneficial; but they should be applied with moderation at first, afterwards increasing their strength and bulk as the trees exhibit signs of improvement. In the case of trees of vigorous habit, greater care is perhaps requisite in applying stimulants. I fear nurserymen cannot always be absolved from blame in the matter of exciting at too rapid a rate the growth of their young fruit trees. Young trees furnished with stout shining shoots do not often make the best progress after being transplanted, because their vessels having been overcharged in their production, they are not so well prepared as those of a more solid, though less vigorous growth to withstand the shock of transplanting. The trees may appear to greater advantage in the nursery quarter, but, judged by the start they will make after removal, those of more moderate and natural growth are the best.

It must not be inferred that I prefer a stunted plant, which I look upon with equal disfavour, the one being as obstinate to start into healthy growth as the other. Trees of vigorous constitution must be allowed to reach a fruitful state unaided by manure of any kind, and this they will in time do if not restricted too severely.

A. BARKER.

VINE BORDERS.

In reply to Mr. Barker I may state that I had no desire to deny the necessity for the careful construction of Vine borders in gardens generally. I simply mentioned the fact that market growers avoid the expense of having to do such work by selecting a suitable soil and situation. Mr. Barker knows better than I can tell him that it is easier to grow good Grapes in some places without having to take any great pains in making the borders than it is in others with the expenditure of much labour. The great difference between Grape growing in private and in market gardens is, that in private gardens the soil and situation vary to such an extent, that in some places only by means of considerable expense can good Grapes be obtained, whereas the market grower takes care only to select a spot where the soil is suitable. Grape-growing for market is not so profitable as to warrant the formation of borders in the elaborate manner that is often practised in gentlemen's gardens. It is only by a more simple method that profitable results are obtained.

The principal thing that the market grower has to guard against is a close, heavy soil, in which the water is apt to lie during the winter. It is such soil that gives the greatest trouble to the Grape grower. It occurs frequently in private gardens, and it is in such cases that the resources of the Grape grower's art are called into play. In the case of light, well-drained, and poor soils the only thing to do is to well enrich them, and take care that in after years nourishment does not fail. In such soils an abundance of roots is made, and the nature of the soil allows of flooding them with water.

Mr. Barker must also remember that the root-run for Vines in market gardens is now-a-days almost always under cover, thus preserving the roots in a great measure from the effects of cold drenching rains. This, in conjunction with the regular waterings, keeps the roots, by bringing them nearer the surface, from striking into a cold subsoil, which the concreting, draining, and aëration, so much discussed a few years ago, were intended to prevent. If we do not grow Grapes better than our forefathers, we certainly grow them more simply.

As before mentioned, the ability to cultivate the Vine with good results in this manner depends entirely upon having an unlimited control of water. Once the roots are driven down by a dry season or

two, neither feeding nor mulching will bring them up again in quantity. I have just taken up some Vines that were planted about twenty years ago, and the condition of their roots forcibly illustrates the necessity for not allowing the upper portion of the border to become dry. The Vines were planted on a back wall, and during the first few years were not regularly attended to with watering. I tried later on to remedy this by well feeding from the top and well soaking the border when needful, but it was surprising to see how few roots were in the top 2 feet of soil. The roots had all gone down in search of moisture, and in many instances had gone quite out of the border. In the majority of gardens where the borders are outside, the grower trusts entirely to rainfall to supply the requisite amount of moisture, and as we from time to time get very dry summers, the roots go out of the border.

J. C. B.

THE MADRESFIELD APPLES.

HAVING frequently seen the fine trees raised by Mr. Crump, I quite agree with all that my friend Wildsmith has written respecting their superior quality. Mr. Crump's method of preserving the tap roots and placing them in a horizontal position when transplanting his stocks is, however, new to me, as I never happened to be there when this work was going on, neither do I recollect having heard Mr. Crump speak of it. I am aware of the fact that he sets great value upon the Crab as a stock, and thinks frequent transplanting is an important factor in laying on the fine colour which brought his Apples into prominent notice at Chiswick in October last. This being so, one paragraph in Mr. Wildsmith's notice rather puzzles me, and yet I have no doubt he or Mr. Crump can easily put me right. He says Mr. Crump obtains his Apple pips from the must, that is, the refuse or waste from the cider mill, and further, that stocks raised from the finer varieties of Apples are weak, subject to mildew, and unsatisfactory. Now, having spent a great number of years in a cider district, I know for a fact that Crabs, kernel fruits, dessert and culinary fruits find their way to the mill, where good, bad, and indifferent are all ground down together. This general practice may not prevail at Madresfield; if it does, I am at a loss to understand how Mr. Crump manages to separate the seedlings, as it is quite impossible for anyone to make a selection of Crab pips from the must once all sorts are mixed together. Nurserymen in the three cathedral counties raise millions of stocks annually from pips turned out of the cider mills and call them Crabs, but a large proportion of them, taken from kernel fruits, if allowed to bear would reproduce themselves; therefore, the parents never having been grafted, they cannot, in the true sense, be called Crabs. I do not for a moment assert that these pell-mell seedlings are unsuitable for stocks, as I have always recommended them, and now begin to think the stocks I approve of and Mr. Crump uses differ in name only. In every bed of seedlings vigorous, intermediate, and weak examples will be found. The first and second, as a matter of course, are selected as being the fittest, but still they may have Blenheim blood in them, whilst the miffy, mildewed weaklings may have originated from small, half-ripened, inferior varieties, or possibly from Crabs pure and simple. I may be told that seedlings from fine grafted varieties revert or hark back to the stock; if so, it is rather strange that the Madresfield Crabs should exert such an extraordinary influence over the colour of the fruit. Sun, light, fresh air, and an abundance of active roots on warm borders, in my opinion, are very important factors, but not the only agents, as soils in certain districts are literally teeming with every element essential to colour and quality. The soil at Madresfield—indeed, right along the east side of the Malvern Hills—is deep, rich, and good, and I am inclined to think the detritus from those masses of igneous rocks may have a great deal to do with the colouring of the fruit—more, indeed, than any particular stock, be it never so well rooted, as I know another garden half a mile below the Abbey Church, and not more than two miles from Madres-

field, in which Cox's Orange Pippins on the Doucin stock as well as the Crab are marvels of beauty; indeed, so fine and highly coloured are these Apples, that the judges at a good November show not only refused the first prize, but actually disqualified them, and yet I am quite positive that they were true Cox's. Moving twenty miles west, I know an orchard noted for the large size and high colour of the Blenheim Orange Apples, which invariably beat all the examples tabled against them. Other growers in the locality prune and cultivate quite as well, but the soil on this particular knoll produces not only fruit of the largest size, but of the brightest colour. One more instance of the peculiar effect of soil, not upon fruits, but upon flowers, may be familiar to exhibitors who have staged Roses against Cranston, of Kingsden, near Hereford. Mr. Cranston's stocks in no way differ from those used by other nurserymen, and yet his blooms, especially in hot, dry seasons, are very large, and seem literally aflame with iron pyrites. This brilliant colouring is not due to a profusion of surface roots, as the only complaint made by purchasers is sparseness of fibres.

W. C.

EXTRAORDINARY GROWTH OF MUSCAT VINES.

HEREWITH I send for your inspection a piece of wood of Muscat of Alexandria. The Vines made rods 26 feet long, and the piece enclosed, cut about 8 feet up the cane, is a fair specimen. Is there anything uncommon in Muscats making such growth, as I have not seen any like it before? The Vines were planted late in the spring of 1887, as the house was not ready before, therefore they did not do much till this year. They were cut back to the bottom wire in the December of 1887.—W. C., *Arening Lodge, Stroud*.

*** The piece of young wood taken from a cane which made 26 feet of growth last year, although short-jointed and well ripened, is by no means satisfactory. It measures exactly 6 inches from node to node, and is $2\frac{1}{2}$ inches in circumference midway between the two, but owing to the great vigour of the Vine or the premature loss of its foliage—no uncommon event in cases of abnormal growth—both the main buds have started and ripened laterals the thickness of a good ordinary fruiting cane. Without seeing the Vines it is quite impossible to judge of their general condition, as the buds below the part from which the section was taken may be plump, perfect, and in good order for showing enormous clusters of Grapes, of which "W. C." may feel proud if he succeeds in fertilising the berries properly. If, on the other hand, all the main buds have started and he has pruned hard home, as in the sample now before me, then the rods, reduced to budless sticks, are simply useless, as there is nothing left to produce fruit or foliage. In this case he must again cut back to a good dormant bud, when, taking into account the strong root-hold, a series of shoots, in addition to the main rod, must be laid in and trained along the front wherever space can be found for the development of laterals and foliage. Indeed, notwithstanding the fact that the lower 8 feet may be all right, I would suggest a free growth of young wood for carrying off exuberant sap, and most certainly I would retard breaking until solar heat starts the buds naturally. Meantime, arrangements should be made for having a good supply of Hamburgh pollen ready for use when the Muscats come into flower, and with this, cross-fertilisation must be followed up from day to day until the Grapes are properly set. But, 'considering that "W. C." does not ask advice, and seems more jubilant than depressed, I am willing to hope and believe he is quite equal to the anxious task he has before him, and will accept these remarks in the kindly spirit in which they are tendered. Meantime, I may say a brief outline of his border, its constituents, and general detailed management of the Vines will be acceptable to readers of THE GARDEN.—W. COLEMAN.

Peaches and Pears 100 years ago.—M. André, commenting in the *Revue Horticole* upon the reprint of a catalogue published in 1790 by a French

nursery gardener, finds the fact interesting, that among the thirty varieties of Peach and sixty-one of Pear are found all the best and most popular varieties cultivated to-day, with the exception of those of American origin.

THE KELSEY PLUM.

THIS Japanese Plum, which has for some years past been rather extensively grown in California, appears to possess qualities which should strongly recommend it to the notice of the British fruit grower. For the following particulars respecting it, as well as for the accompanying illustrations, we are indebted to the *Revue Horticole* :—

The Kelsey Plum is a wonderfully productive kind, not surpassed in this respect by any other known variety. It commences to bear fruit in the second or third year after grafting, and very often shows some flowers in the first year. The fruit at-



Fruiting branch of the Kelsey Plum.

tains a very large size, sometimes being nearly 9 inches in circumference. It is also very pleasing in appearance, being of a lively yellow colour tinged with deep red on the side exposed to the sun. In form it is heart-shaped. The flesh is of excellent quality, melting, and very juicy. The fruit is firm in texture, and so can be sent in good condition to distant markets.

The Kelsey Plum also appears to thrive in Florida, judging from the account given by Mr. Taber of Glen Saint Mary's, in the *Florida Dispatch* of 1887. In February, 1885, Mr. Taber planted six very weakly specimens which had been grafted in the preceding year. In June, 1887, that is, two years after transplanting, one of these trees was carrying 476 Plums as big as hen's eggs. The illustration here given represents a branch of one of these young trees laden with fruit. Another branch bore sixteen Plums, the average weight of which was nearly 5 ounces. One of these Plums weighed $5\frac{1}{2}$ ounces, and measured $7\frac{1}{4}$ inches in circumference. This Plum is represented in the illustration, page 151. It has been observed by Mr. M. T.-K. Godbey, another

cultivator in Florida, that the Kelsey Plum proves more vigorous and productive when grafted on the Plum stock than it does when grafted on the Peach.

From the foregoing it may be gathered that the Kelsey Plum is a very desirable variety, and as it is largely and successfully cultivated in California, there seems to be no reason why some of our own fruit growers also should not give it a trial.

W. M.

FRUIT NOTES.

WINTER CUCUMBERS.

THE plants, thanks to a minimum of fire-heat, having wintered extremely well, are not only growing, but fruiting very freely, two good points which will necessitate frequent top-dressing and copious supplies of warm diluted liquid at every watering. It is not yet too late for a long spell of bad weather, but under any conditions we must now expect a few hours' sun, which, together with increasing daylight, will tell greatly in favour of a rapid spread of fresh, healthy foliage. As this process goes on, and young growths take the place of old leaves, stopping to induce fresh breaks as well as to swell up the fruit will be necessary, whilst the syringe, for some months laid aside, may be more freely used. The best compost, little and often, for top-dressing old plants with is rough turfy loam of medium texture, rough lime rubble or plaster in equal parts, and one-twelfth of bone-dust, thoroughly mixed when dry, and kept warm ready for use when wanted. A little old soot may be added if worms are troublesome, but not otherwise, as this strong stimulant sometimes burns the surface-roots, whilst its application in a weak, clarified form, twice a week through the syringe, fulfils the dual part of mild stimulant and safe insecticide. If well drained, as all winter plants should be, they will take frequent and heavy soakings of liquid at a temperature of 80° to 85° . They will also stand a good syringing with pure soft water, equally warm, at least once a day, possibly twice when the weather is very fine, and the temperature ranges from 70° at night up to 85° or 90° after closing. Their season, in fact, being short, as in many places they will soon have to give way to Melons, winter plants should be pushed on at express speed, for the twofold advantage of getting quantity and quality out of them. Soft, sweet bottom-heat from fermenting material being such an important factor, not only in securing this speed, but also in saving fuel and keeping the foliage free from insects and mildew, this must not be neglected. Like the top-dressing, the leaves or tan (leaves being the best) should always be kept on hand in a well-worked condition, ready for taking in whenever the beds require renovating; and here again the little-and-often process, which prevents checks and fluctuations, best answers the purpose. Next and last, at least for the present, a word as to the manipulation of the plants may be acceptable. Whilst aiming at full crops of fruit, at the best but a poor apology for the pictures so frequently met with in seedsmen's catalogues, never allow them to carry more shows to the flowering stage than they can mature. Retain just a few male blossoms for fertilising purposes and pinch off the bulk, also all weak, useless spray. Train thinly, and pinch fertile laterals at the first joint beyond the fruit, to prevent unnecessary crowding. Cut the fruit every morning, never allowing it to become quite full size or to form seeds, and place each Cucumber stalk downwards in a saucer filled with clean water.

Spring Cucumbers.—A very important matter in the management of spring-sown plants is getting them into their fruiting quarters before they become pot-bound. This end may be attained in two or three ways, viz., by shifting from 3-inch into 6-inch pots, or by sowing weekly and throwing away the oldest batch until such time as the hills are ready for them; but these measures represent time, trouble, and loss of seed, which may be avoided by commencing preparations in the Cucumber house on the very day the first seeds are sown. If all goes well, the plants, coming into rough leaf, will

be right for turning out as soon as the hills are warm; they will take to the soil at once, and spider, which so often originates in the seed-bed, will be avoided. Assuming that this step has been taken and the plants are approaching the trellis, all laterals from the base up to the first wire must be pinched close to the main leaves, which must be preserved, as accident to these may result in canker. As each of these cordon-like plants ascends the trellis, each lateral must be pinched at the first joint, and when the vine is within 2 feet of the top the point must be taken out of it. By this check extra sap is forced into the side growths, and the next set of laterals will most likely show fruit, but unless the demand is pressing, not more than one or two on each plant should be allowed to swell to maturity. By pinching the other laterals still at the first leaf and tying in, a good framework will soon be formed, the roots will be gaining a firm hold, and healthy fertility will be established. When plants reach this stage and a moist bottom-heat is brisk and good, they will stand 66° to 70° by night and 75° to 80° by day, and 5° to 10° higher after closing with sun and moisture. The latter, it is hardly necessary to say, should be abundant, especially on fine bright

consisting of old turf, bone-dust, or Thomson's Vine manure, made up in quantity for use as wanted and feeding with weak diluted liquid, must be relied upon for sustaining the Vines, as the soil originally used will by this time be pretty well exhausted. Syringing the walls and surface of the bed and keeping the evaporating pans replenished with clear diluted liquid from day to day will also be highly beneficial, always provided these stimulants are by no means powerful enough to injure the delicate roots they are intended to feed. When all the shoots have been tied out and regulated, the laterals produced by those carrying the bunches may be pinched and re-pinched at the first leaf; whilst laterals from the remainder must be allowed a little more scope, as every leaf fully exposed to the sun and light will aid in the development of the berries. If, as sometimes happens, a pot Vine misses fruiting, this miniature extension of the laterals and multiplication of the leaves may be carried out by its removal and giving those left a little more space. Ventilation here, as in the early vinery, will require hourly attention, as anything approaching a check or chill may result in rusted berries or scalded foliage. Commencing, say, at daybreak, the chink

about the roots, otherwise they may be re-plunged in a steady bottom-heat of 75°, when daily syringing will keep them quite moist enough until fresh rootlets are formed. This stage reached, the weaker of the two shoots, where two have started, must be rubbed off, when a light stick will shield the future cane from accident until the time arrives for the final shift into the fruiting pot. As these Vines must be strong, short-jointed, and quite ripe by September, their principal requirements will be an abundance of light, plenty of atmospheric moisture, and good feeding with liquid stimulants when thoroughly established in the fruiting pots and growing freely. Pure soft water, however, for the present will suffice, as it is very important that the final shift be made before they become pot-bound.

Eyes inserted in 3-inch pots in January will require a very steady bottom-heat of 75° to 80° and a close humid atmosphere, but on no account must the soil be made wet before the tender roots touch the sides of the pots and the young shoots formed out of the stored sap begin to elongate. When this is observable, and a few joints and leaves have been made, the most forward may be shifted on into pots two sizes larger. The compost, as for the cut-backs, should be warm and on the dry side, as water in excess is ruin to pot Vines of any class, from the tiny cutting to the fruiter, that is, before roots and leaves get into full action. When re-potted the young Vines will require a steady bottom-heat until such time as they are ready for the final shift into 7-inch pots, quite large enough for planting canes, but by degrees they may be drawn up until finally they stand upon the declining bed which forced the dormant buds into life. A few whose facilities are very good get all their eyes in before Christmas and turn out fruiting Vines the following autumn, but the millions propagated annually are kept in 5-inch to 7-inch pots for planting purposes.

THE GRAPE ROOM.

A very mild damp winter following a cold wet summer has not been favourable to the keeping of Grapes, those clusters especially of extra large size, sparsely thinned, and not too well ripened. Bunches of large size, I stated some time ago, should be kept in the driest and most airy part of the store, where they can be carefully and frequently examined, and last, but not least, they should be the first selected for use or market. Where in many places a goodly number of the bottles have been lightened of their load, these should be emptied, well washed, and refilled with sweet soft water, not in the room, but outside, as the spilling of water is detrimental. When replaced in the most favourable part of the rack the transfer of the bunches left may be made with twofold advantage, as each cluster can be thoroughly examined, and the glutinous callused end of the wood can be cut a trifle shorter. A temperature ranging from 40° to 45°, provided the atmosphere can be kept dry, will be high enough for Lady Downe's, Mrs. Pince, and Alicante, but Gros Colman, always subject to mould, may be kept 5° higher. If fire heat is needed, early morning is the best time to warm the pipes, but beyond the expulsion of stagnant moisture the less of this the better.

HARDY FRUITS.

Strawberries.—The mild winter having been so favourable to the formation of surface roots, the compost, cast loosely and roughly amongst old-established plants last autumn, may now be raked down whenever the weather is dry. We always reserve old compost and mulching from Vine and Peach borders for this purpose, and give the beds from 2 inches to 3 inches as soon as the weeds and runners are cleared away in October. This is left very rough, generally until March, by which time the largest lumps are thoroughly pulverised and fall under the rake in the finest particles amongst the old crowns, which, as all Strawberry growers now know, throw out fresh active surface feeders annually. Our soil being heavy and cold, a dressing of this kind suits the plants much better than manure, which forces too much foliage and retards the ripening of the crop. By way of keeping down slugs and snails, so troublesome on heavy calcareous



Kelsey Plum (showing fruit natural size).

days, as Cucumbers, like Pines, revel in warm vapour, the best of all being that obtained from the fermenting material. As days increase in length and solar heat improves, the foliage may be well bathed twice, but for the present the walls and other surfaces, including the bed, should be damped in the morning, direct syringing with very warm soft water or soot water being reserved for the 2 o'clock closing. Growers who syringe early on bright mornings find shading necessary—a practice when once begun is difficult to leave off, but by adopting this plan and giving a chink of air as soon as the temperature touches 70°, plants may be carried through the summer without the aid of canvas.

POT VINES.

If the bunches were reduced to the requisite number for the crop before they came into flower and those retained have set well, they should be thinned without delay, as every day lost detracts from the size of the berries—never too large in this department. When the Grapes are thinned and swelling freely, top-dressing with rich compost,

of night air should be shut off to favour a rise before the pit is syringed; then, as the mercury ascends, a little top air may be given at 76°, and gradually increased or reduced, as the case may be, until the temperature stands full and steady at 80°. As the sun wanes, reducing and final closing must be effected in time to secure a run to 85°, when atmospheric moisture, aided by gentle warmth in the pipes, will favour rapid development of the foliage and berries.

Cut-backs.—If Vines that were cut down in December have had the benefit of gentle bottom-heat they will now be pushing one or two shoots each, which must be strengthened and encouraged by an occasional dewing over with warm water, care being taken that the plants do not become too wet at the root. When these shoots have made 2 inches of growth and the compost is thoroughly warm, the plants must be shaken out and re-potted in 6-inch or 7-inch pots, sizes large enough to give them a good start. If the compost, sound turfy loam, bone-dust, and a little lime rubble, is dry, a little water may be given just to settle it

soils, and at the same time adding a warm fertiliser, all our beds, before they are touched with the rake, receive a thorough dressing of the oldest soot in stock, or, lacking this, charred refuse, burned principally with rough wood and prunings, is substituted. It is not good practice to dig or even to hoe amongst Strawberries in the spring; neither are these operations necessary, as we put every particle of soil out of sight by the application of short in preference to long stable manure before the weeds push, or young leaves emerge from the crowns. This last covering keeps in moisture, so essential to the full development of fine crops, and, having time to get thoroughly washed and bleached, it saves the usual expensive littering down with straw when the berries are swelling to maturity.

Young plantations also in dry weather should be cleansed of weeds and latent runners, as a preliminary to a thorough treading or steady ramming round each plant, and filling up from the reserve where any of them have perished. This work complete, and considering that the young spring growths suffer most on smooth, rain-beaten surfaces, it is a good plan to rough-cast the beds with the remains of an old Mushroom bed or short, fresh stable manure, where the latter is plentiful. If spring planting is contemplated, although yet too early to lift the young plants out of the store bed, this is not a bad time to fork and re-fork the ground, especially when the weather is dry. On light, warm soils, more likely to be affected by drought than wet, the beds may be firmed and possibly planted, but on land specially suitable for Strawberries we find the end of March or early in April the best time for spring planting.

Pruning.—Assuming that Filberts and Cobs are the only bushes resting intact, the forward or backward condition of the catkins will decide the question as to when and how they shall be pruned. I thought at one time that the male flowers would be very forward, but, judging from present appearances, they will be late and not over-plentiful; therefore I shall defer pruning until the beginning of March. Those who prefer taking time by the forelock, of course, may do so, but they must be careful to leave a good quantity of catkin-bearing twigs on the bushes, otherwise they will have to go to the copse for catkin-laden branches to act as fertilisers. The pruning of nuts consists in keeping the main branches thin to let in sun and air, in shortening back the leading shoots to prevent the bushes from getting too large, and in leaving plenty of short lateral twigs to produce the crop. Thinning and shortening may be performed in February, but the twigs should be left intact until the month of March. The male flowers or catkins will then have performed their office, and the opposite sex being very prominent, all infertile twigs may be pruned back to one or two buds nestling close to the main branches. These remarks apply to the orthodox bush, as grown in Kent, upon a single stem, which, by the way, should never be allowed to produce suckers, or at any rate to retain them after the winter pruning. Where nuts are well done and sub-cropping between the rows of bushes with vegetables is practised, the manure forked in annually sustains them, but otherwise it is a good plan to rake out the loose inert soil and replace it with light rich compost or farmyard manure. In Kent, according to Mr. Bunyard's little book, "Fruit Farming for Profit," which everyone should read, the favourite manure for fruits is waste rags, shoddy, waste wool, refuse fish, and London manure, an article or commodity most difficult to define.

W. C.

A Nectarine tree changing into a Peach tree.—An interesting fact has been communicated to the *Comité d'arboriculture fruitière* of the National Horticultural Society of France by M. Lapiere, nurseryman, of Montrouge, namely, that last year a Lord Napier Nectarine tree in his grounds, instead of producing Nectarines, bore nothing but Peaches. Making an observation on this report, M. Ferdinand Jamin mentioned that a similar occurrence took place a few years since amongst his own fruit trees, when a Newington Early Nec-

tarine tree, without any assignable cause, all at once became transformed into an ordinary Peach tree. The dividing line between the Peaches and the Nectarines is so faintly defined, that sometimes we see Nectarine trees bearing a Peach here and there amongst the Nectarine fruit proper; and, moreover, when the stones of Nectarines are sown in any quantity, some Peach trees are invariably produced amongst the seedlings.—*Revue Horticole.*

IS GRAFTING WRONG?

It is very curious to observe how faithfully a fallacy is followed if by any chance whatever it should have become customary or fashionable. Beaconsfield observed long ago that "Custom was religion in the East," and we may add that it is very often a fetish in our gardens. This seems especially true so far as grafting is concerned, since one can rarely take up a gardening journal without the fact being made apparent. For example, at p. 95, "H. P." tells us that Rhododendrons Prince Leopold and Duchess of Edinburgh "nearly flowered themselves to death on their own roots, which led him to graft them on to more vigorous stocks and with perfectly satisfactory results." I am quite sure "H. P." believes what he writes, but there is no greater error extant in gardens to-day than this same notion that a more vigorous growing variety of Rhododendron or any other tree or shrub necessarily makes a more vigorous stock when a weakly scion is stuck on the top of it, and all its own branches and leaves are pruned away. The most elementary knowledge of plant life ought to protect us from errors of this kind. A Plum tree is naturally stronger and harder than a Peach tree in our climate, and so it is used as a stock for Peaches and Apricots, the result most evident being a gouty or ugly bulged excrescence at the union, and the more or less delicate and diseased or fruitless state of the trees. We have gone steadily on in our failure to grow open-air Peaches as grafted on Plum stocks for half a century instead of boldly adopting Nature's plan of sowing Peach stones and selecting the strongest and best varieties for our various soils and climates. A Peach tree on its own roots grows as freely as a Willow, and if its vegetation becomes too rampant, we may plant it in poorer soil, or resort to root-pruning, or "ringing," instead of the usual disease-producing stock. The eternal perpetuation of delicate varieties by grafting is surely not the best, nor the only way. The so-called "strong-growing stock" as used in grafting is a mistake, and one that has done, and is doing, English gardening much harm. It is difficult to imagine a stronger or more vigorous growing Rose than the common Dog Rose as seen in Leicestershire or Warwickshire, overtopping old Thorn hedges or bushes 20 feet high. No frost, nothing on earth, can injure the Dog Rose as a hardy plant, except we dig it up, cut off its head, and bud our seedling Roses on it; then it is killed by frost very often, and if we cut off its own shoots, the more delicate of Roses very soon starve it to death. No matter how strong-growing or hardy a plant may be—Plum, Rose, or Rhododendron—they cease to be vigorous the moment we cut off all their own growth and graft or bud them with other plants more delicate or tender than themselves, or otherwise different in natural constitution. Is it not a little ridiculous and illogical this notion of making one plant the slave of another? That it is unnatural is past all doubt, and instead of the so-called reciprocity between the stock and the scion, there is far more often a life-and-death struggle between them. If there is any truth in the little that is known of vegetable life to-day, all that little goes to prove that the so-called strength and

vigour of stocks are gone when we cut off their branches and leaves and work buds from other plants on them. Delicate scions on "strong" stocks is without doubt a "strong weakness," in which but few ought to believe for a moment longer.

The other side of the question is only a little less open to objection, viz., the grafting of strong or vigorous forms of plant life on to dwarfing or hardy "restricting" stocks. In the "Dictionary of Gardening," under "Grafting" (p. 88), we are told that "the natural vigour of the stock and scion should be somewhat similar for inducing a steady growth." Of course, in this case there is really no reason for the stock to exist as such at all, since the scion being naturally as vigorous, would of course do as well on its own roots. We are told more, however, "but at times it is preferable that the scion should be the harder and more vigorous of the two. This is exemplified, and the desired results attained, in many cases, by grafting various strong-growing varieties of Apples on the Paradise stock, Cherries on the Mahaleb, and Pears on the Quince. In these and other instances the stock is restricted in its root-growth, and the supply of sap transmitted to the grafted portion is consequently limited. This latter condition tends to encourage fruit-bearing instead of vigorous wood, and proves by results the modifying effect of the stock and the superior results in productiveness thereby secured."

If limiting the supply of sap is the main object in inducing precocity or fruitfulness then I say the object may be gained by ringing or root-pruning quite as well, if not better, and more cheaply than by grafting on foreign stocks. Every fruit grower is well aware that "superior results in productiveness" are not secured by the use of these dwarfing stocks. The trees may fruit earlier, but trees on their own roots also could be induced to fruit as early and as well, indeed most probably much better, by other cultural methods than are at present attained by grafting.

The erroneous notion that a tree comparatively tender in our climate, especially in the north, as is the Peach, is rendered harder or healthier or more fertile by being badly joined to a Plum tree, is one to be at once abandoned. Without a doubt a tree that will not succeed on its own roots in England can never be relied on as worked on any sort of stock whatever, be it vigorous or hardy or restricting, and the sooner we recognise this in practice the better. But, as "Scion" has already pointed out in these columns, grafting, apart from its direct and immediate evils, has actually been the means of suppressing attempts at creating or raising improved or more suitable varieties of fruit trees from seed. Stones of Peaches, Apricots, and Plums, and seeds of all other fruit trees should be carefully selected and sown in every English garden worthy of the name. Grafting at its best can only perpetuate; it cannot create for us new and better forms of vegetation, and it has yet to be proven that propagation by other means, such as by cuttings or layers, would not yield infinitely better results. There may be a few Burr-knot or Codlin Apple trees rooted from branch cuttings here and there, but we must remember that, as a fact, there are practically no fruit trees of the Pome and Drupe families existing in English gardens on their own roots to-day. We have hitherto been so satisfied by the jugglery of grafting and budding that we have not as yet actually and fairly compared the practice with any other.

As has been already pointed out, the nursery-

men practise grafting mainly because it is convenient to enable them to get up stocks of particular things rapidly. It is not their fault that fruit trees on their own roots are not procurable to-day in any fruit nursery in England, or perhaps not in Europe. Until now, there has been no demand, nor will the demand come suddenly perhaps, but that grafted fruit trees are in all ways the best is a view that cannot much longer hold its own. Now that we have to compete with the fruit growers of Europe and of America, we cannot toddle like children along the old byeways and lanes of Arcady. Toy games, such as grafting and budding, will have to be abandoned, and real work must be begun on some sound and sensible plan. Complications and perplexities must give way to a clear and simple system of culture as easily adopted by the cottager as by the squire.

The present state of success attending the culture of own-root Roses ought, and no doubt will, open our eyes a little as to the possibilities of growing more and better fruit on trees on their own roots. Owners of gardens and their gardeners cannot undertake a better work than this of rearing and comparing fruit trees on their own roots with the same kinds grafted in the usual way. This actual trial of the same varieties grafted and not grafted side by side is the most practical way of settling the question, and it is the only method that will convince myself and others, who look upon grafting in all its forms as a sham, very often a fraud, and nearly always a delusion.

F. W. B.

STOVE AND GREENHOUSE.

LESCHENAULTIA FORMOSA.

LESCHENAULTIA FORMOSA is placed at the head of this article by reason of its being more generally known than the other species that bear red or orange flowers, not that it is superior to them. The natural habit of growth common to this and the other red-flowered kinds is half procumbent. In this they differ from the blue-flowered species, *L. biloba*, which is such a persistently erect grower that it is difficult to induce it to form a spreading bush. The leaves are small and Heath-like in form, and are closely packed on the shoots. They are persistent, retaining their vitality for several years. The plants are almost continuous bloomers through the growing season, especially *L. formosa*, which keeps on flowering so long as any growth is going on. They do not attain large dimensions as compared with many greenhouse species. A specimen that is from 2 feet to 2½ feet through may be looked upon as much above the ordinary size. The flowers, which are borne on the extremities of the shoots of all the species, are scarlet in *L. formosa*, bright scarlet and a little yellow in *L. Baxteri*, whilst those of *L. intermedia* are orange-scarlet. All the kinds are easily propagated, striking readily from cuttings made of the half-ripened shoots, which form roots in a few weeks at any time in the spring or summer. The plants are never quite at rest, as even in the winter the shoots keep on moving slowly, unless when they are kept cooler than is good for them. The cuttings should be made about an inch long. If these are put in about midsummer, the wood will then be in the condition that will enable it to strike most quickly, and there will be time to get the little plants established before winter. The leaves must be taken off the bottom of the cuttings. They may be put in about an inch apart similarly to Heaths in 5-inch or 6-inch pots. Small propagating glasses that will fit inside the rims of the pots

will be required; the glasses must be kept close, but the cuttings must be looked over from time to time to see that they are free from mould, for if this appears and the affected leaves are not at once removed, it will cause the cuttings to damp off. The pots should be stood near the glass in a house or pit where an intermediate temperature is kept up. A hot striking frame, with the cuttings far from the light, will not answer, as the heat would be too much, causing them to become drawn up weakly, if even it did not bring decay. Keep the sand moist and shade regularly from the sun. A piece of newspaper over the glass in the form of a cap is the best means of shading these and cuttings of other plants of a like character, as it does not darken them too much in the way that occurs when any dark-coloured material is used. As soon as the cuttings are rooted, gradually tilt the glasses, ultimately dispensing with them altogether; but still continue to shade when the sun is bright. When they get established, put them singly into small pots, drained and filled with sifted peat, to which enough sand must be added to keep it open. The best brown peat, such as contains plenty of fibrous matter, should be used. The close, hard black peat, or the still worse boggy stuff which is sometimes supposed, after it has been dried, to be good enough for use, must be avoided, as nothing will thrive well in it, no matter what attention is given. The pots should be stood on moisture-holding material of some kind. Dry shelves or dry stages are wholly unfit for small stock of these and other hardwooded subjects, as on them there is an absence of the moist air moving about, which is so necessary to promote growth. A temperature similar to that in which the cuttings were struck should be kept up for a time until the little plants have gained some strength.

When an inch or two of growth has been made, pinch out the points of the shoots. Unless more than ordinary progress has been made it will be best to let the plants remain without larger pots until spring. In the autumn give more air and discontinue shading. If possible they should be kept through the first winter in a temperature of from 45° to 50° by night, and under such conditions they will go on moving. If, as already advised, they are stood near the glass, the growth will not be weak. Early in the season, say about the beginning of March, move into pots 2 inches larger than those the plants have so far occupied. Use similar soil to that given at the first potting. Drain well, and make the material firm in the pots. The shoots will most likely again require stopping. When this is necessary it should be done early in the spring, but when once a sufficient number of branches to furnish the base of the plants is secured, little if any more in this way will be wanted, as the balance between the side branches and the leader will generally continue without further interference. As the shoots extend, train the strongest of them out horizontally, and as they lengthen, their weight will bring them down so that they will rest on the rims of the pots, keeping the base of the plants fully furnished. As solar heat increases, again shade with thin material in the middle of the day and give air, but avoid the cold cutting winds that often continue up to the middle of May or later. Still stand the pots on a moist bottom. It is better to continue this through the spring and summer until the plants have attained some size, as it will greatly assist their growth and tend to keep down aphides.

By midsummer a shift into 6-inch pots will be required. Now break the peat by the hand in place of sifting it. A small stick will be needed to support the leading branch and one to each

of the side branches. During this summer and in succeeding summers ordinary greenhouse warmth, such as obtainable by solar heat, will be enough, but if a temperature of 45° can be given in the nights through the winter it will be an advantage in several ways. It will keep the plants moving, so that they will sooner attain a useful size, and afterwards as they get older it will tend to preserve them in vigorous health, provided always that the requisite amount of light is afforded them. Treat as in the preceding autumn and winter, and in spring, if all has gone well, the plants will bear moving into pots 3 inches larger. Now use the peat in a more lumpy state than it has been advisable to give them hitherto. Drain well and pot firmly, and after each potting keep the atmosphere a little closer than usual, shading for a few weeks when the weather is bright. After the plants have attained their present size no shade is necessary, except, as already said, immediately after potting.

In potting, the old crocks may be removed, an operation which *L. biloba* will not bear. Each of the red-flowered kinds requires more pot room than many plants that attain greater size.

L. BAXTERI is an exceedingly bright-flowered kind, the flowers being considerably larger than those of *L. formosa*.

L. INTERMEDIA is also a desirable kind, with paler coloured flowers. Both these require similar treatment to the commoner species *L. formosa*.

All the species are natives of New Holland.

T. B.

Azalea linearifolia.—This is one of the most singular Azaleas that we possess, the leaves on strong vigorous shoots being as much as 3 inches or 4 inches long, and about a quarter of an inch in width. Still more singular, however, are the blossoms, the petals composing which are as narrow in proportion to their width as the leaves, and being borne in great profusion at the ends of the branches, give to a specimen the appearance of having its terminal leaves of a bright carmine-pink colour. It is a native of Japan. I am not certain if it is quite hardy in this country, but have kept it for many winters in an ordinary cold frame.—H. P.

Erica melanthera.—This is a Heath of easy culture, and one that may be depended upon to flower in great profusion year after year. It is a free-growing, but very twiggy-habited species, and is just now so densely laden with bloom, that little is to be seen except the tiny pink blossoms with their conspicuous black anthers. The blooms have a rather uncommon, but pleasing perfume. This Heath may be grown into a good sized bush if simply treated as a greenhouse shrub, and no pruning whatever is needed, as the habit of the plant is dense and bushy, while it never gets naked at the base, as many Heaths do. Potting every year is by no means necessary, as I have seen plants that had not been potted for half a dozen years keep in good health and flower well.—T.

Strobilanthes isophyllus.—Where a supply of flowering plants has to be maintained throughout the winter this is a very useful subject for the purpose, as in a warm greenhouse, or in a structure kept at an intermediate temperature, it will flower for months together, and that, too, during the dull season of the year. It is a plant of rather erect bushy habit, while the lanceolate leaves are dark green and the flowers of a lavender-mauve colour. The blooms are effective only on the plant, as if used in a cut state they quickly drop. It is of easy propagation and culture, the best time to strike the cuttings being during the spring months, when they root in a few days, and if grown cool throughout the summer they form good flowering stuff by winter. Plants of a quick-growing character that are intended for winter blooming

are most satisfactory when grown under cool treatment, as the growth is then sturdy, and the leaves have far more substance than if kept in a close structure.—H. P.

PLANTS FOR DINNER-TABLE DECORATION.

ALTHOUGH we may perhaps be disposed to question the taste that demands an elaborate arrangement of flowers and foliage on the dinner table, there is no doubt that this particular branch of gardening is becoming a very important feature. I have found the double tuberous Begonias, especially the scarlet-shaded forms, most useful summer plants for the purpose. A pinch of seed from a good strain should be sown every year, the seedlings planted out in a good open soil as soon as the weather will permit, the colours selected and bulbs saved for the following year. Size of bloom is not necessary or even advisable so long as the colour is good and the strain free-flowering. One batch may be started in gentle warmth in February, and the other allowed to start naturally to secure a succession. I think those who have not already tried them will be disposed to admit after a first trial that a thoroughly well-flowered plant carpeted with *Selaginella* is one of the best subjects for a centre bowl or vase that can well be chosen. Gloxinias are also highly appreciated when used in a somewhat similar manner. We sow a packet of these every year, transfer the seedlings to a pan as soon as they are large enough to handle, and eventually shift into 3-inch pots, using a mixture of fibrous loam and dry cow manure. If artificial feeding is resorted to, these small plants will throw four and five good flowers, and a few such plants raised in a large bowl or centre group, and filled in with Ferns or any light-foliaged plant, have a very pretty and graceful effect. Small Cyclamens may also be used in a similar manner. If the seed is sown at once and the young plants are grown on without check, they will make very nice stuff by the following November. *Crassula jasminoides* is another useful plant, as it strikes very readily and flowers very freely. Plants of this in 3-inch pots do well for small vases; a little foliage may be arranged at the base of the vase, and the heads of bloom allowed to droop over the side. Two more easily grown plants that are useful for the decoration of the table are *Anthericum latifolium* and *Rivina humilis*. The first-named is nearly as bright as the variegated *Pandanus*, and possesses the merit of being quickly and easily grown; even the tiny plants which spring from the flower-stem will speedily develop into very serviceable plants. A pleasing arrangement for a large bowl can be obtained with four or five plants of this *Anthericum* carpeted with *Nertera depressa*. *Rivina humilis* is very useful when flowers are rather scarce, and its light, graceful berried branches show to advantage on the table. It can be easily raised from seed, and three or four plants in a 6-inch pot will furnish a nice bunch of berried plumes. The above half a dozen plants, all of comparatively easy culture, can be thoroughly relied on for table work, and they will in their several seasons furnish a supply for several months of the year.

Claremont.

E. BURRELL.

Sparmannia africana.—This is a good plant for training to pillars or walls in large houses or conservatories. There are some good plants growing in the conservatory at Fen Hall trained against the wall, and they were in full bloom in January. Mr. Wells speaks very highly in its favour and of its usefulness when grown in this way. Perhaps there are others as well as myself who are not aware that this plant is more hardy when it is generously treated. Recently I saw a strong, healthy plant growing against a wall in a cold house at a villa at Milborne-Port, and I was told that it had been in this house for four or five years, and had never had the least protection. It is growing against the wall of the dwelling-house, planted out with nothing but a lean-to house over it. This plant had grown to the top of the wall, which is 10 feet high, and at the time of my visit it was beginning to flower. It must be fairly hardy, or it could not have stood the

last two winters. It may be grown readily in pots, and will bear being put into strong heat to bring it into flower.—J. C. F.

EARLY-FLOWERING PELARGONIUMS.

THE Pelargonium is not regarded with the same affection as a few years ago, when at every show the leading features were trained specimens of the several sections. It is to this formal manner of growing Pelargoniums that prevailed then, and does even now to some extent, that we can attribute its comparative neglect at the present time, when all the care of the gardener

the late spring and early summer months, and this at no great expense or trouble. If a beginning is to be made now, purchase strong-rooted plants. The great point in obtaining well-flowered specimens is to see that they are placed early—not later than the end of August—into the pots in which they are to bloom. The best soil is good loam, rotten manure, and sand, which should be made moderately firm, at the same time giving good drainage, as without this it is impossible to succeed.

The winter temperature during severe weather may range from 50° to 55°, and give plenty of



A useful early-flowering Pelargonium (*Pelargonium album multiflorum*).

seems centred upon the tuberous Begonia. While the show type of Pelargonium has declined in favour, the early-flowering kinds have always kept their ground to a certain extent, and the accompanying illustration of the old white early-flowering market variety, *album multiflorum*, may give an impetus to their culture. Early-blooming Pelargoniums are the most useful, especially to amateurs, whose green-houses at the time they are in bloom generally lack colour and variety. Here the early-flowering kinds may be used with the best effect.

If amateurs were to grow a few of these varieties they could have a show of flowers in

air on sunny mornings to dispel damp. In February, soot water, than which nothing is better for the flowers and foliage, may be used with advantage. Care must also be taken that the plants are supplied with sufficient water, as if they get dry, the lower leaves turn yellow, fall off, and spoil the appearance of the plants.

The way to get them to bloom well the second year is to cut them back early, say the first week in August. Before doing this, turn them out in the full sunshine to ripen the wood. After cutting them down no water must be given until they break, when they may have a good soaking. When the growth is about 1 inch long

repot the plants and treat as advised for the first year.

As regards sorts to be grown, the best way is to visit Covent Garden Market and pick out the best kinds when in flower, but as that cannot always be done, the following varieties may be relied upon as being well tried, reliable, varied in colour, and useful both for pots or to cut from, viz., Chameleon, Chimene, Decorator, Defiance, Duchess of Bedford, Duchess of Edinburgh, Emilie Everard, Etna, Gold Mine, Improvement, Kingston Beauty, Lady Blanche, Lucie Lemoine, Mme. Thibaut, Maid of Kent, M. Rouillard, Mr. John Hayes, Mrs. John Hayes, Mrs. Lewis Lloyd, Mrs. William Davis, Queen Victoria, Scarlet Gem, Triomphe de St. Mande, Venus, Virginal, and William Smith.

WORK IN PLANT HOUSES.

FERNS, DIVISION OF THE PLANTS.—Most of the Ferns that have creeping stems (rhizomes) can be increased by division. Each crown with a portion of roots attached will make a separate plant. This method of propagation is usually adopted with the sorts that do not increase readily from spores, and it is often followed with those that do, such as the commoner species of *Adiantum*, like the old *A. cuneatum*. There is one peculiarity connected with the propagation of this species, which is, that though large or medium-sized examples may be cut in two or more pieces, each piece comprising a number of crowns, still, when the specimens are completely broken up so that each piece consists of only a single crown, the plants grow away much more freely. In all cases where Ferns are to be increased from pieces of the creeping stems or by division of the crowns, the work should be carried out when there is no growth going on, as if there are any partially developed fronds these will either die off altogether or become so malformed as to be useless and unsightly. In dividing the plants, the larger the pieces are the sooner they will grow into a useful size, and as many unbroken roots should be secured to each as possible. Such species as the creeping kinds of *Davallia* often push a considerable length of stem before any roots are formed. In cases of this sort division must be effected so as to secure enough of the back portions of the stems as have a sufficient quantity of roots attached, without which the pieces will perish, or be a long time before they make any progress.

GLEICHENIAS.—Species with exceptionally hard wiry stems like the *Gleichenias* seldom succeed, even if a sufficient length of rhizome is taken to include roots, as the disturbance that takes place in getting the pieces away from the parent plant usually has the effect of stopping the roots from making further progress. With such Ferns as these the division must consist of large pieces, the larger the better. Specimen *Gleichenias* in 18-inch or 20-inch pots do best when cut into about four pieces than when further divided. Respecting these beautiful Ferns, it is a mistake to allow them to remain long in the same pots after their creeping stems have got outside the balls. I have known large examples that have been kept in exceptionally large pots or tubs for too long a time to do much good after they have been divided. *Gleichenias* can be increased by fixing small pots, drained and filled with soil, round the rims of the pots or tubs in which the specimens are growing, and securing the stems as they extend with small hooked sticks in the soil in the little pots, into which they will push roots. When these are fully established they may be cut away from the old plants. But in all cases where this method of propagation is followed, the separation must not be effected until the layer-like stems have got thoroughly rooted. It usually takes nearly twelve months to get the young plants into a condition fit for separation from the old specimens. This is a good time to propagate *Gleichenias* in this way, as then there is the whole of the spring and summer for the young stock to get well rooted.

Where the propagation of Ferns by division of the crowns is to be carried out, no time should be lost, as many species will shortly begin growing. The plants to be operated upon should be turned out of the pots and have all the soil shaken away; disentangle the roots carefully, as the fewer that are broken the better. Put the pieces in pots proportionate to their size. It is not well to give too much room at first, as when the crowns have made some progress they can have a shift.

POTTING FERNS.—Before commencing to repot see that the stock is free from thrips, for if these are present, now is the time when the fronds are matured and in the best condition to bear the syringing and dipping necessary to kill the insects; whereas when the young fronds appear they are almost certain to be injured in the attempt to destroy the thrips. Even if there are no living insects to be seen, if the plants were troubled with them last summer, it is desirable to give them a good washing, for there will be plenty of eggs ready to come to life with the return of warm weather. These can be destroyed by dipping in or thoroughly syringing the plants with strong Tobacco water, to which should be added about 2 oz. of Gishurst compound to each gallon. The mixture should be allowed to dry on, as if it is washed off with clean water in the way that is often practised, many of the eggs will escape destruction. Whatever repotting is required should now be proceeded with before any, or much top growth begins to move. This is especially necessary with the different tree species. In growing Tree Ferns, as with most other kinds, except those with creeping stems, it is a mistake to give them more room than is absolutely necessary, as they can be kept in a vigorous healthy state with much less root space than is usually given. By the use of manure water, applied at short intervals during the growing season, the plants can be kept up to the desired size and condition in smaller pots than at one time were supposed needful. Another advantage attached to restricting the root-room is that by keeping the plants within reasonable bounds many more can be accommodated in the same space, and there is less likelihood of the large strong growers smothering the weaker ones, which are often the most interesting. Most Ferns delight in an open porous soil that is largely composed of vegetable matter; consequently peat answers best for them, and where this is obtainable of fair quality it is the right material to pot them in. But in all cases avoid the hard close black peat that is sometimes regarded as good enough for Ferns. In like manner soddened boggy peat should be rejected. The large amount of water that nearly all kinds of Ferns require necessitates provision being made for its passing readily through the soil, for though the roots like to be always moister than those of most things, they will not keep healthy in water-logged material. In addition to the pots being well drained, a good amount of broken crocks or coal cinders should be mixed with the soil. Cinders, though not so often used as crocks, are just as good; a sprinkling of sand should also be added. In potting, do not attempt to loosen the roots that lay thickly curved round the outside of the ball; all that is necessary is to get away the old drainage. Be sure that the new soil is made quite as solid as that of which the ball is composed, for if this is not done the water that is given will pass off through the new material, leaving the ball too dry to admit of healthy root action. See that the soil is not too wet when used, as if it contains too much moisture it forms a solid impervious mass, in which nothing will grow. Water moderately as soon as the potting is completed and keep the house a few degrees warmer, giving little or no air for a few weeks, except by opening the roof ventilators slightly when the weather is favourable. These conditions will help to set the roots in motion without delay, and it is advisable to secure this before the top growth begins.

STOVE.—DIPLADENIAS.—In stoves where there is the means of maintaining much heat through the winter, *Dipladenias* that have had a short rest late

in summer can be cut in and repotted during the autumn, and then be kept growing slowly in the winter. Treated in this way, the plants come much more quickly into bloom in the spring, there being no difficulty when so managed in having them in flower by the end of April, which consequently gives them a longer season of blooming. But where there is not sufficient heat kept up, it will be found better to defer the cutting in until the present time. Large, full-sized specimens may have their branches shortened to within a few joints of where they were cut back to last winter. In repotting *Dipladenias*, it is necessary to shake most of the old soil away, as if this is not done it often gets sour. This being the case, it is best to either shake out the plants at the time they are cut in, or immediately they have made fresh growth; for if the young shoots grow any length before the shaking out takes place, a good many of them will not extend further. The best fibrous peat should alone be employed, with most of the earthy matter taken out. A liberal quantity of sand should be added. *D. amabilis* is still the best variety in cultivation, all the others that have appeared and that were expected to be improvements on it having turned out inferior in some respect or other. *D. Brearleyana* and *D. Williamsi* are both distinct and desirable sorts, the last-named being a seedling raised from *D. splendens*, and an improvement on that species. The old *D. crassinoda*, a smaller-flowered species than any of those mentioned before, is now seldom met with, yet it is a beautiful kind and a very free bloomer. The flowers are of a vivid shade of rosy-pink. The above remarks apply to plants that are grown in pots. In potting, make the soil moderately firm. The shoots should be trained to strings run up under the roof of the house. It is best to grow them in this way, even if the plants are put on trellises after they have begun to flower, as if the branches are trained in the first instance to the trellises, they keep breaking back instead of continuing to extend until the bloom appears. When *Dipladenias* are turned out in a bed, in which way they rarely do well, as much of the old soil should now be got away from the surface of the bed as can be done without disturbing the roots much, replacing it with new material such as advised for the pot plants.

D. BOLIVIENSIS is a distinct habited sort, and one of the best of all stove plants for giving a long succession of flowers for cutting. This species does best when turned out in a moderate sized bed. The roots are less tender than those of the other species or varieties, and consequently are less liable to perish when planted out. The surface of the bed where this kind is planted should now be removed and made up with new soil. Whether *Dipladenias* are grown in pots or planted out, great care must be taken in watering until the new roots have begun to move. At all times these plants require less root moisture than most other kinds. T. B.

CINERARIAS.

FEW soft-wooded plants are equal to these in general usefulness, as not only are they exceedingly showy, but they bloom at a time when flowers are scarce, and are of great value for adorning the greenhouse. To have them during the dead of winter and to keep up a succession, it is necessary to sow early in March for the first batch, and again about a month after. The seed being small, much care is required in raising it, and the best way of dealing with it is to drain the pots or pans well and fill up partly with light soil, finishing off with a finer compost. After a good watering through a fine-rosed pot, the pots or pans should stand a few hours to drain. This watering before sowing I regard as an important matter, as if done after the seeds are sown it is a frequent cause of failure, as the watering either washes the seed away or brings it to the top, where it becomes exposed or wets it to such a degree that much of it rots. None of these mishaps take place if treated in the way referred to, as with attention afterwards sufficient moisture may be maintained in the soil till the seed germinates. The way to keep it in this desirable condition, after sowing and sprinkling fine silver sand over, is to

cover with a sheet of glass, which prevents evaporation, and as darkness is essential to germination, a piece of brown paper should be laid on the top and kept there for the first three or four days, when it will be necessary to remove it, as the tiny plants will then be showing themselves. The most suitable place in which to raise them is on a shelf in a warm house, and as soon as the seedlings can be seen, the glass should be taken off and a gentle sprinkling given and the glass returned, but it must be tilted to give a little air, and in the course of a week removed altogether. As soon as the plants are large enough to handle, the next proceeding will be to prick them out into other pots, pans, or boxes, so as to give them the requisite room, when they should have a nice light position in a warm pit or frame, where a continuously moist atmosphere can be kept up. After they have had a month or so in such a situation, the plants will be ready for potting singly into 6-inch pots, the most suitable soil at this stage being good fibry loam and leaf-mould, in the proportion of two-thirds of the former to one of the latter, with a dash of sand to keep the whole open. The potting completed, the plants should be stood in a cold frame in a half-shaded position and then watered, the natural shade or that afforded by a building or tree being far better than putting mats or other material over the glass, as they exclude the light, and the foliage does not come so stout and fine. During summer the great point in the management of Cinerarias is to maintain sufficient atmospheric moisture to keep away red spider, an insect to which in hot weather they are rather subject. The most sure preventive is regular syringing or sprinkling overhead, and using enough water, when doing it, to well wet the floor the plants are standing on, as a damp bottom is very congenial to their welfare. As soon as the plants have filled the pots with roots, the final shift into 6-inch pots should take place, this sized pot being quite large enough to flower them in, as they can always be fed with liquid manure. The time to begin to administer this is when the plants commence to show flower, but it must be applied weak and frequently. Cinerarias do well during the winter in any pit, as a low temperature agrees with them, if frost can be excluded by means of a hot-water pipe, so as to avoid covering, and the light low modern houses just suit their requirements.

Besides being raised and increased from seed, it is often desirable to save and perpetuate some good kind, and this can always be done by keeping any plant having special merit, and when it has done flowering standing it under the shade of a wall, or preserving it in a cold frame till it breaks at the base, where suckers will issue forth. These suckers if taken off with some roots may be potted and treated the same as the seedlings. S. D.

SHORT NOTES.—STOVE AND GREENHOUSE

Amherstia nobilis.—Will any reader kindly give me information as to the cultivation of this rare and beautiful tropical shrub?—INQUIRER.

Begonia corallina.—I saw this plant in excellent condition in one of the plant houses at Ilington House, near Dorchester, last January. It was growing in a large pot, and trained to wires up the roof of a span house. The coral-red flowers are like those of *Begonia nitida* in shape. It makes large, strong shoots from the bottom of the plant as in the case of *B. nitida* and *B. ascotensis*. Mr. Powel, the gardener, told me they used to have it planted out when it was much stronger in growth and the blooms larger. This is a *Begonia* that is but little known, although I was told recently it used to be in the gardens at Chiswick many years ago. I must say it is to be regretted it is not more grown, as I have never seen a soft-wooded plant more deserving of culture.—JOHN CROOK.

Bad cutlery.—Now that protests against the bad steel used in war implements are rife throughout the country, it would be well if gardeners, as a

body, helped to drive the shafts home by protesting against the bad quality of the steel supplied them in their implements of peace. High prices are charged for knives which are supposed to be of the best ware, but 75 per cent. of these are simply frauds, which only succeed in spoiling our fruit trees and our tempers. This would matter little if the highest price charged would command a really good article. My own experience is that three-fourths of the knives which find their way into my hands are radically bad, and that a thoroughly good one is indeed very rare, and which, when found, should be jealously treasured and worn to the backbone, rather than discarded in favour of a new one, fair perhaps to look upon, but whose fairness, alas! is delusive. I think most gardeners will agree with me that a good knife is a good friend, pleasant and easy to work with, while a bad one leads to long snags, bits of bark left half an inch beyond the wood, or wedge-shaped cuts, perpetual sharpenings, and despair. Many a case of canker in fruit trees and general ill health might, I think, be easily traced to bad knives, though these seldom get the blame that is their due. If my experience in this is not singular, and I feel sure that it is not, there should be no difficulty in awakening sufficient interest in the matter to bring about a better state of things.—J. C. TALLACK.

MARKET GARDEN NOTES.

SEASONABLE weather having prevailed of late, the work of preparation for seed-sowing and planting of various crops has been pushed on vigorously. The remaining portions of root crops, such as Parsnips, Artichokes, &c., which are best left in the soil as long as possible, ought now to be lifted before growth commences again, as this soon spoils their quality, and in most cases the land is needed for other crops.

CABBAGES from autumn-sown plants that have stood in the seed beds ought now, when the weather is favourable, to be put out, the plants being in excellent condition, as the winter has been very favourable for them; the ground is heavily manured for this crop, then ploughed up deeply, and the plants are put out in the furrows, thus giving a little shelter from wind. As soon as the plants have become established, the land is broken down fine by means of the hoe. Soot is largely used for dressing beds of Cabbages, as it not only acts as a powerful stimulant to growth, but also keeps off slugs and other vermin.

JERUSALEM ARTICHOKEs are planted early, and to be of any use as a market crop, they must be well grown. If planted in good open land, deeply cultivated and well manured, the tubers come of large size.

HORSE RADISH ought now to be planted. All the slender pieces that are not large enough for use, when the crop is lifted for market are laid aside and covered with soil until deeply cultivated land is ready for them. The pieces are then put in at full length with a crowbar and make fine growth by the end of the season.

ASPARAGUS BEDS are now being lightly forked over to mix the manure with the surface soil. The manure was put on roughly at the commencement of winter, and now breaks down with but little labour. A little soil is put over the crown of the beds from the alleys to make sufficient depth of soil for blanching the Grass. In this locality seaweed is used in place of manure by many growers, and it answers well when it can be obtained cheaply.

BROCCOLI of excellent quality is still being sent to market, the winter having been favourable for this crop. The winter protecting sorts are the ones that are now yielding the supply. Snow's well-known old sort and Veitch's more recent addition are exceedingly useful for this critical season of the year. The early spring varieties, such as Adams' Early White, are nearly fit for cutting and promise to be extremely fine this year. The Purple Sprouting kind is nearly fit for cutting, and is a most useful vegetable.

TURNIPS of both white and yellow-fleshed sorts are unusually fine and mild in flavour, the season having favoured a rapid growth. It is only at this time of year that yellow-fleshed Turnips find a ready sale in this locality, there being a decided preference for the white ones. As regards flavour, I think the yellow varieties are quite equal, if not superior to the white.

LEEKs are in demand now, and, like other vegetables, are unusually fine. They are grown in open fields on the level soil, large holes being made with a crowbar, and the plants dropped in so that only the tips of the leaves appear above the soil.

SEAKALE and RHUBARB are now being largely forced, both with roots lifted and placed in heat, and also in permanent beds, where the crowns are covered with pots or tubs surrounded with fermenting manure. As most growers use a large quantity of manure, a good deal of which is procured from neighbouring towns in a fresh littery state, they use it first for forcing, and thereby get it in better condition for the land.

PITS and FRAMES are now being filled with early crops of Potatoes, Radishes, Carrots, Mint, and salad, and the sowing of seed under glass now claims daily attention. Cauliflowers, Lettuces, Tomatoes, and all tender things are sown in boxes on a gentle heat and gradually hardened off. The frames are well covered with mats and litter at night, and fully opened to the daily increasing influence of the sun's rays. Cauliflower and Lettuce plants that have been wintered in frames are fully exposed by day to the atmosphere, so as to get them well hardened for planting out next month.

PRUNING of fruit trees and bushes is now being completed, and the trees dressed where any insect pests exist. The late change to colder weather has been very beneficial to the fruit trees, which, as a rule, are not unduly forward for the time of year. Gooseberry and Currant bushes have been much injured by small birds, the sparrows being the worst offenders in this district. All sorts of remedies, such as dusting with lime and soot and running threads across the top of the bushes, have been tried. J. GROOM.

Gosport.

Fruit trees and vegetables.—Now that an interest is being awakened in hardy fruits, the question is often asked whether it is possible to grow good vegetables and fruits on the same land. I need hardly say that anyone can see it being done every day if he will only take the trouble to walk through the market gardens in suburban districts, where it is carried out largely with good results. In many cases the growers crop the ground too close up to the roots of the trees, and thereby defeat the possibility of getting first-class fruit, as it is impossible for trees to mature heavy crops if more voracious rooting plants are grown close up to them. I lately saw an example of how fruits and vegetables could be grown well together. Rows of Apple trees were planted at a distance of at least 40 feet apart, and between them, but quite clear of the shade of the branches, beds of Asparagus were planted, and excellent crops were secured from both, as the liberal manuring for Asparagus helped the trees greatly, which in addition to having a wide space on both sides of the rows could send out their feeding roots into the Asparagus beds. This is quite a different kind of cropping to that generally seen, and is only one of many crops that can be grown well with fruit trees. Asparagus is generally very remunerative, and in soils naturally suited to it, it might be grown to any extent without much fear of that dread of market growers, viz., a glut.—J. G., Hants.

Select Tomatoes.—Of late you have published some interesting notes on these, but I miss one name which, in my opinion, should be prominent. This is the sort I have grown for several years as Sensation. It has proved distinct from the sixty or more sorts I have grown from time to time. It is very prolific.

The fruits are quite smooth and perfectly round; indeed, exceptionally so, and they attain a large size. I have cut scores of them, averaging 1 lb. 2 ozs. and some 1 lb. 4 ozs. in weight, and faultless in form. The flavour is very pleasing.—CAMBRIAN.

FANTASTIC PROFITS IN FRUIT.

WRITING on fruit culture, Mr. Morgan, in the *Nineteenth Century*, describes the Pitmaston as the "queen of Pears." This shows us he is not hard to please in Pears. He also says that the third year after planting an orchard—but we will let him speak:—

Exceptional cases are misleading, so I am simply going to furnish an illustration of what is being done every day by men of ordinary capacity. Let us take 1 acre of land. On this 300 pyramid trees can be planted—Apple and Pear in equal proportions. The former are Blenheim Orange, Stirling Castle, Cox's Orange Pippin, and Warner's King. The 150 Pear trees are made up as follows: Pitmaston Duchess (the queen of Pears), Williams' Bon Chrétien, Louise Bonne of Jersey, and Marie Louise. In the third year from planting the produce of each tree will, on the average, yield 4s., or at the rate of £60 per annum; from the third to the sixth year, £70; and afterwards from £70 to £85.

We have seen some good growers who did not always gather 4s. worth of fruit an acre "the third year after planting;" but no doubt Mr. Morgan would denounce them as ignoramus. Yet we are sure he would have been as happy to see Blenheims worth 4s. on each little tree as anyone would be. Mr. Morgan says nothing about the many bad springs that sweep the flowers off even the old trees, but he is fertile in good results. Lest anyone should begrudge the trees the ground, even to get £60 to £85 per acre afterwards, he tells us:—

While it is true that up to that period the trees bear little, it must not be imagined that the land lies idle. For these three years the spaces between the trees can be utilised much more profitably by growing choice early productions than if the acre were entirely devoted to corn. During this period from £20 to £30 annually per acre can be thus obtained.

If that were true, and for ordinary men too, few poor landowners would be the happiest of creatures, and the richest, if not for our stupidity. Well, as there is plenty of good land in England, the freehold of which is to be bought for less than half Mr. Morgan's year's profits for an acre, we hope he will be a large grower himself. Banking will be a very modest business compared to his orcharding, if all goes well.

As a matter of fact, Mr. Morgan, who speaks of his way of growing fruit as a novelty and of great merit, has no way of his own at all. The ways of successful hardy fruit culture—of the Apple, to which he particularly refers—were perfectly established long ago in England, France, and of late years in America. Certain important facts continually stare us in the face. One of these is the enormous sum paid yearly for imported fruit. We have nothing to say as to this, so long as it concerns purely exotic fruit—the more sent at reasonable prices, which our people can afford, the better; but when it comes to a hardy fruit like the Apple, absolutely hardy, thriving in the best possible way in the south, midlands, and west of England, then it becomes a serious question, the paying so much for what we could without doubt grow at home. Therefore we welcome anybody who advocates improved modes of culture, provided it is done without exaggeration, and without leading people to indulge in false hopes, as we think this writer does. Anyone who has the slightest acquaintance with the facts of gardening, farming, and Hop growing, &c., knows that gambling itself is not more uncertain than the results which we arrive at, owing to bad weather and seasons. There is no more certain way of injuring the cause one wishes to help than by making ill-considered statements about it. The true cause of our mistakes in fruit culture, and of the fact that America supplies our markets so largely, is the dreadful English way of growing a multitude of fruits, instead of a few, well chosen and well grown. It is against the interest of growers, of nurserymen, and of the country.—*Field*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

FEBRUARY 12.

A SEVERE frost and snowstorm prevented a large show of flowers at the Drill Hall on Tuesday last, and if it had not been for a few collections there would have been little to interest visitors. The absence of novelties or rare plants can never be atoned for by collections of Apples, a bank of Daffodils, two large groups of Persian Cyclamens, or any display of flowers with which all who have any interest at all in horticulture are quite familiar. No first-class certificates were given by either committee—a most unusual occurrence, but it is a wise policy to adopt not to certificate plants unless they really have merit of a distinguished kind.

Messrs. Veitch and Sons, of Chelsea, showed Rhododendrons of the javanico-multicolor section, and which they are developing to the utmost extent with benefit to our gardens. The fact that the flowers are proof against fogs is a great point, especially to those who live in the suburbs. *Cypripedium* T. B. Haywood also came from Messrs. J. Veitch, and it is difficult to understand why no award was made to it. It combines the characters of both parents and is finely coloured, both sepals and petals having a suffusion of dull pink, and the central longitudinal band of a purplish colour so marked a feature in *C. Druri*; the pouch is also lightly coloured. Every break away as this from the monotonous brown shadings of the majority of *Cypripediums* should be encouraged. Mr. Latham, of the Botanic Gardens, Birmingham, sent a hybrid *Cypripedium* named *C. Lathamii*, a cross between *C. villosum* and *Spicerianum*. It has the petals and lip of the first-mentioned parent and the dorsal sepal of the distinct *C. Spicerianum*, which has been used by the hybridist with golden results. Mr. G. C. Raphael, Castle Hill, Englefield Green, had *Dendrobium undulatum*, a curious Australian species, brown in colour, relieved only by a lilac base to the lip. A dingy form of *Odontoglossum nebulosum* came from the same exhibitor. Mr. Ross, gardener to Sir George Macleay, Pendell Court, Bletchingley, brought a flowering shoot of *Thunbergia laurifolia*, known in gardens also as *T. Harrisii*, and of which a coloured plate was given in *THE GARDEN*, Sept. 25, 1888. It has large bluish-purple flowers, finely pencilled in the throat. Mr. Ross also showed the almost hardy and beautiful *Acacia verticillata*, one of the finest *Acacias* of pendulous growth. Hardy Primrose True Blue, exhibited by Mr. R. Dean, of Ealing, had flowers of an almost true blue, but not quite. The name True Blue is misleading. The flowers are more of a French ultramarine blue, with a tinge of purple in them. It deserved a certificate, as the colour is strong and telling. Messrs. Paul and Son, the Old Nurseries, Cheshunt, showed Lenten Roses of various kinds and a few other choice hardy flowers, the best of which are described in "Notes of the Week" of the present number. A bronze medal was awarded. Messrs. Paul also showed flowers of *Cœlogyne cristata* (Chatsworth variety) and *C. cristata* (Wollen's var.), and the latter has flowers purer, larger, and handsomer than those of the well-known Chatsworth form. Messrs. J. R. Pearson and Sons, Chilwell, Notts, exhibited plants of *Yucca filamentosa* fol. var., which makes a showy pot plant, the leaves being finely variegated. It is, however, a slow grower, and certainly not so hardy as the green-leaved type. A warm house is necessary to bring out to the full its striking character. A most interesting exhibit was cut flowers of the earliest English Daffodil, *Narcissus pseudo-Narcissus* var. *Trollius*, from the Rev. W. Wilks, Shirley Vicarage, Croydon. A note described it as introduced and distributed by the Rev. W. Wilks. These flowers had been grown without any heat in a cold frame. The trumpet is short, as in the Tenby Daffodil, deeper in colour, and the petals pale yellow. We should like to know more about this form. A plant of *Lælia elegans* *Blenheimensis* was shown in full flower by Mr. Whillans, gardener to the Duke of Marlborough, Blenheim. It was well grown, and carried several blooms of a

dull brownish rose tint in the sepals and petals, the lip bright purple. Mr. H. Batchelor, The Gardens, Catton Park, Norwich, exhibited flowers of *Cypripedium insigne*, and from Mr. C. J. Rowe, gardener to Mr. W. H. Scott, Nunfield, Dumfries, came *Lælia anceps* var. *Scottiana*, a richly coloured form, but scarcely worth a varietal name. A flower of *Cattleya Trianae* Yatesi, from Mr. T. Rawlings, The Gardens, Birches Green, Erdington, Birmingham, showed this to be a variety with an especially richly coloured lip.

Large groups of Cyclamens were shown both by the St. George's Nursery Company, Hanwell, and Mr. J. May, St. Margaret's Nursery, Twickenham, a silver medal being given in both instances. Mr. J. James, Woodside Nursery, Croydon, showed flowers of his remarkable strain of Chinese Primulas, and Mr. Owen, of Maidenhead, also had a similar exhibit, the strain receiving a commendation as it well deserved. The colours were strong and varied. The double forms were of unusual beauty.

Messrs. Barr and Son, of Covent Garden, had a large group of Daffodils in pots, and from the variety represented there is no lack of good kinds for this mode of culture. A silver medal was awarded. Messrs. Barr also had flowers of *Iris reticulata* and its variety *Krelagei*, with a few other choice early blooming hardy plants.

An award of merit went to Mr. J. T. Jackson, Bourne Place, Bexley, for a spotted form of *Odontoglossum Pescatorei*. It might have been certificated without harm, as it is a choice variety, richly spotted with crimson-chocolate, and only needs good culture to secure a strong spike, when the flowers will doubtless come larger and fuller.

Fruit Committee.

There was as much fruit as flowers on this occasion. Messrs. G. Bunyard and Co., Maidstone; Messrs. J. Cheal and Sons, Crawley; and Mr. Smee, Wallington, staged large and representative collections, in each case a silver medal being given. Mr. T. F. Rivers, of Sawbridgeworth, had a collection of Apples and also Oranges and Lemons. A pot plant of the Bijou Lemon, which carried numerous small pale lemon fruits, was extremely ornamental. There were also fruits of the St. Michael's, Maltese, common oval, Seville, Maltese Blood Oranges, and of the Taringo Shaddock, and White Lemon. Thirty-five varieties of Apples came from Mr. W. Roupell, Harvey Lodge, Roupell Park. Mr. J. Clayton, Grimston Park, Tadcaster, had a good selection from Telegraph Cucumber named Yorkshire Telegraph; and Mr. Howard, Bridge, Canterbury, a firm, large, and heavy Onion named Canterbury Prize. Messrs. John Cranston sent Apple Bietingheimer Red, and Mr. W. H. Divers, The Gardens, Ketton Hall, Stamford, Apple Carlton Seedling, which is said to be a good cropper. Messrs. J. Veitch and Sons had several varieties of variegated Kale, dwarf, curled, and bright in colour in some instances. An award of merit was given to this useful strain.

Annual Meeting.

The annual meeting was held at 3 p.m. on the same day in the society's rooms, 117, Victoria Street, and there was a large attendance of Fellows to hear the results of the year's work. The chair was taken by Sir Trevor Lawrence, Bart., M.P., who, after the minutes had been read and signed, gave a brief review of the work that had been done in the past year. He mentioned that the society met under much more favourable circumstances than in 1888, and those who looked at its financial position would have every reason to be gratified with it, as the debt of 1888 (£1152) had been removed. This improved condition of things was in no small measure due to the honorary secretary, Rev. W. Wilks, and the honorary treasurer, Mr. Morris, of Kew, both of whom had sacrificed much time for the society's welfare, and whose services had been of the greatest value. He said that the council are most anxious that the resources of Chiswick should be developed to the greatest possible extent. £100 was lost on the Temple show owing to the wet weather, but he

said a similar show would be held this year, and if fine weather favoured it, should bring in a good return. Further encouragement would be given to the market growers, whose display on the last occasion was large and interesting. Sir Trevor Lawrence considered that the society would not be doing its duty unless it published its journal and placed it in the hands of its Fellows, and it would meet the wants of some of the country Fellows who thought they did not get enough for their money. While the society endeavoured to do its duty there was no reason to fear that it would not receive hearty support from horticulturists. The chairman said twenty-nine new members had been elected that day. Mr. Houghton, a former treasurer of the society, thought the items seemed intermixed, but as far as he could see there is a surplus of £200. Mr. R. Dean mentioned that the date of the proposed conference on Chrysanthemums was fixed for the day of the National Chrysanthemum Society's Exhibition at Westminster and other important shows. Sir Trevor Lawrence said the date of the conference was fixed before the dates of the others had been determined on, but it had been changed to the 5th and 6th of November, so as not to clash with other exhibitions.

The report was then adopted, and it was suggested that more encouragement should be given to country members who could not in many cases attend the London shows. Six members of the council having retired, their places were filled up by the appointment of Messrs. J. R. Bourne, W. Coleman, S. Courtauld, H. J. Pearson, T. F. Rivers, and Sir Charles Strickland, Bart. A hearty vote of thanks to the retiring members of the council and to the chairman closed the meeting.

During the year 1888, 657 annual Fellows have been elected, representing an income of £924 4s. On the other hand, 81 Fellows have resigned and 48 died, representing a loss of £242 11s. The net increase of Fellows is thus 528, representing a net increase of income of £685 15s. The total number of Fellows on the society's books on Jan. 1, 1889, consisted of 556 life Fellows, 1080 annual Fellows, and 6 associates.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE annual general meeting of this society took place at the Caledonian Hotel, Adelphi, on the 11th inst. The report of the committee alluded to the rapid growth of the society during the past year, showing that there are now 276 members, 53 having joined during the past year. The publicity given to the society's work is engaging the attention and attracting to it the sympathy and support of the younger members of the gardening community. The amount of sick pay during the year just closed was £35 12s. 8d., a trifle over half of the sum paid in the previous year. This amount was divided between 15 members, the highest amount received by anyone being £4 14s. 6d., he having been paid the sum of 10s. 6d. for a period of nine weeks. The highest rate of pay is 16s. per week, and the lowest 10s. 6d., according to the sum subscribed monthly, there being a higher and a lower rate to suit the circumstances of gardeners. The sick payments are met by a deduction of 3s. 6d. and 2s. 4d. each during the year from the amount subscribed by each member. At the present time there is only one sick member upon the fund; no death has occurred among the members, nor have any payments been made from the Benevolent Fund during the past year. The balance in favour of the Benevolent Fund is now nearly £1300, so that the increase during the past twelve months is £81 17s. 5d., derived mainly from subscriptions, and by £34 10s. 5d. received as interest. The balance in favour of the Benefit Fund in January, 1888, was £2677 7s. 6d.; it is now £3058 3s. 1d., showing an increase of nearly £400. On the expenditure side, interest has been credited to members to the amount of £69 3s. 3d., which is more than covered by the interest received on the balance at the commencement of the year, namely, £78 1s. 2d. The Management Fund is similarly satisfactory; the total

receipts for the year amount to £83 6s. 4d.; this sum, added to the balance in hand in January, 1888 namely, £19 7s. 9d., brings the total income to £102 14s. 1d.; the payments to £82 11s. 9d., leaving a balance of £20 2s. 4d. to carry forward. The receipts from the annual dinner amounted to £42 9s. 6d., and the expenditure to £35 13s. 3d. Included among the receipts is a sum of £10, as a donation from Dr. Hogg, and one of £5 from Mr. William Paul. The treasurer's balance sheet is a record of the most gratifying financial progress. It shows that the year's income from all sources was £856 13s. 6d., including a balance in hand of £91 0s. 7d. The expenditure amounted to £714 19s. 11d., including the purchase of £528 Government 'stock of 2½ Consols; the treasurer is able to carry forward a balance of £141 13s. 7d. During the past year the trustees withdrew from the funds £4000 value of Government stock bearing interest at 2½ per cent., and re-invested it in stock of the corporation of Nottingham bearing interest at 3 per cent., guaranteed on the security of the borough rates; this will add an additional one quarter per cent. to the amount of interest received. Four new honorary members have been added since the beginning of January, 1888, bringing the total up to 36 who subscribe 1 guinea annually, and one new life subscriber of 10 guineas (Mr. W. Sherwood) has been obtained. The adoption of the report was followed by the re-election of Mr. W. Collins as the secretary, and by the vote of the members the sum of £20 was presented to him from the management fund for his services during the year. Messrs. F. Coates, E. G. Wheeler, R. Scott, G. W. Cummins, and W. Woods were elected on the committee for the present year. Votes of thanks were passed to the trustees, treasurer, and auditors, and it was decided that the annual dinner should take place in October next.

NOTES OF THE WEEK.

Pears in flower in February.—We have two standard Pear trees—one Brockworth Park, the other Thompson's—that were well in bloom in the early part of this month, but a heavy snowstorm on the 10th and 14th of frost immediately afterwards have destroyed the flowers.—J. MUIR, *Margam, S. Wales.*

Brighton Chrysanthemum show.—We are asked to state that at a recent meeting of the above society it was decided to alter the dates of the next show from November 12 and 13 to November 5 and 6, owing to the National and the Kingston shows coming on the same dates.

Draba boetica.—This is a charming alpine for early flowering. It is in fine flower now in a cold frame, its large yellow flowers making quite a pleasing variety. Its nearest ally seems to be *D. lasiocarpa*, which is well known in gardens, and which somewhat resembles the still more common *D. aizoides*. *D. boetica* has, however, more pronounced rosettes of leaves, larger flowers, and is altogether a more desirable plant.

Vagaries of Cyclamen persicum.—A three-year-old plant of Cyclamen, which has always before borne pure white flowers, is this year throwing a small proportion of rose-coloured self blooms, as well as several parti-coloured ones. The parti-coloured have the ground colour white, with broad longitudinal stripes of rose down each petal. About a score of the flowers are pure white, three are rose-coloured, and there are still many buds of each colour to open. The plant itself is in robust health.—J. C. T.

Pear Chaumontel.—While on the subject of Pears, I would venture to express my surprise that not one of your correspondents has had a good word to say for this sort, at least as an English grown fruit. That it would not find a place in your list of Pears suitable for all parts of England I can readily understand, but that amidst your numerous observers from all the counties of England, not one (as far as I have seen) should have said a kindly word for the Chaumontel passes my comprehension. It may ripen only against a south wall and only in the south-western districts, but I can answer for it that it does in Somersetshire, for instance, and there is no Pear to come near it (in

the early months of the year) for high flavour and sweetness.—G. T. BLOMFELD, *Norton Rectory, Stoke-under-Ham, Somerset.*

Euonymus radicans.—The variegated form of this makes good edgings for large beds, and is generally seen in a dwarf form, but when established it will sometimes develop a climbing habit where allowed to do so. A plant at the foot of a wall here has grown in this way quite through a *Pyracantha*, which covers the wall for about 7 feet in height, and is now about 2 feet higher than the latter, and with every appearance of making rapid growth. It makes a very pretty object; the variegated leaves peeping everywhere through the sombre-looking *Pyracantha*. Close by, a large clump of the purple *Aubrietia* is already flowering, and helps to form a good winter picture.—J. C. T.

Primrose True Blue.—The nearest approach to a blue Primrose we have ever had the pleasure of seeing was shown at the Drill Hall by Mr. Dean, of Bedford. It much resembles our common *P. vulgaris* in habit, the flowers being almost blue with a small bright yellow eye. It seems rather curious that Continental botanists should still keep calling our Primrose *P. acaulis*, while we are taught to call it *P. vulgaris*. There must be some very narrow point somewhere, or why this difference of opinion? We have never yet discovered the origin of the double forms, and would very much like to find out whether the development took place here or on the Continent.

Mr. Baker on Saxifrages.—It seems rather unfortunate that the Royal Horticultural Society should have chosen Mr. Baker to demonstrate on Saxifrages at such an unseasonable time of year. This genus is of the utmost importance to gardens. It is utterly confused, almost every garden having a different nomenclature, and if Mr. Baker is to help the gardeners, he could best do so while the majority of the species and varieties are in flower. The 12th of March will find very few except the *Megaseas* in a state for exhibition. The lecture is two months too early if the intention is to assist gardeners in nomenclature, and if this be not the object of the Royal Horticultural Society, then what may it be?

New Zealand Veronicas.—Of all the New Zealand Veronicas we have yet seen, few surpass *V. carnosula* as a pot plant, but perhaps that may be because we have not seen all the others under equally favourable conditions. The majority of them have a sturdy, compact habit, and are all amenable to pot culture. Such species as *V. epacridea*, *V. diosmæfolia*, *buxifolia*, *pinguifolia*, *cupressoides*, *Haasti*, and many others will be found to strike readily from cuttings, and in the course of a very few months will be ready for placing in the greenhouse. [It may be mentioned that the flowers are highly ornamental by reason of their quantity more than their individual quality.]

Saxifraga Burseriana præcox. as shown by Messrs. Paul, of Broxbourne, at the Drill Hall on Tuesday last, is very much like a variety sent out by Messrs. Smith, of Worcester, under the name of *macrantha*, and is certainly no earlier in bloom. It is, however, an advance on *S. B. major*, as it blooms as early and the flowers are more numerous and less liable to damp, which seems to be one of the chief failings of *S. B. major*, especially in the south of England. All the forms of major are charming additions to the alpine garden in early spring, and if kept in pots, where they do very well, clean, pure white flowers may be had at least a month earlier than they could be from the open air.

Pear Nouvelle Fulvie.—I am doubtful whether this Pear deserves a place among the twelve standard Pears of Britain. The area over which it will ripen in the British Isles (judging from my own experience of it) will, I think, be found too limited. It is undoubtedly a fine late Pear grown where the climate will bring it to perfection. I saw it first at Rendlesham, in Suffolk, some years ago. Mr. Mill, the then gardener, spoke highly of it as being a valuable late kind, always melting and delicious. Rendlesham, I ought to add, has a perfect Pear soil, and although not far from the east

coast, it is exceptionally well sheltered on the north and east sides with its own and the fine timber of an adjoining estate. On the contrary, both here and at Blickling neither Mr. Ocle nor myself have ever succeeded in growing it fit for dessert. The conclusion I arrive at is, as the majority of Pears do exceedingly well in this district (an any rate on walls), that if it will not ripen in North-east Norfolk it would be useless to growers further north. The specimens sent were grown on a south wall. They are as ripe as I can get them; therefore I send this variety to the kitchen for cooking.—W. ALLAN, *Gunton Gardens, Norwich.*

Snowdrops and Primroses.—For some weeks past my children have been bringing me handfuls of common Snowdrops and variously coloured wild Primroses. They gathered them in the uncultivated parts of the pleasure grounds, and in such positions they are exceedingly attractive in the winter and spring months. Everything is now hidden with snow.—J. MUIR, *Margam, South Wales.*

Cœlogyne lentiginosa.—An extremely handsome and but little-known species, which I recently noted flowering nicely in the Kew collection. The plant is dwarf; the spike erect, bearing several flowers; the sepals and petals white, inclining to yellow; lip white, with a broad, somewhat tawny orange blotch in the centre of the anterior lobe; the three raised lines on the disc are brown, as also are the edges of the side lobes. It would appear to have been an early discovery of one of the Veitchian collectors in Moulmein, and, I believe, introduced later to cultivation by the same firm, but it still remains somewhat scarce.—W. H. G.

Brockworth Park Pear.—Allow me to add my testimony to the vagaries of this Pear. I have an espalier tree of this kind, every bud of which has fully expanded, and had it not been for the severe weather of the last few days it would have been in full flower by this time. It is in the open garden, and therefore there is not the smallest prospect of the flowers setting, if they even expand now. I should be glad to know if this is a common habit of this Pear after a mild autumn, as if it is, its peculiarity had better be noted and its planting avoided.—G. T. BLOMFIELD, *Norton Rectory, Stoke-under-Ham, Somerset.*

Pear Ne Plus Meuris after a good season is excellent, large, melting, and has the true Pear flavour, its only drawback being somewhat gritty at the core. In the list of standard Pears I would substitute either Ne Plus Meuris or Passe Colmar for Nouvelle Fulvie. The late Rev. J. G. Nelson used to say, "There is no Pear to equal a well-ripened Passe Colmar." A Pear with a similar fine flavour is Soldat d'Espérance. It is a good bearer and ripens here from a standard or pyramid tree. I think the good flavour and hardness of this Pear have been overlooked by those who have recommended additions to the twelve standard Pears of Britain.—W. ALLAN, *Gunton.*

Crocus biflorus is a far more useful plant for pots than we were aware of previous to its being shown by Messrs. Paul and Son last Tuesday at the Drill Hall. The name given to it was C. b. var. argenteus, but it appeared to be the same as the type as described by Maw in his *Crocus* monograph. However that may be, it has proved a most useful free-flowering species in pots, and its prettily striped flowers are sure to commend it to growers of spring flowers. C. Imperati was also shown in pots, and the delicate buff ground and the purple featherings of the segments mark it as a most useful subject for the greenhouse or conservatory. It seems a pity that these *Crocus* species are not taken up more by growers, as they show more diversity, and, as a rule, last longer than the Dutch varieties. If properly handled they flower annually, which is more than we usually expect of the imported kinds.

Lenten Roses.—Though beautiful and attractive in form, the Lenten Roses want to be thoroughly understood before much success can be obtained in their culture. They grow well in the open air, but in such weather as we are having now they must be protected. They do well in pots, but for one year only, as we have just found to our cost. The

only successful way will be to treat them as we do *H. niger*, that is, keep two sets and plant them out as soon as they have flowered, lifting the strongest set for the year's blooming, and leaving the other to gain strength for the following year. The nomenclature is becoming very mixed, and is like to become more confused still by the hundreds of hybrids raised on every hand, chiefly from *colchicus*, *guttatus*, *abschasicus* and *orientalis*, four types which I would not wonder if future botanists do not consider mere varieties of the old *H. caucasicus*.

FROST AND VEGETATION.

I FIND differences of opinion among gardeners as to the forwardness or otherwise of vegetation. One will say there is the promise of a very early spring, while another is of opinion that trees and shrubs are quite backward. Things did begin to move with considerable rapidity in the early part of January, when the weather was mild, but frosts have intervened and the wintry character of the first week in February is maintaining the check. It is when vegetation is unusually forward and the early growth is tender and the root sappy, that frost is so peculiarly destructive to vegetation. During its continuance all vegetables seem to fall into a state of decay, and even a moderate amount of frost is sufficient to destroy many of the more tender kinds. Frost is always destructive when it succeeds copious rains. The plants are then saturated with moisture, which, expanding in bulk as it passes into the solid state, produces the rupture of the vegetable fibres. A continuance of cold rainy weather is also very harmful at times, when the temperature is very low and the leaden skies shut out all warmth from the sun. Fruits are also greatly injured and even destroyed by frost. I have frequently seen its effects in my own garden. I have some Pear trees that face the east, and in early spring when the blossoms and incipient fruits are covered with hoar-frost, the rays of the sun directly it emerges above the horizon fall upon them, with the result that the blossoms are scorched as by fire. Very sharp late frosts destroy the fruit at a later stage; their watery portion is changed into crystals of ice, which, occupying more space than the fluid from which they were produced, burst the small vessels in which they are formed; hence, the fruit, when a thaw takes place, decays.

The hoar-frost, or, as it is popularly termed, the white frost, which appears in the mornings, chiefly in spring and autumn, is simply frozen dew. It is generally the result of a sudden clearing up of the weather after rain, when a considerable degree of cold is produced by the rapid evaporation. It will be noticed that after a fall of rain the wind shifts into the north and the atmosphere suddenly clears up. When this takes place during the night or early in the morning, a strong radiation of heat from the earth commences, the cooling effect of which is increased by the copious evaporation from the wet surface of the plants and the Grass. It is obvious from this that the moisture which appears in the form of dew before sunrise is often changed into rime or hoar-frost on the appearance of that luminary. The reason is that as the atmosphere begins to be warmed by the sun's rays, the evaporation is accelerated, and consequently the cold on the wet surface of the ground augmented. Hence we see the reason why frosty nights are so much more prejudicial to the tender shoots of plants when they are succeeded by very bright mornings. Hence, also, hoar-frost is formed on Grass or plants when the thermometer placed a few feet above the ground indicates a temperature 3° or 4° above the freezing point.

Various projects have been proposed at different times to avert the disastrous effects of the morning frosts on vegetation in spring; but, unfortunately, it is only on a very limited scale that any means can be adopted for the purpose. Whatever prevents the formation of dew will protect plants; hence it is that a covering of nets or gauze will protect the blossoms on fruit tree walls. But the most effectual means is to check the radiation by screening the plants from the chilling aspect of the

clear sky. I can, as a youngster, remember my father syringing the buds of the Tree Pæonies when covered with hoar-frost before the sun could fall upon them. This operation was always done so that the sun could fall upon and dry them before the moisture could be again turned to hoar-frost.

R. D.

Testacella Maugei.—In a contemporary, I observe, "A. D." is somewhat in doubt as to the habits of this species of slug, and says that it is plentiful in his district. I should be glad if "A. D." would send me one or two examples. I have found *T. haliotoides* in various places in the suburbs of London, but nowhere else. This, however, may be accounted for through the habits of the *Testacella* being subterranean, where they feed upon earthworms, and they seldom visit the surface at any other time but during the night, but then, I am satisfied, they do not feed on vegetable matter, having tempted them with all sorts of toothsome vegetable food, but it was never touched. They certainly should not be killed. I look upon them as one of the gardener's friends. There appears to be but three species of this slug, distributed in the south of Europe, the Canary Islands, and Britain. They are said, however, to have been introduced into Britain.—W. H. G.

The cardinal Willow.—In reply to Mr. Smith (p. 114), "What is it?" I beg to say I believe it is a good form of *Salix vitellina rubra*, differing very slightly from *Salix Basfordiana*, which in our soil produces a brownish red twig not nearly so bright, but if anything tougher than that of *S. cardinalis*. This toughness may be imaginary, or it may be due to the youth of the bushes, as shoots from either of them can be tied into knots, a property which makes them specially valuable. *Cardinalis*, a very good and pretty name, is not, as Mr. Smith suggests, newly invented, as the Willow was sent to the late Earl Somers by the Marchioness of Waterford, Ford Castle, Northumberland, about twenty-five years ago. How long it has been grown there under this local or popular name, I am unable to say, but knowing her ladyship to be a great lover and planter of ornamental trees, it is by no means improbable that she introduced it from Mr. Smith's section of the United Kingdom. Upon receipt of the cuttings under a name which I knew must be local, I at once referred to Loudon, who neither gives *cardinalis* nor *Basfordiana*, I believe, as synonyms; consequently, while giving away cuttings pretty freely, I resolved to test it by the side of others, and this is my conclusion, that the man who owns and admires a good tree of *S. Basfordiana*, "has seen the cardinal." I am indebted to Mr. Smith for unsolicited kindness in sending me some beautiful blooms of Michaelmas Daisies, and shall now be pleased to show my appreciation of his courtesy by sending a bundle of cuttings of the cardinal Willow, that is, if he will accept them. One stipulation, however, I must make, and that is, for *S. vitellina rubra* to retain the appropriate name of cardinal.—W. C.

Garrya elliptica.—This Evergreen is quite hardy here, growing in the common soil of the kitchen garden. It has attained large proportions on a wall facing the north. Throughout the greater part of the year its appearance is very much like that of an Evergreen Oak, but at midwinter and during the spring it bears a profusion of drooping catkins, many of which are 1 foot in length. These are very ornamental, and give the plant quite a distinct character.—J. MUIR, *Margam, S. Wales.*

Cauliflower Magnum Bonum.—I find Mr. Iggulden places this variety amongst ideal vegetables, but amongst late varieties. It may not be quite so early as Extra Early Forcing, but it comes in with Early London, and is far superior to it. As I have grown *Magnum Bonum* on our clay soil in Essex, I cannot conceive of anyone looking round for a better variety. I would like to back up Mr. Iggulden in recommending the following trio: Extra Early Forcing, *Magnum Bonum*, and Autumn Giant.—J. DOUGLAS.

Posoqueria latifolia.—Will any reader of THE GARDEN give me any hints as to the cultivation of this plant?—G.

Names of plants.—Mrs. Smeaton.—The yellow and chocolate flower is that of *Odontoglossum luteo-purpureum* (well-marked form); the other a poor variety of *O. Alexandræ*.—G. G.—Specimen insufficient.

WOODS & FORESTS.

THE OAK.

THIS interesting tribe of hard-wooded trees occupies a wide geographical range, and exhibits great variety in size, shape, and colour of foliage. The genus comprises about 150 species, many of which are highly ornamental; some are evergreen, others sub-evergreen, and although such are very attractive as ornamental trees for embellishment, yet for general utility, massive contour, and grandeur of outline the British Oak (*Quercus Robur pedunculata*) stands at the top of the list. In the natural Oak forests of Britain and Ireland I have found several varieties of this tree, one of which, namely, *Q. R. sessiliflora*, is considered by some botanists to constitute a distinct species, and as I have found a considerable difference in the rate of growth and quality of the wood, independent of the foliage and fruit of the two kinds, I think we are warranted in recognising them as being distinct. The principal characteristics of the two species are that the fruits of *sessiliflora* are sessile, while those of *pedunculata* are produced upon long foot-stalks. In early life *Q. R. pedunculata* makes slower growth than *Q. R. sessiliflora*, but when fully matured the difference in size is not perceptible, and the quality of the wood of *Q. pedunculata* is of a harder, firmer texture than that of *Q. sessiliflora*. When collecting the acorns it is also important to select such as are plump, well filled, and of full size, as they produce by far the strongest and best young trees. The tree is sometimes propagated by digging or trenching patches of ground in the forest at the desired distance apart and sowing the seed on the spot where the trees are to remain until they are matured, but as young Oaks raised in this way are very apt to be cut over and eaten by vermin of different species, the better plan is to raise the plants in a nursery and plant them out in the forest after they have attained the size of stout stocky specimens. The acorns are ripe and ready for collecting in autumn, when they should then be sown at once, but in cases where there is any great risk of them being eaten by rats or mice during winter, they had better be kept in a dry, airy loft till spring, when they should then be sown on well-pulverised nursery ground. The seed should be sown broadcast and not too thickly, and covered over with fine soil to a depth of nearly 1 inch. Two years' seedling plants should be removed from the seed bed and planted in nursery lines 18 inches apart and about 6 inches asunder in the rows, and in doing so the tap root should be cut back with a sharp knife to induce the formation of fibrous roots. When plants are handled in this way they are in prime condition for planting out where they are to remain after standing in the lines two years, and as they are generally well furnished with fibrous roots very few failures occur. In cases, however, where plants of an extra large size are wanted for making up blanks, the plants had better be transplanted a second time, thus promoting root growth and the hardiness of the plant. Although the Oak is a hardy native tree, yet shelter in early life is beneficial in promoting its growth and healthy development; hence the origin of the word "nurse" as applied by foresters to hardy trees of other species planted along with the Oak to afford shelter.

In the early stages of its growth the Oak requires special protection from vermin and insect pests. Hares and rabbits are apt to bark

the stems of young trees if not protected, and for this purpose I have found a few small branches or Heather tied round the stem a very cheap and efficient protection. Although the Oak likes shelter, yet it is impatient of a close, damp atmosphere, and when growing under such conditions the stems and branches are apt to become covered over with different species of Lichens, one of the largest of which is *Ricasolia amplissima*, whose lobes are large and spreading, of a whitish or greyish colour in dry weather, but when wet they assume that of a vivid green. Another species to be met with under such conditions is the *Lacanora tartarea*, which gives the stem a white appearance as if coated over with hoar-frost. *Pannaria plumbea* is of a leaden colour and corky texture, and is found on different species of trees as well as the Oak. The best plan to check the ravages of these pests and promote the healthy development of the trees is to have the plants gradually thinned in order that air may circulate freely through the plantation. The Oak likewise occasionally suffers considerable damage from the ravages of different species of caterpillars. The progeny of the small green Oak moth (*Tortrix viridana*) is very plentiful during some seasons, and often commits serious damage to Oak trees by eating off the foliage; but the lackey moth (*Clisiocampa neustria*) is often the most destructive, and in some seasons defoliates whole plantations. The Oak is likewise liable to suffer considerable damage from different species of gall-flies, who deposit their eggs on the twigs, buds, and leaves, and thus to a certain extent retard the growth and formation of wood in the tree. The Currant galls of the catkins are produced by the *Cynips quercus pedunculi*, and present the appearance of a pendent bunch of Currants attached to the twig. Again, *Cynips quercus folii* deposits its eggs in irregular groups on the back of the leaf, and is thus a means of destroying its natural and useful functions. These galls are about the size of a Currant, green in colour, and tinged with red. Another Oak gall which I have often found is of a larger size than the last-mentioned, yellow in colour, and the interior composed of a soft spongy substance, in the centre of which I have found the perfect insect in June and the beginning of July. The fly is of a slender shape, jet-black in colour, with pretty long wings, which are folded up when it emerges from the interior, but on exposure to the heat of the sun it soon assumes its natural shape and full development. The best remedy for these pests is to collect the galls and burn them.

The price of Oak wood varies to a large extent according to size, shape, and quality. Large clean-grown bends, when sound and thoroughly matured, generally command the highest price, and in order to attain this, foresters often take great pains in pruning their trees in such a way as to promote the formation of natural bends fit for boat and ship-building purposes. The Oak is a useful thrifty tree at all stages of its growth, and suckers produced from the roots after the trees are felled soon attain a size suitable for fencing, hurdles, hoops, crate-work, and a variety of other purposes. It is one of the best coppice woods we have, and at thirty years old, even on inferior ground, it will often realise from £25 to £30 per acre. J. B. WEBSTER.

A Pine forest in Switzerland.—There is a wondrous charm about these illimitable forests of Pine which for miles and miles clothe the huge buttresses of the Alps. The charm is intensified at early morning, when a delicious fragrance steals up from innumerable wild flowers in the various open-

ings among the trees and from the green Moss which clothes with such velvet softness the rocks lying half hidden in the rich verdure.

Seasoning wood by steaming.—It is asserted that timber can be successfully seasoned by means of steam, the plan being as follows: A boiler for the generation of the steam is so constructed as to allow of the escape of the steam at several points where required, so as to envelop the wood which is to be treated. The timber is heated gradually by the steam up to boiling point, when the sap moisture is expelled from the wood by reason of the expansion it undergoes, viz., to the extent of 1650 times its bulk.—P.

Hawthorn hedges.—These should be planted upon the level in fairly dry soils, and upon a raised bank or dyke on clayey lands. The Hawthorn does not flourish upon very light sandy soils, and when planted upon these a compost of part clay should be well worked into the land, and it may be desirable to mix a few Beech plants with the Hawthorn. Upon heavy clay soils an admixture of lime and road-scrappings will be found advantageous to the young Quicks. Three-year-old plants which have been two years transplanted will generally be found strong enough.—A.

The Scotch Fir as a timber tree.—Now, when the subject of profitable planting is being so much discussed, I should like to raise the question of the value of the Scotch Fir as a timber tree and the conditions under which it grows to the greatest perfection. The Scotch Fir is extensively distributed throughout the north of Europe, and in some countries produces the famous red deal used for so many purposes. In England, Hugh Miller noticed that the Oak was commonly used for joists and beams in the houses, even of the humblest, and that in Scotland the Fir was almost as lasting, under some circumstances, as the Oak. The Firs in the Highlands produce timber of far superior quality to that produced in the south of Scotland and in England, where, although this Fir attains to large dimensions and becomes a fine looking tree, its timber is almost worthless. This Fir is used extensively as a "nurse" in growing plantations, is planted for sheltering purposes and for cover, and it is supposed that the timber differs very much in different situations; but we have no reliable information on that important point. There are also superior and inferior varieties of the tree—the Braemar variety being considered much the best. The Highland timber is, I believe, equal to the best red deal imported from abroad, and I learn that plants, 5 feet and over, have been cut out of trees from Scottish forests. In many parts of England it grows fast and freely, and one would imagine its timber would not be so much inferior to that of the Highland Fir, difference in climate not being so remarkably great in any respect. I notice that in the low sandy lands in Nottinghamshire it grows into a fine tree—pushing out strong horizontal limbs, the characteristic of this Pine, and has beautiful clean bark; but in Yorkshire, on high and exposed situations, it grows slowly and does not appear to be very long lived. The tree loves shelter, and appears to thrive best in plantations of its own kind, although exposure is said to improve the timber. Can any reader furnish any useful particulars on this subject?—Y.

Picea pungens.—Dr. Regel calls attention to the interesting fact that *Picea pungens*, the so-called Colorado or Blue Spruce of the Central Rocky Mountains, is by far the hardiest and most desirable of all the Spruces in the very severe and trying climate of St. Petersburg.

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London: 37, Southampton Street, Strand, W.C.

No. 901. SATURDAY, Feb. 23, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

SNOWDROPS.

I SEND to you a handful of Snowdrops. There are more representatives of the different species in blossom just now in my garden than is generally the case. You will know them all at once—*Galanthus lutescens*, *Sharlocki*, *Imperati*, *poculiformis*, *plicatus*, *plicatus major*, *Elwesi*, with *virescens* and *Redoutei* soon to follow. *Galanthus nivalis* var. *corcyrensis* has retired into the dim distance of last year, and *G. nivalis*, pure and simple, is almost too abundant in this part of the world for mention. *Galanthus lutescens* is a great beauty and very singular. The yellow ovary and yellow markings upon the petals put it quite by itself. It is a Snowdrop all over, but of rather a delicate sort. Though it does well enough in the Isle of Wight, it may be doubted if that would be everywhere the case. *Galanthus Sharlocki* differs from it in every respect. It is a queer, odd representative of the family to which it belongs, and its split spathe stands up on either side of the drooping bell in a very inelegant fashion. I have heard it compared to donkey's ears, but it seems to me to resemble the pictures of Mr. Gladstone's shirt collars as we know them in *Punch* more than anything else. So far as this goes, it might be a true Gladstonian flower. *Galanthus poculiformis*, with the inner segments of the corolla elongated and closing inwards, is, as you said quite lately, a flower which is well worth growing. The others speak for themselves. I am very fond of *Galanthus Elwesi*, and I think it is a most pleasant addition to the treasures of spring. Its large size and the shape and extreme whiteness of the outer petals give great attractiveness to it. Mr. Boyd, of Melrose, N.B., was so good as to give me some bulbs of *G. plicatus major* last year, and I am looking for their flowering with great interest and curiosity. This ought to be a Snowdrop of no common account, and I shall be able to judge for myself in the course of a few days. *Galanthus Imperati* is, of course, to be very much prized. I also enclose a specimen of *Galanthus æstivus*, as it is called. It baffles me rather, for I was told that it would carry me well on towards the summer, but I suppose a Snowdrop's instincts have prevailed, and it is in full blossom now. One likes to have them all coming on one after another, and they tend to cheat us into the fallacious belief that the year is not passing away; but all the settings of a Snowdrop, so to say, would be out of place in April or May. A Snowdrop to be a Snowdrop should come out much sooner than that. *Galanthus virescens* is treading on the heels of all the rest, and is just now breaking the ground. According to Mr. Allen, it will be more singular than beautiful. But the beautiful sorts have not all been mentioned yet. *Galanthus Redoutei*, or, as I believe it should be more properly called, *latifolius*, has a warm place in my affections. It differs from the whole sisterhood in the colour of its grass-green leaves, and on this account some may perhaps say that it should take a high rank in it.

There is one Snowdrop which I cannot get hold of at all, try as I may. The number of letters which I have written about it is legion. It eludes me, and slips through my fingers when I hope I have obtained it at last. I refer to *Galanthus octobrensis*. If it were not the case

that I have once in my life been in its company, and I believe I have seen it with my own eyes, I should begin to think that its existence is apocryphal. The mere mention of its name carries me back to the time when I used to bend over the frames of my deeply lamented friend, Harpur Crewe, and when he used to discourse to me on their contents. I have also seen the flower in Herr Max Leichtlin's tempting lists, but though he has been most kind and liberal to me on all occasions, it has never been in his power to let me have this Snowdrop, and so it has gone on. I have heard of it here, and I have heard of it there, but never once has any small box come to me with *Galanthus octobrensis* for its contents, and I fear now it never will come. May I say that I am hungering and thirsting for this particular bulb, and if any of your correspondents should by chance have a single specimen to spare, I should be greatly indebted to him for it, and would offer anything in my power in exchange? I saw the other day that a correspondent of yours who signs himself "Jay Aye" seems to possess this particular Snowdrop. I hope his eye may see these lines and his heart be relenting towards me.

I should just append to the others the name of *Galanthus nivalis* var. *corcyrensis*, which does very well here, though its constitution is tender. That began the Snowdrop dance with me a long time ago. It should yield the first place to *Galanthus octobrensis* and be content with the second. I have only to say that the reason why I possess so many different sorts of Snowdrops is that I have a great many very kind friends. The names of Mr. J. Allen, Herr Max Leichtlin, the late Rev. Harpur Crewe, Mr. Boyd, M. Krelage, and of others are written all over my garden in characters which are as pure and tender as the driven snow—Snowdrops in full blossom tell of them.

St. John's, Ryde.

H. EWBANK.

THE FIRST SNOWDROP.

Is aught more perfect than the driven snow,
Like angel's garments spread on earth below,
Like diamonds sparkling with reflected light,
In winter sunshine—pure and dazzling white?

Yet e'en in sunshine snow is cold and drear,
We think of homes that have no warmth to cheer,
And as we watch the cold blue shadows lie
On snow-clad fields, we wish that spring were nigh.

But when the modest Snowdrop lifts its head
Upon the Grass or in the garden bed,
Hope dawns—we fancy spring is near,
That in the copse the blackbird's note we hear.

As white and cold in winter-time it blows
(And lacks the fragrance of the summer Rose),
From arched and slender stalk the pure brave
flower

O'er Nature's wreck droops down—a living power.

The crystal snow is pure and knows no strife,
The Snowdrop breathes of spring and teeming life,
Fears not, though frail, with wintry storms to cope,
Speaks to the heart of cheerful trust and hope.

Feb. 6, 1889.

S. LYDIA EWBANK.

A blue Primrose.—The really blue hardy single Primrose which I exhibited at the Westminster Drill Hall last week, though it failed curiously enough to receive honour at the hands of the floral committee, yet by all others was admitted to be the very bluest in colour of its kind ever seen. I regard this novelty as marking a very distinct advance in Primroses. I have but the one seedling plant which has such blue flowers, but others are of the same strain. They have grown from out of the mauve or lilac-tinted forms. Flowers of the blue *Primula* so-called compared with those of the Chinese Primrose were found to be several shades lighter. I do not think that among the members of the

floral committee there are many who know much about Primroses, but if some Orchid having an additional spot upon its flower is shown, a certificate is granted at once.—A. D.

THINNING AND COLOURING CHOICE FRUITS.

ALTHOUGH many pages quite recently have been written upon soils, stocks, and roots in their relation to colour, but little has been said about thinning, and yet I believe this operation exerts a powerful influence, as colour is rarely perfect where quality is second-rate. If we over-crop an Apple or a Pear tree, the fruit is small, flavourless, and deficient in colour. If we walk through a neighbour's vinery, furnished say with Hamburgs, in which the Grapes year after year have coloured well, but at the time of our visit are as red as foxes, our friend apologises by saying the Vines were extra strong or the bunches have developed beyond his expectations, and he finds, now it is too late, that he has over-cropped them. In the Peach house the same result follows over-cropping. The fruits go on fairly well until stoning time; they are rather small, it is true, and lack that dense dark colour the initiated grower likes to see. In due course they commence dropping, and drop they will until the outraged tree is sparsely furnished with less than half a crop of puny Peaches. These surely will finish well, but alas! the mischief has been done; the tree has received a check at a critical stage. The wood may have become gross, but the fruit remains small; it does not lay on brilliant colour, it goes through the second swelling and ripens prematurely.

Forced Figs play the same pranks, only in an intensified form, for, like a certain animal, they have become obstinate and perverse by years of bad treatment. If the wood of the Fig is roasted and thoroughly ripened, each shoot shows fruit enough for three, but knowing its capricious character, the grower says leave all to swell, as a large percentage are sure to fall when the time arrives for the last swelling. He is quite right, for sure enough they do drop, and no power can stop them. But why do they drop? simply because he is hoist with his own petard; he has lost all when a full crop might have been secured by timely thinning.

Melons are no exception to the rule. They set plenty of fruit which swells kindly for a time, but when the roots feel the strain they remain small—they never net. They are deficient in colour, flavour, and that delicious aroma which should pervade the garden. The mischief with these denizens of the burning plains of the East does not always end here, for not unfrequently, like Jonah's Gourd, the plants, apparently right at sunrise, are dead before the evening. Bad culture may have something to do with this collapse, but in many instances it is due to over-cropping.

One might multiply instances of loss of quality as well as of colour, but enough has been said to remind the young beginner that he must be merciful if he would have his trees and plants generous and grateful. Quantity alone in these times is of no use; we must have quality also. A new season has just commenced; thinning as yet is in its infancy, but soon the Vines, the Peaches, and other hothouse fruits will require this attention. Wall fruits, Apples, Pears, and Plums will follow in due course, and all, I venture to say, will pay for judicious thinning. It is not my intention to go into details, as every man competent to grow fruit should be capable of thinning to an extent that will ensure a full crop of the finest quality without distressing the

tree on the one hand, or allowing it to become gross on the other.

The advantages do not, however, end here, as one reads year after year in the annual reports that hardy fruits in the garden are a full average, whilst crops in the orchard occasionally are a failure. How does this happen? Well, the first are close to the hand and eye, consequently they get well thinned; the latter are beyond reach. Thinning is impracticable; the crop exhausts the trees. They require one season at least to recuperate, and this is the secret of gluts and failures. W. C.

ORCHIDS.

W. H. GOWER.

DENDROBIUM SPECIOSUM AND D. HILLI.

THERE would appear to be several readers of THE GARDEN unable to flower these plants, and for the benefit of such I tender these few remarks. *D. speciosum* was sent to this country by Allan Cunningham in the year 1823, and I do not think it has been lost to cultivation since, so that, although the management of Orchids at that time was quite in its infancy, the plant was sufficiently hardy to maintain its existence through all changes. I do not think it is seen in flower so often as it deserves, especially as it blooms at this season of the year. *D. speciosum* is a native of New South Wales, where it has obtained the name of the Rock Lily. The pseudo-bulbs are very stout at the base, tapering upwards, and bear on the top two or three broadly oblong obtuse leaves of an intense, deep shining green on the upper side. At this season of the year it should push out its racemes of flowers from between its leaves. The flower-spikes usually reach from a foot to 18 inches in length. The flowers, though not large, are very numerous, wax-like, creamy white, and very fragrant, and last a long time in full beauty, and at this season of the year are a great acquisition. Now, this being an Australian plant, many amateurs imagine that it can be grown in an ordinary greenhouse with Camellias, &c., and so it may, for it is very difficult to kill the plant, but in such a structure few flower it. I always like to give the plant the heat of the Cattleya house during the time it is making new growth. When the bulbs are finished up, I remove the plant to the greenhouse, and after being there for about a fortnight I place it in the open air, setting it in the full sun and withholding water. A shower of rain will not harm it, but should a continuance of wet weather ensue, the plant should be either laid on its side, or be removed to an open shed until the weather becomes settled again. Two or three months of this treatment will do wonders towards the production of flowers in the following winter. The plant should be removed in the autumn, when the summer weather has gone, and be placed for a time in the greenhouse, and from there be removed into warmer quarters in the month of December, when the flower-spikes will soon begin to push out at the before-mentioned joints. At this time a little water must be given, increasing the quantity as the spikes grow; after flowering is over, the treatment given above should be repeated. The plant, handled in the above manner, will not fail to produce flowers annually, the mistake made by most people being in not getting the growth made early enough, and consequently it cannot be ripened sufficiently to produce flowers.

D. HILLI. This plant was named by the late

Sir William Hooker after an old friend of mine, who was superintendent of the Botanic Garden in Brisbane, and who sent many new and beautiful plants to this country, amongst which the *Bowenia spectabilis* I look upon as the most remarkable plant of the age. *D. Hilli*, although reduced to a variety of *D. speciosum* by many, is yet a thoroughly distinct plant; its identity cannot be mistaken either in or out of flower. It is of the same coriaceous texture in its leaves, but its pseudo-bulbs are more than double the length of those produced by *D. speciosum*, whilst they are not half the size in circumference; the leaves, moreover, are longer and narrower, whilst the spike is double the length of that of the preceding plant, and pendulous instead of erect; the flowers are more loosely set and longer, whilst the sepals and petals are longer and narrower; the flowers are waxy in texture, creamy-white, the lip in addition being transversely streaked with purple. It is a much freer flowering plant than *speciosum* and requires similar treatment. Care, however, must be taken that in the ripening process the bulbs do not shrivel, as I do not like in any case to see plants too much distressed. This plant flowered with me for the first time in England early in the year 1861, and it continued in full beauty for many weeks.

Epidendrum purum (W. M. B.).—I believe this to be the name of the flowers sent, and if I am not mistaken the plant originated in M. Linden's establishment some years ago; nay, further, it was a long time back collected by that gentleman in Caraccas. The flowers have a pale green tinge, whilst in plants which I saw years ago in Belgium the flowers were white and, I think, fragrant.—W. H. G.

Orchids on cork.—I was much interested in the letter of Mr. Wood, in THE GARDEN, Feb. 9, on this subject, as I have a number on cork, some of them doing better than similar plants in pots and baskets, but I have principally used old rough pieces in preference to new. I hope to hear the experience of others on this subject, and trust if they condemn cork they will be able to give a reason, as that material is so easily made up in various ways by amateurs, and appears by my experience to be very suitable.—ORCHID AMATEUR, Bristol.

Cattleya Trianae lilacina.—From Mr. Fraser, gardener to Mr. R. B. White, of Arddarroch, Dumbarton, comes a superb form of this variety, which, notwithstanding its delicate beauty and distinctness, does not appear to have ever been recorded. The flower measures 7 inches across; the petals are 3 inches across and beautifully undulated on the edges; the lip is large and bold, $3\frac{1}{2}$ inches in length and $2\frac{1}{2}$ inches across, the anterior lobe deeply fringed; the whole flower delicate lilac-mauve in colour, with a stain of yellow approaching to orange in the throat. It is one of the very best forms of this variable *Cattleya* which has yet come under my notice.

Vandas (P. McLaren).—Your three *Vanda* flowers duly to hand are very fine, and fill the room with their rich perfume. They are all varieties of *V. tricolor*, and I quite believe you when you state that they have not been grown in a temperature of 50° . No. 1 is certainly *V. tricolor* Patersoni, a coloured plate of which appeared in THE GARDEN, Feb. 10, 1883 (p. 134). It is a very handsome form, and flowers very freely even in a young state. The sepals and petals are broad and full, white or creamy-white, profusely marked with rich brown, and the lip rich magenta. It is one of the very best and handsomest forms of this fine species. 2, *V. tricolor* insignis. This is the form that was so long grown in our gardens for the true plant of Blume, until the Messrs. Veitch, of Chelsea, introduced the true plant and dispelled the illusion. It is a strong grower. The flowers are tawny yellow spotted with reddish crimson, and the lip is soft lilac. 3 appears

to be the Dalkeith form of *tricolor*, the sepals and petals being similar in colour to those of the last, but the lip is of a rich magenta hue. It is exceptionally sweet. I repeat here what I have proved, that to keep these plants healthy and in good colour 60° is low enough for them in winter. *Vandas* do not require much rest, and if one has a house a little warmer even than this, flowers can be enjoyed all the year round.—W. H. G.

TEMPERATURE FOR VANDAS.

MR. FRASER's letter at p. 122 tallies with my experience exactly as regards the temperature for the Indian *Vandas*. Mr. Moore, of the Royal Botanic Gardens, Glasnevin, writes that *Vandas* will do well in a night temperature of 55° , occasionally lower. *Aerides* Brooki, A. Warneri, and A. Fieldingi will do with *Vandas*, but Mr. Moore adds that A. quinquevulnerum and A. suavisimum will stand great heat. I would not insist on great heat for Orchids of any kind, especially in winter. Our warmest house is seldom above 60° at night for at least four months in winter, and this morning, there being a keen frosty wind, it has dropped to 55° . This is an exception, but our houses are very much exposed to the north and east, and we have to hang mats on the exposed side to break the force of these frosty winds. Mr. Gower, at p. 30, says that the winter temperature should be 60° , the summer heat running up with the sun *ad lib.*, and that *Vandas* flower well under the treatment. It would, of course, depend very much upon the cultivator's definition of *ad lib.* It is a vague term; but will the plants retain their lower leaves with such high temperatures? I doubt it. Mr. Fraser's remark about *Vanda cærulea* is useful. I have no doubt that a temperature of 45° at night would answer well for this species in winter. I cannot say that we have succeeded with this species to my satisfaction. It succeeded very well for four or five years, but the plants which gave glorious spikes with over a score of flowers on each now only produce about half this number, showing that they have lost vigour. Some eight or ten years ago a remarkable specimen of *Vanda cærulea* was exhibited in London. It had four grand spikes on it, and was sold by auction for eighty guineas. It had been grown in one garden for twenty-five years in an ordinary cucumber house, and, as far as I could learn, the gardener hit on its culture by chance, but grown with Cucumbers it must have been warm. I agree with Mr. Fraser that dryness at the roots is essential in winter. It is singular that some Orchid growers have houses full of *Odontoglossums* and *Cattleyas* and not a dozen *Vandas*. Amongst the newly introduced varieties there are some very fine forms, the most recent being *V. Kimballiana* (Reich. f.), and described as "a glorious grand novelty." *V. Amesiana* is now well established, and is also a lovely new species. *V. Sanderiana* is quite a marvel amongst *Vandas*. *V. cærulescens* is a lovely species, the flowers being bluer in colour than those of *V. cærulea*, and the variety *Boxalli* is distinct. Indeed, in the "Dictionary of Gardening" fifty-seven species and varieties of *Vandas* are described. J. DOUGLAS.

Dendrobium amenum.—For the introduction of this pretty species, which I recently noted in great beauty, I believe we are indebted to Mr. W. Bull, of Chelsea. Its stems are tufted, pendent, and some 2 feet or more long. The flowers are borne two or three together on a short spike from each joint, and thus form a long raceme. The sepals and petals are pure white, bearing a broad blotch of purplish violet on each tip: the lip also is white, tipped in front with the same colour as the petals. The throat is orange with a few streaks of reddish purple. The flowers are very fragrant. It is some few years since I saw this plant, but I had looked upon it as a late spring and summer flowerer, and was surprised to see it blooming so early in the season. Its sweet odour, however, renders it welcome at any time. The plant is a native of Northern India, at some 5000 feet elevation.—W. H. G.

Epidendrum sceptrum.—This is an unusual time to see this pretty species in flower, as its

flowering season is the late autumn months, but it is so exceedingly handsome that one cannot pass it by whenever seen, and that is but rarely. It has compressed, pyriform pseudo-bulbs a foot or more long, and bears upon the top a pair of deep green leaves, from between which the raceme is produced. In the specimen before me this reaches a length of 18 inches, and bears numerous flowers, which are small, but richly coloured; sepals and petals rich bright yellow dotted with deep purple; lip rich purple, passing into white at the base. It deserves more attention than it usually receives. The plant is found about Pacho and Ocana at some 6000 feet or 7000 feet elevation, and therefore it should be grown in the cool house with the *Odontoglossums*.—W. H. G.

FERNS.

W. H. GOWER.

GONIOPTERIS.

THIS is a handsome family of Ferns included in the large old-fashioned genus *Polypodium*, from which, however, it is easily distinguished by its venation. In this, however, it resembles the *Nephrodiums* in general habit, but is distinguished from them by its want of indusium. It contains a goodly number of species, all of which are very ornamental if judiciously planted, some being suitable for baskets, others for a Wardian case; whilst the strong-growing kinds are telling objects when planted out in prominent positions in the naturally arranged fernery. Some of the largest growing and most vigorous kinds, however, have not yet been introduced to cultivation. There is nothing peculiar in the management of *Goniopteris*. I have grown them well in a compost of equal proportions of peat, loam, and sand. The kinds, however, suitable for baskets I have found thrive best with a much smaller quantity of loam. The majority of the *Goniopteris* are natives of various parts of the East and the West Indian Islands, as well as Tropical America, and these require stove heat. A few members of the family are natives of New Zealand and Japan, and thrive well in the cool house fernery.

G. REPTANS.—This is a small-growing plant and very effective when grown in a small hanging basket. In this way it may be used in the open fernery or in a Wardian case. The fronds are slender, varying in length from 6 inches to 1 foot, and at the points bear young plants. The pinnae are blunt, rounded, and light green. It comes from the mountain districts of Jamaica.

G. GRACILIS very much resembles the previously named kind, but it is altogether larger in all its parts. The fronds vary from 1 foot to 18 inches in length, and from 1 inch to 2 inches in breadth. It is also a native of Jamaica, and may be a local form of *G. reptans*. It is very pretty when grown in a hanging basket.

G. REFRACTA.—This is a bold-growing and extremely beautiful plant, producing fronds from 1 foot to 2 feet in height, and some 9 inches or 10 inches across. The fronds are pinnate, the pinnae opposite lobed and tapering to a point. The lower two or three pairs appear to be turned backwards or set on the reverse way. The colour is bright shining green. It comes from Brazil.

G. GHIESBREGHTI.—A bold-growing species from Mexico, with fronds varying from a foot to 2½ feet in height, of which nearly one half is naked. The fronds are pinnate, the pinnae being nearly opposite, and from 7 inches to 9 inches in length, prettily lobed on the edges, pale green in colour. The underside is densely covered with short white woolly hairs, and this has given rise to the name of *G. mollis*.

G. PENNIGERA.—A pretty, erect-growing plant, native of New Zealand, and, therefore, admirably adapted for a cool house. It produces fronds from 1 foot to 3 feet in length, about a third of which is

naked stem; they are pinnate, the pinnae being deeply and obtusely lobed. The sori are confined near to the mid-rib; colour of the upper side a rich deep green.

G. TETRAGONA.—This is an exceedingly handsome and distinct plant, and when well grown attains a height of 4 feet or more, by 9 inches or a foot wide, the stem being naked for upwards of a foot. The fronds are pinnate, the pinnae narrow, deeply and bluntly lobed, sori copious, upper side deep rich green. It comes from Brazil.

G. CRENATA.—In a young state this kind is very effective in a Wardian case. When strong, the fronds attain a height of 18 inches or more. The fronds are pinnate, the pinnae some 6 inches long, and between an inch and 2 inches broad. Native of Mexico, &c.

G. SCOLOPENDROIDES.—A dwarf plant suitable for a Wardian case. The fronds are simple and deeply lobed, so as to become pinnatifid; they vary from 6 inches to a foot in height, lanceolate in outline and deep green. Native of Jamaica.

G. SERRULATA.—This is a bold-growing plant from Jamaica, with fronds 2½ feet high and a foot broad. The sori are large and conspicuous, almost intramarginal, the colour soft light green; one of the prettiest of the large-growing kinds.

G. ASPLENIODES.—An erect-growing plant which forms an elegant little specimen in a Wardian case, attaining a height of about 6 inches and a width of an inch or 2 inches; when growing vigorously in the stove, however, it exceeds a foot in length and 3 inches in breadth, and in this state it becomes drooping in habit. It comes from Jamaica.

The above are a few of the handsomest from amongst the members of this genus, all of which will be found to add materially to the interest of a fernery, want of variety being amongst the worst features of the majority of the present time.

Trichomanes crispum.—A species which is widely spread in the Tropics. The plant in its normal condition is thriving well in the stove fernery at Kew just now. It is elegant, yet somewhat formal in shape, and the colour is a vivid sea-green. This belongs to a class of plants that should have more admirers than appears to be the case at the present time.

Trichomanes reniforme.—This beautiful New Zealand Fern is now growing into magnificent masses in the Kew collection, its distinct form and the very vivid green of its fronds rendering it a conspicuous object. It is curious that although growing so freely there does not appear to be any signs of fertile fronds, whilst all the specimens we have received from its native country have contained fertile fronds. The sori, forming a thick fringe all round the edge, add materially to its beauty. Why does this Fern remain infertile under cultivation?

Trichomanes pennatum.—This beautiful variety is now in good condition at Kew, and it is well deserving the attention of growers of warm-house Filmy Ferns. The fronds are pinnate, the pinnae long, narrow, and bright light green. The sterile frond is broader, and the end is produced into a long tail, which roots at the point and becomes viviparous. It appears to be a common species in Trinidad. Of this plant I should much like to see the variety *vittaria* in cultivation. The form is said to be sometimes found on the same rootstock as the typical *pennatum*, otherwise it would certainly never have been thought to be a variety of that plant. It consists of a long simple frond, and in the specimen before me it is upwards of 18 inches long, tapering at each end, whilst in the broadest part it is about 1 inch wide, furnished on either edge with a dense mass of exerted spore cases.—W. H. G.

Davallia gibberosa.—This handsome plant is a native of the Polynesian Islands, and not of Madeira, as I have seen it recorded. I believe it was introduced to cultivation by Mr. Williams, of Holloway, in whose establishment I recently noted it in superb condition. The rhizome is stout and

creeping, and the fronds many times divided into narrow segments of a rich green. It is admirably adapted for a hanging basket.—W. H. G.

Nephrodium cuspidatum.—This is a very pretty Fern, not frequently seen. I recently noted it growing in the Holloway Nursery, where it is stated to have been received from New Zealand. This, however, I think must be a mistake. I have several times received it from Ceylon, and also a very similar plant from India under the name of *Polypodium elongatum*. The plant is scaly at the base, the fronds varying from 1 foot to 2 feet or more in length, serrated at the edges of the pinnae, and bright green.—W. H. G.

Actinopteris radiata australis.—We noted recently in the Holloway nursery of Mr. Williams a good stock in excellent health of this pretty and singular Fern. It is very rare, and quite different in appearance to the equally pretty species, *A. radiata*, inasmuch as its fronds are longer and less fan-shaped, the long narrow segments being entire at the points, while in the typical plant they are bifid. The plant in question is usually about 6 inches in height, seldom exceeding 9 inches. It is a very rare and exceedingly interesting plant. It does not like much soil about its roots, and those who have succeeded in growing our native *Asplenium septentrionale* will understand the treatment required by this plant. It likes stove heat, being a native of Mauritius, Bourbon, and various other places.

THE ROYAL HORTICULTURAL SOCIETY.

TO THE EDITOR OF THE GARDEN.

SIR,—I am constantly asked about the Royal Horticultural Society, and why I left the council and the chairmanship of the floral committee. My horticultural friends and allies read *THE GARDEN*; I should therefore be obliged if you would let me answer the last question in it. As you are aware, I had long been chairman of the floral committee, and believe that I thoroughly knew its work, its difficulties, and its defects, and having no professional interest to serve, was perfectly unbiassed.

The council appointed a sub-committee consisting of four of the professional members of its body and myself, the only amateur, though the officers of the society might attend if they chose. I was, unfortunately, unable, owing to a previous engagement, to attend the first meeting of the sub-committee, and so could only refer them to a printed paper showing my views and the reasons for them.

Among the recommendations made by the sub-committee to the council were these: That all members of the judging committees should be Fellows of the society; that the groups should be judged at the same time as the exhibits which came on the table; that the numbers of those voting each way should be taken down; and that the names of the voters should also be given.

I objected to the first on the ground that we should lose the services of some first-class judges, who could not afford or would not pay a subscription in addition to giving their time and paying their expenses. To the second, that nothing prevented the group-judging being perfectly done after the table exhibits had been judged, and that as the chairman was responsible as much for the one as the other, he ought to be able, when he chose, to see the judging of both. To the third, that as long as the experts in each class of plants gave their opinion, it was wrong to put pressure on any members of the committee to vote on plants they knew little about, especially as to the question of novelty, on which judgments often turn. To the fourth, that, considering the many relations of almost all the committee to other professionals outside

it would destroy all independence in the committee; the sub-committee ceased to press this last, or I believe it would have been carried. The answer to my arguments was, the committee have considered the questions—vote—and the recommendations were carried. It then only remained for me, as I could not be expected to carry out regulations which from practice and experience I knew to be wrong, to retire from the committee and from the council, which I accordingly did. A large number of garden owners and others joined the society in answer to my appeal, among them fifty-one owners of gardens within a walk of my house. I owe it to all, especially to the last, to show that after having pressed them to join the society, I was not unreasonable in retiring from office.

I should have given this explanation before, but as some of the new Fellows joined on account of personal friendship, they might have sent in notice of withdrawal last year, and as I know that some of my late colleagues have really the good of the society at heart, I wished that they should not lose subscriptions at any rate till this year's work had been shown.

G. F. WILSON.

Heatherbank, Weybridge, Feb. 13, 1889.

NOTES OF THE WEEK.

Gardeners' Royal Benevolent Institution.

—We learn that the Jubilee Festival of this institution will take place on Thursday, the 13th of June next, upon which occasion Leopold de Rothschild will preside.

Winter Daffodil (*Sternbergia lutea*) thrives well in the gardens at Bradford Peverell, Dorset. I observed large clumps of it recently when visiting this place. They were growing at the foot of a large Pear tree facing north. I was informed that they bloomed extremely well in this position every year.—J. C. F.

Crocuses from Dublin.—Enclosed are a few early Crocuses for your table, including the last of *C. speciosus* (very small), *C. Sieberi*, *C. Aucheri*, *C. vernus* var. and *C. Cloth of Gold*. The Crocuses are all from the open.—GREENWOOD PIM, Monkstown, Dublin.

Eucharis amazonica.—I have a plant of *Eucharis amazonica* in a 12-inch pot, and carrying nine spikes with fifty flowers of large size and substance. Five spikes have six blooms on each, and four spikes have five blooms each.—DAVID TULLY, The Gardens, Brookmans Park, Hatfield, Herts.

Dendrobium Devonianum.—I enclose a flower of *Dendrobium Devonianum* for your opinion. The plant was imported last March.—GEORGE WALKER, The Beeches, St. John's Wood.

*** A good form of one of the most beautiful of *Dendrobiums*.—ED.

Iris reticulata major.—I send you *Iris reticulata major* herewith. It is a fine form, much larger and bluer than the type; unfortunately, most of the buds have been injured by the severe weather we have just had.—T. S.

*** The flowers received were larger than those of the type as usually seen, but there is not sufficient distinction between the two to warrant a varietal name.—ED.

A note from Clare.—The spring here so far has been one of extreme mildness, but it has been moist, and garden work, such as digging, trenching, &c., has to be postponed consequent on the wet state of the soil. I have made small pickings continually since Christmas of Cowslips, Primroses, and Polyanthus, which have bloomed well and promise a still greater percentage of blossom later on. I have also gathered some Violets. During the past few days the Snowdrop and Crocuses (yellow) have reared up their tiny bells of white and golden hued cups, while outdoor bulbs, such as Tulips, Hyacinths, are also peeping through the ground.—M. T. O'C.

Confusion of names.—In the *Gartenflora* a coloured illustration of a new form of *Convallaria* called *C. majalis prolifera* (Wittmack) is given.

Mr. Ware writes us that this plant in his new catalogue for this season is offered as *Spiranthes convallarioides*, this being Baker's name. This will avoid confusion and possible disappointment.

Flowers from Exeter.—We send you, picked from our beds in the open ground to-day, a few flowers of *Anemone fulgens*, *Narcissus pallidus præcox*, and *Iris reticulata*, the latter sheltered. For early flowering these are well worth growing. You will observe that the *Iris* is not only of a very beautiful shade of colour, but deliciously scented with a perfume as of Violets. The *Narcissus*, with its soft shade of primrose-yellow, is quite a gem among flowers at this season. If the present mild weather continues here we shall soon have plenty of Daffodils in bloom in the open.—R. VEITCH & SON, Exeter.

Spring Starflower (*Triteleia uniflora*) is a charming flower for early spring, more especially when grown in pots and given the protection of a cold frame. It always produces an abundance of leaves which well clothe the pots, and from amongst which rise the very numerous star-like bluish-tinted flowers, which just now are very beautiful in large masses. It is quite hardy in the open air, but flowers much later, and is all the better for a little protection from the cold winds. We have planted it in Grass, but it proved a complete failure, although every means was tried to establish the bulbs. In pots or favourable spots it increases very quickly, and no trouble will be found in growing these young bulbs to a flowering size.

Storing Apples.—Enclosed I forward two fruits of *Blenheim Orange*, one of Wellington, and one of Prince Albert, which have been stored in barrels instead of shelves—the orthodox way. At page 355, Vol. XXXIII., I called attention to this method of storing, which cannot be too widely known. The barrels were taken to the trees, filled carefully, returned to stores, and not interfered with again until required for use. Not 1 per cent. loss. You will perceive the *Blenheims* are as sound and fresh as in October, although the flavour may be less luscious and perfect.—W. CRUMP.

*** Excellent specimens for the season. The common way of keeping Apples is very much in want of change.—ED.

Crocus alata-vicus.—One of the most lovely Crocuses I have ever seen is *C. alata-vicus*. The last few mild days have brought this hardy species out in perfection, beautiful beyond comparison with any of the others open just now. In one clump the flowers were extremely varied, some white, others buff, and again some feathered and freckled, while a few were quite grey, and the older flowers a very rich purple. It is about the hardiest of all the Crocuses, and comes from the Alatan Mountains of Central Asia, the furthest north of any known species, with the exception of *C. Korolkowi*, an orange-yellow species from Samarcand and the Caspian Sea, and a fine subject for spring gardening. It is to be hoped the time is not far distant when these *Crocus* species will be taken up and grown instead of so many of the Dutch varieties. K.

Orchid flowers.—I send you a few Orchid blooms, and should like your opinion of the *Lycaste Skinneri* which you will find amongst the others sent. We have *Celogyne cristata* very fine just now. *Cypripedium Spicerianum* has been in flower since Christmas, and is very popular here. *C. Harrisianum* is a very free-flowering variety, flowering with us more or less the whole season through. The flowers of *O. Rossi majus* are from recently imported plants. I also send a spray of *Thunbergia Harrisii*, a very showy stove creeper. It requires plenty of room, as it is a very strong grower, flowering on the current year's growth. The flowers of it, however, are of such a transitory character as to make them quite useless for cutting.—J. G. M. G.

*** An interesting gathering. The form of *Lycaste Skinneri* sent is certainly a good one, but not better than some that we have in cultivation. *C. Spicerianum* and *C. Harrisianum* are two of the most useful *Lady's Slippers* we have, notwithstanding the tremendous number of hybrids that have been raised. Your form of *O. Rossi majus* is

excellent. A coloured plate of *Thunbergia Harrisii* or *T. laurifolia* was given in THE GARDEN for Sept. 25, 1886.—ED.

Winter Aconites are naturalised at Didlington Hall, Norfolk, a garden in which many bulbous plants are grown naturally and with good effect. These early spring flowers are very showy in a mass, especially when associated with the Snowdrop. A coloured plate of these two flowers was given in THE GARDEN of July 21, 1888.

Yuccas and the snow.—It is very sad to see the *Yuccas* after the heavy fall of snow we have just had has cleared away. Most of the large-headed plants have suffered more or less, but specimens of *Y. recurvifolia* have been very badly damaged, and in many instances are quite beyond recovery. The young growth in the centre has, of course, suffered, and even if those plants most damaged recover they will have lost much of their beauty.

Hellebores at Salisbury.—My experience with *Hellebores* may be interesting, as *H. niger* did thoroughly well on our moist soil on the junction of chalk and clay. In 1885 I obtained roots of *altifolius*, *orientalis* Dr. Moir, and *caucasicus punctatus*. They were planted under the shade and drip of a large Laburnum, and *orientalis* and *altifolius* have never failed to give me each year a splendid crop of flowers. *H. caucasicus punctatus*, however, had a hard struggle to live, but two years back I put a bell-glass over it, and now this year it flowered for the first time. I mislaid its label, but the dark, firm, pointed leaves, sparsely produced, seem to assure me that I rightly name the one that has failed up till now. The plants came from Messrs. Parker, of Tooting. I have never had any disease on any of the plants.—W. F. L.

Spring Meadow Saffron (*Bulbocodium vernum*) is a perfectly hardy European bulb, and one of the most beautiful in the open air at the present time. It hardly ever exceeds 4 inches to 6 inches in height, and although the flowers appear without the leaves, they are packed so closely together as to make the latter hardly missed. The flowers are larger than those of the *Crocus* and usually rosy purple, being quite distinct in colour from any of the *Crocus* species and a worthy companion. Several of the flowers appeared before the snow, and when that finally disappeared were left unharmed. The bulbs should be planted in medium-sized clumps, and will be found extremely useful for the rockery, but only in positions where they will get the sun to ripen them during summer.

Papaver lævigatum.—This is one of the novelties of the year, and if it is as beautiful as described in the various trade lists it should be well worth having. It is said to be a very showy novelty from Persia, and was first introduced by a German firm from whence our supplies were obtained. It grows from 2 feet to 3 feet in height, and has deeply cut leaves. The large brilliant scarlet flowers have each a black blotch at the base of the petals, which are margined with white or grey. Another of last year's introduction, *P. pavoninum* (the Peacock Poppy), is also well worth a place in the collection. It is very handsome, not too robust, and most suitable perhaps for a second row in the mixed border. The Shirley Poppies are also very beautiful, many of them double, and of all shades and tints of scarlet, pink, &c. They are, of course, of annual duration only, like our common field Poppies, but will sow themselves readily.

Christmas Roses.—The flowers which Christmas Roses produce the first season after being planted are rarely strong, numerous, or lasting, but the second year and onwards they generally give the greatest satisfaction. We have some plants that have been in the same position for ten years, and they are as vigorous as ever and invariably flower so freely, that a close adherence to the leave-alone style of culture seems to be the best.—CAMBRIAN.

Too many Radishes.—We have far too many varieties of Radish. I cannot understand what gain it is to cultivate so many multiplying them. Any that show an extra spot on the tip or some slight variation in the leaf are at once sent out as new, distinct, and superior, but very few of them verify the selection, and if all the kinds in cultivation were grown and mixed together, the raisers of three parts of them would find it impossible to select their own.—J. MUIR, *Merton.*

FLOWER GARDEN.

LILIAM GIGANTEUM.

A FEW weeks back I inquired in THE GARDEN what became of the bulb of this Lily after flowering, and what chance there was of finding offsets, as I wished to plant a new clump. I received one or two answers privately, which encouraged me to lift the ones that had flowered. This I did on December 1, and as no answers have appeared in the paper, and other growers of this magnificent Lily may wish to have the same information, I send my experience. I lifted three plants that had flowered strongly, the stems to the top of seed-pods [measuring from 8 feet to 9 feet 3 inches, and found from two to five offsets on each root—the root looking like that of a tree, with no remnant of its original bulb left. Some of the young bulbs grew tight on to the under

slightly vinous, with a bitter after-taste. The pods are still green, but showing signs of ripening, perhaps in three weeks time or so, in which case there would be some for distribution among a few of your correspondents, should they wish for it. It is curious to look up the inside of the newly-cut stem—a luminous golden tunnel of interminable length!

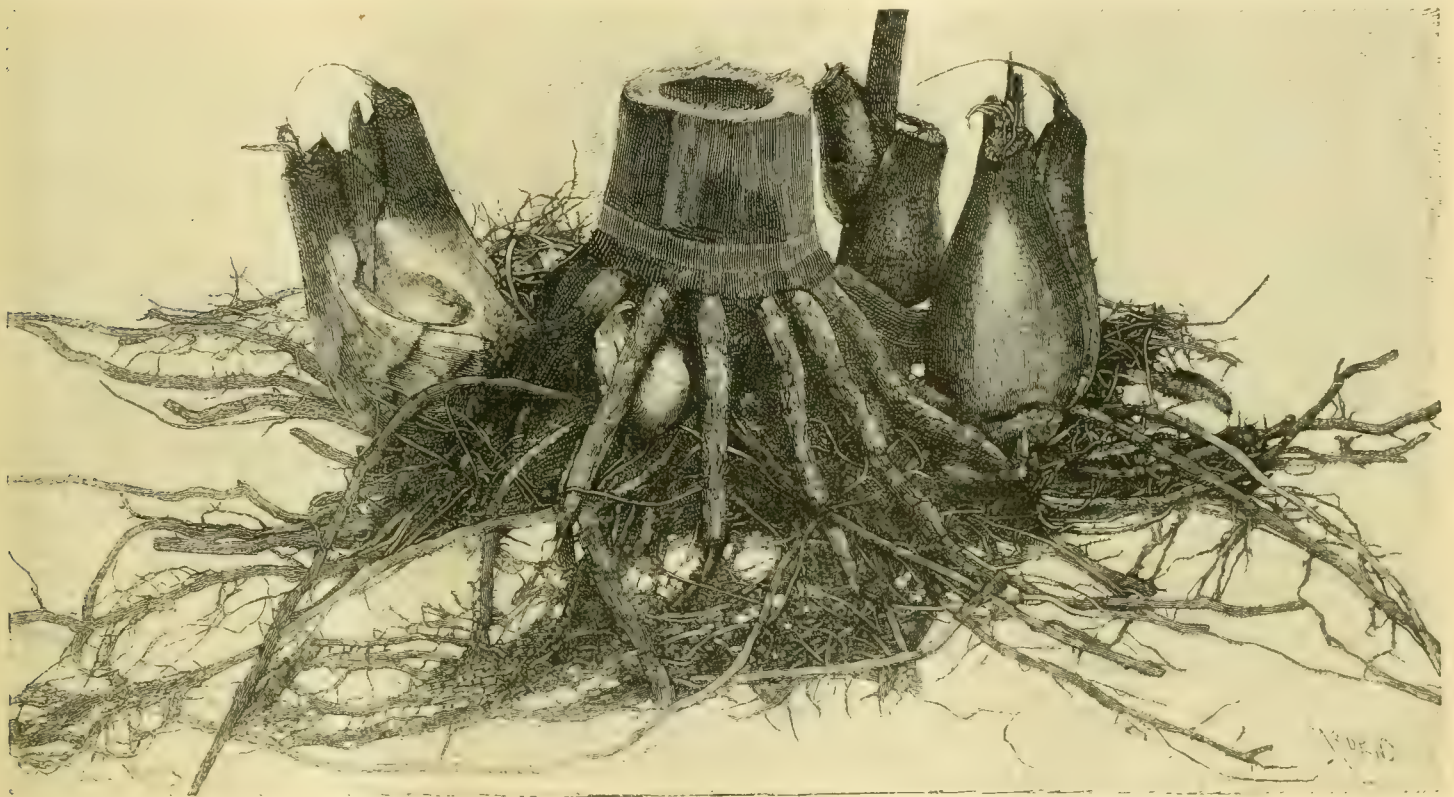
Munstead, Godalming.

G. JEKYLL.

VIOLETS.

No flower seems to be so popular as the Violet, and there are few gardens belonging to either rich or poor in which they are not to be found, while the land under cultivation for them to supply the market demand is something astonishing. The past winter, having been mild, has been very favourable for them, and this season promises to be a remarkably busy one for the pickers, as not only have the plants escaped severe frost, but the

act on it, and thus sweeten and break it down, when all that will be needed at the time of planting is to level with a coarse rake, or just prick over the surface if weeds are beginning to show through. The best plants are those obtained from runners, which form freely as soon as the old stools go out of bloom and begin to grow, and if the weather is favourable they quickly strike root. As soon as this takes place they are fit for removing, and in frames, or with small quantities, this rooting may be accelerated by scattering a little fine light soil among the plants, so as to partly bury their base. The old crowns will then root afresh, and in making stock these may be used as well as the runners. The way to prepare them is to pull each apart so as to get separate plants, and trim them up by removing dead leaves at the bottom. The most suitable time to plant is when the weather is dull and showery, as then the plants get hold without flagging. Where stock is required in private places, it is a good plan to start by putting the fresh divided



Root of Giant Lily (*L. giganteum*), showing the offsets. Engraved for THE GARDEN from a photograph.

part of the root, but the largest were attached by a connecting piece from 1 inch to 3 inches long, while a few were of quite a different pattern, looking like a condensed piece of Bamboo, with two or three bulb-like swellings at its short lower joints. The largest of the offsets are good-sized bulbs, about 2 inches in diameter by 3 inches long. One amateur of great experience with this Lily advised me to pull up the flower-stem when it is beginning to decay, when the offsets will come up with it. A Lily 9 feet high with tree-like roots takes a good pull, but up it came, and with it the fine young bulbs. I was surprised to see how near the root was to the surface, the tops of the young ones being only just under the ground. I send a photograph of the newly-lifted root; the stem was sawn off at about the ground level, where it measures 2½ inches in diameter. The hollow stem of the largest contained a good pint of water, smelling sweet like cider, and tasting

last cool, moist summer just suited them, and they grew strongly, making very fine crowns. In this lies the whole secret of success in Violet culture, for without large crowns few flowers are produced. The great point with Violets, as with other garden operations, is to make a good start, and the most important matter is to prepare the ground properly, for whether the plants are to be left to bloom where they are grown, or be lifted after and placed in frames, they must have a rich soil. In private gardens, where only a limited quantity is required, a border facing east or west is, perhaps, the most suitable place for the plants, as sun, unless it is too fierce, does good. In cases where the soil is light, the most suitable dressing is fresh cow manure, which should be obtained at once and dug in. Should the border be inclined to be stiff or heavy, then old rotten manure and decomposed leaves will be best, which give the soil requisite enrichment, correct the stiffness, and bring it into a condition to agree with the plants. To assist in this the surface should be left rough, so that the little frost we get after this may

crowns and young runners in shallow frames, where they can have the protection of glass and be kept close till they start. To aid them in this a syringing or sprinkling overhead should be given during the afternoons of fine days, and the same if the plants are planted out in the open. The proper distance at which to plant is about 9 inches in rows, and this should be done with a trowel, that the roots may go in without being bent or crippled. After the soil is returned a watering will be necessary to settle it about the plants. As soon as this takes place, or before, it is a good plan to mulch between the rows by using the spent manure from a Mushroom bed, or a dressing of partly decomposed leaves, which is a great help in preventing evaporation and keeping the ground shaded and cool. Not only is a mulching beneficial in the ways referred to, but it prevents washing of the soil when watering, and assists in maintaining the foliage of the plants free from splashing during heavy rains. It also in some measure prevents attacks of red spider. Soot is an excellent antidote against this enemy and a fine stimulant for

the plants if sown on during a showery time, or steeped in water and given in that way.

As to sorts, the best for frame work are the double kinds, and the hardiest and finest among these is Marie Louise, which is very free blooming, the colour of the flowers being a dark mauve with a light eye. This variety seems in a great measure to have replaced the old Neapolitan, which at one time was such a favourite, but the latter is tender and not very distinct from the above-named. Comte de Brazza is a pure white kind, of similar habit and constitution to the Neapolitan, and will soon be largely grown now that it is well known. Among the single kinds, the old Russian is about the first in, but the stalks are too short, and The Czar has, to a large extent, driven it out of cultivation, but this kind will probably give place to the one named Victoria Regina, which is an improvement even on that.

In preparing frames for winter-flowering plants, it is important that they be well placed to catch what little sun there is during that dull season, or pits are better if facing south, as in them the plants may be more easily protected from frost, and they are less liable to damp in a brick structure. The way to prepare either is to put rough fagots in the bottom, and on them some fresh leaves and stable manure mixed, just to give a gentle warmth, which will be a great help in starting and re-establishing the plants. These should be lifted with good large balls, so as to disturb them as little as possible, and in placing them in the frames or pits it is essential that they be kept well up to the glass, as there they receive the full light. During winter it is necessary to give plenty of air, which should be done by tilting the lights at the back, and to prevent damping, a stirring of the surface of the soil will be needed now and then, also the removal of any leaves that show signs of mould or decay. If water is required at any time, it should only be given during a bright sunny day when the lights can be left off to dry a bit, as top moisture is often fatal to the blooms. Violets make valuable pot plants, and the old double Russian used to be grown as a tree, with stems several inches high and bushy heads or crowns which flowered with great freedom. When required for this kind of work the treatment required is just the same as that for frames, as the plants may be grown out in the open during summer and lifted towards the end of October, being potted up in 6-inch or 8-inch pots according to size. When this is done they should be stood under the foot of a north wall for a week or so, or in some other shady place, and there kept sprinkled to prevent any flagging of the leaves, after which time they will bear more exposure, or may be removed at once to the greenhouse. S. D.

Early bulbs and bulb soils.—Having lived so long in Ireland that I claim to be a native, I protest strongly against any attempt to run down either the fertility of its soil or its climate. Mr. Burbidge (p. 127) draws attention to a very important matter, that of obtaining early *Vaffodils* and other bulbs from none but the best sources, yet he, while he mentions certain places (Holland, &c.) as not the most desirable from which to draw supplies, does not, I think, point out with sufficient force that one which is evidently far and away the best. In *THE GARDEN* of Jan. 12 (p. 24) it is recorded that *Narcissus citrinus* and *N. minimus* were in flower in the open air at Cork, and on Jan. 19 (p. 45) that *Daffodil* Irish King was flowering both out of doors and under glass at the same place. Now, as this intimation must have been posted in Cork at least four days previously, or the 15th, it follows that the variety in question was in flower in the open air in the middle of January, and as this particular kind has not yet commenced to come to us (so far as I know) from a warmer clime, the bulbs which produced these most abnormal flowers were home grown. This being so, Ireland is shown (unless there is something very extraordinary in the variety) to have the most wonderful climate to be found throughout Europe, for I take it that no other trumpet *Daffodil* in any other place could beat this record. An open-air soil and

climate that can in the first month of the year run a neck-and-neck race in the same garden with another under glass stamps it at once as unique. In such an one glass seems to be altogether a superfluity and waste of capital. On Feb. 9 (p. 112) it is stated that two blooms of *Ard-Righ* (I presume this to be identical with *Irish King*) were sent from a house in the same garden. It would appear from this that the house was winning; but probably at this early period the blooms last better under glass than in the open air. At the same time, it is stated that *N. minimus* and *N. cyclamineus* were beautiful on the rockery. Neither these nor any other *Narcissus* here are more than just showing their buds, and as many kinds of spring flowers are, as a rule, very early in this neighbourhood, an enormous difference of climate is shown to exist between the two ends of this island, and points to the warm end as a veritable Eldorado for bulb culture, and clearly shows that Surrey, Holland, Lincolnshire, &c., are "not in it," and that Italy is simply nowhere.—T. SMITH, *Newry*.

GOOD HARDY PLANTS FOR BEDS.

HITHERTO the chief objections raised against the employment of hardy plants in beds has been their short period of flowering, together with a too tall, and straggling habit. Of late, however, since hardy plants have again risen in favour, and their value, mode of propagation, and culture are becoming better understood, many kinds have proved equal to producing masses of colour in the flower garden for no inconsiderable length of time. Moreover, as they are less liable to injury from wet and periods of rough weather, their display, although with some good kinds coming rather late in the year, is less interrupted when once it commences. The numbers of spring-flowering plants, too, suitable for beds have in a great measure been excluded from the garden, or else, if used, torn up when in their beauty to make room for the monotonous array of "bedders" for producing a short summer display. The employment of spring-flowering plants in conjunction with those which bloom later in the year ensures the longest period of beauty in the garden, and no flowers are better adapted for this purpose than tufted Pansies, which, commencing to bloom in March, are at their best during the months of May and June, continuing in some districts till late in autumn. It is, then, I think, altogether wrong to clear all these plants out of the garden to make room for any system of pattern or carpet bedding when there are many hardy plants, such as *Gladioli*, perennial *Phloxes*, perennial *Asters*, *Rudbeckia* *Newmani*, *Sedum spectabile*, &c., which, if properly arranged with them or amongst them, would come into flower as the *Violas* were getting past their best. The demand for cut flowers has recently produced a great change in the flower garden arrangements in many places, and plants are now selected as much for their merit of furnishing flowers for cutting as for the attractive display they produce in the beds. Moreover, those of a hardy character, from the fact that the cost of raising them is comparatively small and their requirements of a simple kind, are entitled to precedence over those of a more tender nature; considering, too, that many of them are quite as beautiful and useful for our gardens. The following are a few things deserving of a prominent place:

Harrison's Musk compels me again to speak a word in its praise. Last year from the time the bed was planted until its beauty was destroyed by the early frosts it was a mass of yellow blossom, filling the air with its perfume. Many use it only as a carpeting plant, but I like to give it more prominence, making it the chief feature of the bed, simply using a few suitable plants interspersed amongst it to break the even surface. Some tufts of *Ageratum* had a very pretty effect used in this way last year. Light-coloured *Fuchsias* also look well, as do *Begonias*. The best plants for beds are those raised from cuttings, which are produced in quantity from the old roots. The cuttings will soon root in a frame, in which they can be grown on for a time, and from thence be transferred to the

beds; no heat need be used, unless the stock is required to be increased much. The variegated *Jacob's Ladder* (*Polemonium cæruleum variegatum*) is an excellent hardy foliage plant, and very beautiful when well grown. It resents coddling; therefore, its propagation is best effected in the open. The old plants should be lifted and pulled to pieces in the autumn, and planted on a border where the soil is light, or else placed in boxes and sheltered in a frame. In spring they will be ready for planting in the bed they are intended to occupy, where they should be used as a groundwork, leaving spaces a yard apart all over the bed for good plants of *Lobelia fulgens* *Victoria*. A bed planted in this way is very attractive. As a white flowering plant, I have seen nothing to equal a white *Snapdragon*, similar to the one figured in *THE GARDEN* not long since, under the name of *White Swan*. I saw some plants of it last year completely smothered with flower. The habit, too, is compact and branching, and such a valuable plant should not be long in finding its way into every garden, being easy of propagation either by seed or cuttings. The latter are, perhaps, the best, as then the whitest forms can be selected and the stock kept true. To ensure its continuous flowering, however, all through the season, the seed-pods require to be kept picked off as they become formed. Amongst the *Enotheras* are two or three varieties, which, from their dwarf habit and freedom of flowering, are well suited for beds. The best are *E. Fraseri*, *E. macrocarpa*, and *E. speciosa*. The flowers of *speciosa* are white, those of the other two being yellow; they all commence flowering in June, and continue in beauty three or four months.

Carnations have long been used largely in the garden. Of late, however, since seedlings have been discovered to be so valuable and reliable, their culture has considerably extended. In their season they certainly are not, taking all points, excelled by any hardy plant for beds. Some objections may be raised to them as being rather late blooming, but if a good broad band of tufted Pansies is planted round the beds, this defect—if defect it can be called—is not noticed, and the foliage of the Carnation when healthy and free is ornamental of itself. I raise a batch of seedlings every year, the seed being sown in April. The beds selected for them to flower in the following year are, as soon as cleared of their occupants in the autumn, well prepared by digging in some new soil and manure. The Carnations and Pansies being planted as soon as the soil has settled a little, they always stand the winter well and flower splendidly the following year. For large beds *Anemone japonica alba* is one of the best subjects. To ensure a good display of its beautiful white blooms, however, during the first season, the young plants should be prepared in the reserve garden by planting young crowns in the spring. During the summer they will make nice compact plants, which can be lifted without causing any great check. If desired in bloom as early as possible, they may be potted up in the autumn and wintered in a frame, bringing them on a little in this structure in spring before planting them outside. We filled a bed with this *Anemone* last year and treated the plants in the above way, and they succeeded well. In the centre was a large plant of the Flame Flower (*Kniphofia nobilis*), whilst a broad band of *Pelargonium* *Henry Jacoby* occupied the margin. Wallflowers now take the place of the *Pelargonium*, and Tulips are thickly planted amongst the *Anemones* for spring flowering. In the *Pentstemon* we have an admirable hardy plant for beds, embracing a great variety of colour, graceful habit, and free flowering properties. A good strain of seed will produce varieties equal to named ones. It should be sown in the autumn, the seedlings being pricked out, wintered in a frame, and planted the following spring. *Aquilegias* succeed under the same treatment, and many other plants of similar character, if the custom of employing them in small patches is departed from, will not fail to give satisfaction.

A. BARKER.

***Tritoma præcox*.**—This species, belonging to the group of *T. Uvaria*, of which it in other respects

possesses the general characteristics, is particularly remarkable and distinct by reason of its flowering much earlier than the rest of this group. While *T. Uvaria*, *T. Burchelli*, and *T. glauca* seldom commence to bloom before August, *T. precox* flowers in the beginning of June, and produces a succession of bloom for some months; last year it was finely in flower on the 10th of October. The plant forms strong tufts. The leaves are numerous, narrow, erect, triquetrous, not serrulated, green; flower-stem attaining a height of from 2 feet to over 2½ feet, of a rusty reddish green colour; flower-spike oval, comparatively short; flowers of a lively light orange-red colour. This species does not produce seeds—at least at Mirecourt (Vosges), where we have seen it in the grounds of M. Pagot, President of the Horticultural Society. As it flowers more than a month earlier than most of the other species, perhaps it could be crossed with some of the very early ones, especially with *T. caulescens*. It is perfectly hardy, and is cultivated and propagated in the same way as *T. Uvaria*, *T. Burchelli*, *T. glauca*, &c. We have not been able to ascertain how or whence it has been obtained.—*Revue Horticole*.

Old garden Tulips.—Will Mr. Burbidge give a few particulars of the cultivation of Tulips in English soil? As I ride through some of the remote parts of the west of England, I find in old undisturbed gardens very fine specimens of Tulips of the once rare and now popular kinds, and such as I am sure for perhaps the last twenty years had never been touched or cared for.—C. E.

* * The beautiful old-fashioned Tulips are often the glory of English cottage gardens in May, and are so hardy and enduring in all suitable soils, that they should find a place in all gardens large or small. A bed of Moss, monthly or other Roses pegged down and the spaces between the Roses planted with Tulips makes a satisfactory arrangement. A deep, well-drained and rather sandy soil suits them best, and I have seen them for years very strong and happy in old Box edgings. Messrs. Krelage and Sons, of Haarlem, offer a remarkable collection of breeder Tulips, including some with petals "as black as a raven's wing." A very showy collection of these flowers may be obtained by purchasing 1000 (price 30s. to 40s.) of mixed bybloemens and bizarres, now offered every autumn in the bulb lists. Seedlings are also easily raised and bloom in three to five years. They like good rich fresh soil and should not have any rank or crude manure near them, and they thrive best by themselves in beds or narrow borders.—F. W. B.

Double perennial Sunflowers.—It is to be hoped that Mr. T. Smith, of Newry Nurseries, will take as much pains as I have done in convincing his English and Scotch trading friends of the identity of his plant with the one I designate *Soleil d'Or*. I am still convinced that double perennial Sunflowers of the multiflorus type may have variety as dissimilar in character as Dahlias or Chrysanthemums. I could not do more than go to the expense of giving illustrations of two existing varieties, in the one of which I took no interest, and I do not think I would bother the London press or occupy their space so much by private notes or public advertisements if we had either a local horticultural journal or an exhibition where committees could settle matters of such interest. I believe the plant *Soleil d'Or* to be distinct. The authorities at Kew admit it, as I have presented the Royal Gardens with one. Chiswick shall have one. The English and Scotch tourists passing through Cork, seeing flowers in my show-house, admit it. The Americans landing at Queenstown on their way to Glengariffe and Killarney admit it. Travellers from the London and Scotch nurseries visiting Temple Hill admit it. My own judgment consents. I find the one I take no interest in, as I have no supply to work from, nearly as much asked for as the quilled flower.—W. B. HARTLAND, *Temple Hill, Cork*.

—Mr. W. Baylor Hartland, the well-known horticulturist, of Temple Hill, Cork, has asked me to send you a line in reply to Mr. Smith's (of Newry) rather unfair note in your issue of the 2nd inst. (page 89). Notwithstanding Mr. Smith's sarcastic humour, I can say something for what I believe to

be a genuinely and distinctly new *Helianthus*. I have had this plant in my own small garden for some years, and can say confidently that it is invaluable to me and would be to others from its free-flowering character, erectness, and decorative qualities from July to November. I have never seen it shown at the Royal Horticultural Society's meetings, except by Mr. Hartland, nor have I seen it in any of the many gardens I have visited from time to time. Moreover, when Mr. Hartland sent flowers of this plant for a certificate I brought up some of my own to place beside his, and, notwithstanding that the Royal Horticultural Society's floral committee withheld a certificate, there were several persons of authority (notably Mr. Ware's representative) present who agreed with me that the flower was distinct and deserved a certificate.—CHARLES J. GRAHAME.

* * The controversy must now cease until the flowers can be seen.—ED.

PEDICULARIS.

We possess two very elegant native species of this genus, which really deserve more attention than they usually obtain. The vernacular name of Louse-wort is derived from a supposition that sheep which feed much upon these plants became infested, but their bad condition would be more likely to arise from the boggy condition of the ground in which the *Pedicularis* grows, and the allusion to this fact will at once give the clue to the position these plants should occupy in the garden. Besides calling attention to our indigenous plants, I would also remind those readers of *THE GARDEN*, who may spend some of their time in the Swiss and Austrian mountains, that these districts contain numerous large growing plants, beautiful relatives of our own more humble species, which are well deserving the attention of everyone possessing a bog garden or a cold frame. These plants should not be disturbed in their native habitats, as this would not only rob the locality of its beautiful ornaments, but in the hands of an amateur they are almost sure to die. The best plan for visitors to these countries would be to search for them and gather seeds when ripe; the seed will not take much space, and it should be sown as soon after gathering as possible amongst some Sphagnum Moss which has already been grown in some peat soil. These plants grow at considerable altitudes, and would perhaps be better for the protection of a frame for the first winter at least. I append brief descriptions of a few European species which are decidedly worth introducing, and which would become beautiful ornaments in the bog garden, large or small.

P. INCARNATA is an Austrian plant, which grows from 9 inches to a foot or more in height. The leaves are delicately cut, somewhat resembling the fronds of a small-growing *Asplenium*, and the raceme of bright flesh-coloured flowers is 3 in. long.

P. RECUTITA.—This is another erect-growing plant from the Austrian mountains, producing a stout stem and finely divided Fern-like leaves. The flowers are large, dense, and woolly, of a purple hue; the raceme is somewhat short, being about 2 inches long in the specimen before me and as much across.

P. PROBOSCIDEA is a native of Switzerland, and grows to the height of 8 inches or 9 inches, the leaves being very elegant, resembling the fronds of *Asplenium fontanum*, whilst the flowers are yellow and deep purple, with a beak-like appendage, giving rise to the name.

P. ATRO-RUBENS.—This is a beautiful bold-growing plant, from 1 foot to 15 inches high; the stem is stout, clothed for its whole length, as well as at the base, with elegant Fern-like leaves some 4 inches or 5 inches in length. The flowers are large, rich deep purple, and borne in a raceme some 3 inches long. It is found in Switzerland.

P. SCEPTRUM CABOLINUM (the Sceptre of King Charles) is a native of Sweden, and grows from 1 foot to 18 inches high; it is said to grow taller; the leaves remind one of the fronds of *Ceterach officinarum*; the stem is destitute of leaves, stout, and bears a long whorled raceme of large rich yellow flowers.

P. FOLIOSA is a plant about 1 foot high, a native of the mountains of Austria; as its name implies, it is very leafy, the leaves being very Fern-like and delicate. The flowers are yellow, but it does not appear to be such a profuse bloomer as those kinds previously named.

P. ADSCENDENS grows about 8 inches high, the leaves being mostly radical, upwards of 3 inches long, finely divided, and resembling the fronds of *Cystopteris fragilis*; the bright red flowers are large and capitate. It is a native of Switzerland.

P. VERSICOLOR is a more decumbent plant, but it attains to 6 inches or more in height; the stem is stout, producing on the apex a long raceme of yellow flowers. Switzerland.

P. TUBEROSA is another yellow-flowered kind from Austria, growing from 6 inches to a foot high; the leaves are slender and Fern-like, and the flowers bright yellow.

P. VERTICILLATA is an Austrian plant, some 6 inches or more high, bearing a dense, whorled raceme of rose-coloured flowers.

P. JACQUINI.—This is an exceedingly pretty and showy plant, with leaves resembling the finely-cut fronds of *Asplenium viride*, whilst the flowers are larger and rich purple. It is a native of the Austrian Tyrol.

P. ASPLENIFOLIA is a small-growing species from the same district as the last; the leaves are small and Fern-like, the flowers large and rosy purple. The whole plant is some 3 inches or 4 inches high.

The above are some of the beautiful members of this genus with which I am acquainted, but there are quite a number more. The above kinds are in flower during the months of June, July, and August, and seeds of these can be obtained in about a month from the time of flowering. I hope some of the more enthusiastic tourists this season will endeavour to enrich our gardens with some of these gems of the alpine flora.

W. H. G.

The Caucasian Scabious (*Scabiosa caucasica*).—Will "D. K." kindly tell me how to treat this plant so as to make it flower freely? I have grown it for years in a sunny aspect and a deep, light, rich and somewhat dry soil, and although it appears healthy, I cannot induce it to give more than two or three blooms at a time, and not a dozen in the whole summer. The bed where this Scabious grows is admirably suited to most herbaceous plants, except the moisture-loving Irises and Spireas. Two florist friends tell me *Scabiosa caucasica* is a difficult subject to flower well.—J. H. W. THOMAS, *Belmont, Carlisle*.

Flowers at Nantes.—For many years past we have not had so mild a winter in Nantes, as, excepting two or three sharp frosts in the beginning of October vegetation was not checked at all, and never were vegetables so plentiful and so cheap as at the end of December. The following list of plants that I noticed in bloom in the open ground on Christmas Day, 1888, may prove interesting: *Ageratum mexicanum*, tall and dwarf; *Anemone coronaria*, single and double; *Anemone fulgens*, *Aralia Sieboldi*, *Aubrietia deltoidea*, *Bellis perennis* fl.-pl., *Camellias* of various kinds, *Calluna vulgaris*, *Chrysanthemum*, late sorts; *Chrysanthemum frutescens*, white and yellow; *Corchorus japonicus*, *Coronilla glauca*, *Crocuses*, *Daphne indica*, *Erica lusitanica*, *Erica mediterranea*, *Chelone barbata*, *Geraniums*, Ivy-leaved; *Gaillardia Lorenziana* fl.-pl., zonal *Geraniums*, single and double; *Heartsease*, *Hyacinths*, early white; *Iris stylosa*, *Laurustinus*, *Marigold Meteor*, *Mignonette*, *Primula acaulis*, all sorts; *Pyrethrum parthenium aureum*, *Pyrus japonica*, *Tea Roses*, *Salvia patens*, *Salvia coccinea*, *Snowdrops*, *Sweet Sultan*, white and purple; *Stocks*, *Ten-*

week; Stocks, Brompton; Saxifraga ligulata, Scilla sibirica, Tropæolum majus, Heliotropium peruvianum, Veronica speciosa, Vinca major and minor, Ulex europæus, Violets, the leading varieties; Wallflowers, Christmas Roses, Winter Aconites, Helleborus foetidus, Cyclamen europæum, Cyclamen coum. As a rule, annuals and soft-wooded plants are out of bloom by the middle of November at the latest. Some of the many plants that will stand the winter out of doors in Nantes are destroyed in other localities. I should be glad to know of any other plants in bloom in the open ground at the above date in England.—D. GUIHE-NEUF, Nantes.

DAFFODILS FOR FORCING.

I AM very pleased indeed that Mr. Burbidge writes so hopefully of the Daffodil as it is cultivated in England. I have not seen Mr. Hartland's Daffodils at home, and perhaps not so many collections in England as I ought. I wrote of what I saw in Holland during the last blooming season, and the large breadths of such varieties as Horsfieldi, maximus, princeps, and, in smaller plots, Emperor, Empress, &c., were wonderful as regards vigour of plant and quality of bloom. I have not seen the collection so well grown by Mr. Walker in Surrey, but I hope to visit it next spring. I know the Dutch climate is quite as bad as our own, or perhaps worse. The varieties of Narcissus Tazetta were sadly crippled by the frosts in March last year, but the large-flowered varieties were in perfect condition. I must disagree with Mr. Burbidge when he says, "Of all the bulbs grown in Holland the Daffodil is the least satisfactory." I write only of what I have seen. It is not worth while quoting Miller in this connection. Miller said the Hyacinth could be as well grown in England as it could in Holland. Even his "worthy ingenious friend, Mr. James Justice, living near Edinburgh, succeeded so well in the management of these flowers, as to equal any of the Dutch florists, and he has raised great quantities of flowers from seeds of his own saving, from amongst which he has this year obtained a most extraordinary fine one, which he calls the Royal British Star. The height of its stem was 20 inches, upon which were twenty-three bells or flowers, placed in a pyramidal order, very large and very double, of an extraordinary white colour on the upper part of the petals, but the lower part or centre of the flower of a very deep violet colour." This variety was thought to exceed all the finest of the Dutch raised kinds.

Since Miller's time it has been stated over and over again that Hyacinths and other Dutch bulbs can be grown as well in England as in Holland, but the fact remains that it is not done. I fancy, too, Mr. Burbidge is in a minority when he says Crocuses are often stronger and healthier as grown in the British Islands. He is even reluctant to admit that Hyacinths and Tulips are better grown in Holland, and time will show whether or no I am right about the Daffodils. I would like to see all classes of bulbs and roots grown in our own country, but while they grow them better on the Continent, dealers will go there for them. J. DOUGLAS.

Forced hardy plants.—Some Hellebores, Saxifrages, Cyclamens, and other hardy plants shown at the Royal Horticultural meeting recently served to illustrate the ease with which really beautiful hardy flowers may be spoilt in coddling. It is a curious fact, but such is the case, that really hardy flowers almost always look poor and sickly when subjected to a little house culture, and especially when given the assistance of heat; whilst outdoors the same things are striking and beautiful in their proper season. Very few hardy plants come into bloom earlier in an unheated house or frame than they do outdoors, but when grown in heat they soon become demoralised. There were amongst the Hellebores referred to a miserable specimen of colchicus, for instance, and yet I had it in bloom at the same time outdoors in spite of the snow. Remembering these, I could but pity the poor pot-grown specimens at the Drill Hall. I fear this coddling up of really hardy things tends very

much to a feeling of contempt for them. This method of culture does the plants an injustice, and it is not possible to see what benefit horticulture obtains from it. The forcing of really hardy plants for show is a practice which should be discarded.—A. D.

FLOWER GARDEN NOTES.

PREPARATION OF BEDDING PLANTS.—Though the disposition to lessen the work of bedding-out by a more free use of hardy flowering and foliage plants is becoming general, the change can only be accomplished very slowly, because of the time required to work up a sufficient stock of hardy flowers, and till this can be done, provision should be made to continue the summer effectiveness of the bedded-out garden by timely preparation of the necessary plants. We are now in the midst of this work, and as our aim is the eventual exclusion of tender plants from the summer garden, Alternantheras, Coleus, Iresine, and such like are only being propagated in small numbers, and thus early, so that we may have good plants to put out by the end of May. Alternantheras we propagate in manure frames, the cuttings being inserted in about 3 inches depth of light sandy soil and from 2 inches to 3 inches apart. This space admits of their making plants sufficiently large for removal from the propagating bed direct to their permanent positions by the end of May. The lights are kept closed up till the cuttings are struck, but air is given after they are well rooted. Abundance of cuttings can be had in about three weeks time from those cuttings now being inserted, and once sufficient stock has been inserted the plants should have their points pinched out about every ten days so as to promote a bushy habit of growth. The only kinds that grow freely with us are paronychoides, paronychoides aurea, amabilis, latifolia and magnifica, and these therefore are the only kinds we grow. Iresine William Coleman, a great improvement on the varieties Lindeni and Herbsti, is the only kind we have, and this we also like to propagate early in order to have large plants that will make a show as soon as put out. They strike well in manure frames also, after which we pot singly into 3-inch pots and grow on in any house having a temperature of 60°, and the points are occasionally pinched out to keep the plants bushy. Coleus we have discarded from the bedding-out list, as they are the most tender of bedding plants. Pelargoniums are gradually being superseded by flowering plants that better withstand rain and storms, a few scarlet, pink, and rose-coloured flowering varieties being all that we now use, and the largest plants of these are being potted singly into 3-inch pots, and the smaller into 5-inch pots, three plants in each. Marguerites, Heliotropes, and Fuchsias are all potted singly, as being amongst the most valued of bedding plants. Tuberous and fibrous-rooted Begonias we plant out in frames on a slight hotbed made up entirely of leaves, and from which position they are transplanted direct to the beds. They virtually need no labour, a good watering once a week, and air as weather permits, being all the attention required till they are planted in the beds. Verbenas are still favourites. They have never once failed us—a fact attributable to the preparation of the beds by deep trenching and manuring. Unlike most flowering plants that, as a rule, flower most freely in comparatively poor soil, Verbenas cannot well have too much, and a good use of it is the only way to keep the plants free from mildew and in continuous flower till sharp frost cuts them down. Cuttings put in now will make fine plants for planting in May. A manure frame is the best place for raising plants from seed. We have raised each year a number of seedlings for planting in the mixed flower borders, and few plants are more admired or continue for so long a time in full bloom. There is ample time to raise single Dahlias from seed and have good plants by the time it is safe to put them out. I am bound to add, however, that it will not do to depend on seedlings only, because a large percentage of them are sure to be worthless. A single trial proved sufficient for me. I got plenty of plants and good ones, too, but when the flowers opened not one in

ten was fit to be seen. Roots placed in any warm place, potted or planted out, will soon throw up cuttings that strike freely in a bottom-heat of 70°. These cuttings ought each to have a separate pot, so then when potting the roots do not get mutilated by division of the plants, as happens when they are entangled together. They should be grown on without check and without bottom-heat, and if it is desired to have them dwarf, the points may be pinched out when the plants have reached 1 foot in height. I know it is unorthodox to recommend such stopping, but I do so because having practised it and been successful, others may do the same.

EARLY FLOWERS.—Could we have foreseen the severe frosts—from 14° to 18°—that followed on the heavy snowstorm of the 10th inst., instead of grumbling at the inconvenience it caused, we should have welcomed it because of the protection it afforded to early flowers, which for some time past have been so abundant, and, thanks to the snow, still are now that the thaw is complete. Snowdrops, Violets, Primroses, Winter Aconites, and Wallflowers are as fresh and as beautiful as if there had been no break in the mild weather. The only regret that one feels in respect of them is, that they are not grown in larger quantities. It may safely be predicted that they will be as the cultivation of hardy flowers increases. At the present time they give colour to our mixed flower borders.

PANSIES AND VIOLAS.—Through neglect of propagation our stock of these plants is this season very limited, and so we are obliged to eke out supplies by splitting up the old plants. The youngest growths are the portions selected for replanting, the long old shoots being cut clean off and thrown away. I have frequently known plants obtained in this manner do quite as well as those from autumn-struck cuttings, and I think that to early planting must be attributed part of this success. Being impatient of drought, the plants have time to get well established in the soil before the drying harsh winds of March and April set in. The fancy Pansies make the finest display and are most robust; in fact, this is the only section I care to grow for a floral display. Some of the tufted Pansies (Violas) are even more robust and free-flowering. They vary greatly, some kinds that succeed in our district doing badly in others; hence it is desirable that each grower should learn for himself what kinds do best in the district.

W. W.

Early Narcissi for forcing.—Would Mr. Burbidge add additional value to his interesting article on Daffodils for forcing by saying where the Italian, Spanish, and French Daffodil bulbs may be obtained?—C. E.

**** For Italian-grown Narcissi and other bulbs for forcing, "C. E." should apply to Messrs. Dammann and Co., San Giovanni à Teduccio, near Naples, and there may be other Italian growers of whom we should be glad to hear. We do not know the names of any bulb growers or dealers in Spain or Portugal, most of the bulbs of Narcissi sent from these countries during recent years having been discovered and privately distributed by Mr. A. W. Tait, of Oporto. For bulbs of Narcissi, &c., grown in Southern France try some of the leading French seedsmen. It is to be hoped that our own bulb dealers will specially import and offer bulbs of Narcissus, &c., for forcing grown in warmer and earlier localities than Holland is known to be. One of the most easily grown and earliest of "bunch Narcissi" (i.e., N. Tazetta) is the Chinese Grand Emperor, which develops splendidly in a warm sitting-room, and flowers in from three to six weeks after its great roots are immersed in a vessel of water and stones. This variety is grown and imported to America from China, but has not as yet been introduced by the English trade. No doubt it could be obtained from Messrs. Knamer and Co., of Yokohama, Japan, or direct from China.—F. W. B.**

Iris reticulata sophonensis.—In THE GARDEN, Jan. 5 (p. 19), there is a statement about this Iris which is evidently made from incomplete material. The first bulbs of this plant were introduced about three years ago, and their flowers were

similar to those which "W. E. G." describes. Last year, however, another consignment was received, and the flowers of these bulbs not only show various shades of colour in different individuals, but also in general a much brighter colouring. The claw especially is very beautiful, shading off from its mid-rib, where it is deep bright blue, to pale purple on the borders, this giving a strange lustre to the whole flower. I consider this variety quite as welcome as the type, its earliness also adding to its charms.—MAX LEICHTLIN, *Baden-Baden*.

PROPAGATING.

SHADING.—It will now be necessary to use shading for some subjects in the propagating house. I do not like to expose tender cuttings too much, yet, on the other hand, shading should be avoided as much as possible. Provided a moist, close atmosphere is maintained, most cuttings will bear a fair amount of sunlight, and so long as they do not show any signs of suffering from the effects of the sun, shading should be kept off altogether. As soon as it is necessary to begin shading, it should be put on before the sun gets too high. I like to put the shading on early in the day, and remove it before the sun is quite off the house, as by so doing, everything will keep fresh through the day. If the sun is bright enough to cause a few of the most tender subjects to wither a little when the shading is first taken off they will soon revive again as the sun goes off. As much daylight as possible is equally essential both for cuttings and young seedlings. Over-shading is a great evil not only in the propagating department, but in the after treatment as well. If plants, then, are treated from the commencement in a proper manner, they give less trouble afterwards, and may be exposed with greater safety.

PLUMBAGO CAPENSIS.—This pretty flowering plant, which is usually grown as a climber, may also be flowered well as a dwarf bush, and it also makes a very useful pot plant. The beautiful soft azure-blue flowers are always acceptable. Cuttings put in now will make nice plants for flowering the same season, and by placing an old cut-back plant in a little extra warmth good cuttings may soon be had. The soft young shoots will root freely if placed in a close case where there is a brisk bottom heat. The cuttings may be taken off close to the old wood, and should be put in light sandy soil at a sufficient depth to keep them firm. As soon as sufficiently rooted they should be potted off, and may then be grown on in a warm temperature. They will require stopping from time to time until they have formed good bushy plants. After the final stopping the plants should be grown in a light open position, and they may be flowered well in 5-inch pots. The pure white variety, *P. capensis alba*, is a good companion for the above, differing only in the colour of its flowers, and it therefore requires the same treatment.

PLUMBAGO ROSEA.—This distinct species is very useful for winter-flowering, and should be much more extensively grown than it is at the present time. During the summer it may be grown in the same temperature as *P. capensis*, but it requires a stove temperature to flower it well. It may be propagated by cuttings from side shoots, which should be rather firm before being taken off. They should be put in singly in small pots, and kept quite close in the warmest part of the propagating pit. Very little water should be given until the cuttings are callused, after which they may be kept fairly moist. The plants should be potted on as soon as well established, using a light and fairly rich compost.

ERANTHEMUM PULCHELLUM is another very pretty stove flowering plant for winter and early spring use, the dark green foliage and bright blue flowers being very effective. Cuttings put in now will make nice bushy plants for flowering during the following winter. It is a very easy subject to manage, cuttings from young shoots rooting freely in light sandy soil if placed in a close case where there is a moderate bottom-heat. In grow-

ing the plants on, the chief point is to keep them close up to the glass, so as to secure a short-jointed growth. They also flower better when grown in a light open position. A.

CHRYSANTHEMUMS.

CUT CHRYSANTHEMUMS AND FOLIAGE.

THE leaves of indoor Chrysanthemums are seldom satisfactory, contrasting unfavourably with those grown out of doors, whose foliage is always healthy and of a deep green, or some rich bronzy colour. In arranging the cut flowers one must therefore find a substitute. To accompany the rich yellows, oranges, and reds,



Chrysanthemums and foliage.

there is nothing better than small branches of *Berberis Aquifolium*, but for white and pink kinds, sprays of *Cineraria maritima*, as shown in the engraving, are much to be recommended.

Chrysanthemum Countess of Lytton.

I am much obliged to Mr. Molyneux for his correction respecting the origin of the above-named Chrysanthemum sport in *THE GARDEN*, Feb. 9 (p. 123). Regarding his query whether I have ever found flowers of Countess of Lytton, &c., revert back to Meg Merrilies, I may say that up to the present it has remained steadfast, and at no time have I seen in any of the flowers the least sign of reverting back; if anything, the colour has become a little deeper. An interesting fact concerning it is, that in the blooming season of 1887 it showed signs of sporting again, and this time from a branch, the colour of the flowers being a pale lilac. On one branch of a plant of that year were three

blooms, all the petals of which were distinctly striped with a pale lilac colour. Unfortunately, in cutting the plant down, the man in charge cut by mistake the sporting branch, which had been marked for preserving for the purpose of propagating cuttings from it, and we were thus deprived of the opportunity of trying to perpetuate and fix the sport. Although we saved the old stool and grew it on another year, not one of the flowers on its last season had the least tinge of lilac in them, thus showing that branch sports must be perpetuated from cuttings taken off the sporting branch, and cannot be reproduced by cuttings taken from the stool. According to Mr. N. Davis's paper on "Sports," a sport from a yellow ought to be to a golden colour, and not to a purple shade, as the Countess of Lytton sport was inclined to be. Lancashire and Herts are wide apart, yet it would appear that Meg Merrilies sported at the same time in these two places. It would be interesting to know if Mr. Bolas has seen any signs of his sport, Ralph Brocklebank, again sporting, and if so, to what colour.—J. KIPLING, *Knebworth*.

MANURES FOR CHRYSANTHEMUMS.*

THIS is a subject of a very complex nature, as it is difficult, if not impossible, to lay down rules of guidance that will be equally applicable for all districts. The best manures to apply to produce the highest results in Chrysanthemum culture can only be obtained by a wide series of experiments conducted by growers in various parts of the country using the same kinds of manures each in the same manner, noting their effects at different stages of the growth of the plants, and reporting the actual results at the conclusion of the season. It would then be seen how far each kind of manure was suitable for the soil in the different localities, as much necessarily depends upon the natural soil in determining how best to increase its fertility by adding those constituents which it lacks. At the outset I may say that I do not mean to treat the subject of manures in a scientific manner, but to detail facts as they have come under my notice in my own experience, with the addition of the opinions of some of our leading growers as founded on their practice.

Fortunately for Chrysanthemum growers, prepared manures are numerous and easily applied, while many are inexpensive. In conversation with different cultivators of the Autumn Queen in various parts of the country, I have noted an almost entire absence of reserve in discussing this matter. The days of supposed "secrets" are over, and I am pleased to say that I have found men generally willing to assist each other by giving their opinions freely on the merits or demerits of any particular kind of manure that has been tried. Mr. Garnett makes a suggestion that might prove of much service to growers: That the National Chrysanthemum Society procure samples of wood from plants which have produced the best blooms in all the sections in, say, a dozen localities widely spread. By special analysis of each sample of the growth we should get at some basis as to the best manure to apply to the soil to produce the best results in culture. Chrysanthemums, for whatever purpose they are cultivated, have such a short season of growth that they must have all the support that can be usefully appropriated by them, and before the roots have exhausted the nutriment contained in the soil stimulants must be afforded, or a check will be received by the plants. What best to give and how best to apply it is what we all desire to know, and to that end we are searching for information.

Manure for mixing with the soil is the first consideration, as this is commencing at the foundation, so to speak; the superstructure or full development of the plant to its utmost capacity is an after consideration, and perhaps the most important. Ammoniacal manures promote quick growth, but their excessive use must be avoided, in a wet season especially. The chief of these are sulphate

* A paper read by Mr. E. Molyneux, Swanmore Park Gardens, Bishop's Waltham, at the National Chrysanthemum Society's conference.

of ammonia and nitrate of soda. Phosphatic manures (bones in different forms) contribute to firmness. Natural soil varies so much, that a knowledge of its constitution is necessary to enable the cultivator to know what ingredient to add for the full development of the Chrysanthemum. Loam, as it is called, composed of the top spit of pasture, is considered to be the medium for the roots. The constitution of this is the all-important point to study. For instance, to soil that is of a light or sandy nature, additions should be made which will not be needed in soils of a heavier nature, and consequently containing less sand or other lightening matter. Crushed oyster shells are considered by some beneficial to a light sandy soil, containing as they do carbonate of lime, this assisting in the maturation of the wood. Ground bones are beneficial to the plants when used with the soil in potting, especially in light soils, but in the case of soil of a close retentive nature they should not be used so freely, as they have a tendency to clog the soil and create pale, sickly-looking foliage, which is not the kind to be desired. This is especially noticeable in wet seasons. Soil of a heavy nature, in which the fibrous parts quickly decay, does not require so much manure mixed with it; first, because it is not needed in the early stages, and, later, is apt to bind the parts more closely together. Soil of this nature is much worse to deal with than that lighter in character, as stimulants cannot be given nearly so freely as where the soil is more porous. Soil that is liable to "run together" when the fibre decays should have more lightening materials added, such as charcoal, wood ashes, and old mortar; the two former are especially good for this purpose.

Natural manures are no doubt of great service when used in a proper manner. The best for mixing with soil of any kind is horse droppings, as they contain ammonia. They should be prepared as if for a Mushroom bed; in this manner the manure is sweetened while much of the ammonia is retained. At the final potting horse manure should be used in the proportion of two parts to four of light soil, and one part to three of heavy loam. Cow manure is not good for mixing with the soil on account of its pasty nature when fresh, and when decayed the qualities have departed. Some use it fresh mixed with soil for top-dressing the plants, but where the loam is stiff I think cow manure too heavy also, and liable to keep the soil cold. Soot is a valuable manure in the growth of Chrysanthemums, either for mixing with the soil or for using in a liquid state. When used with the soil in potting it should be done in a cautious manner, as too much is liable to injure the roots. A 6-inch potful to 4 bushels of soil is a safe quantity to mix with any kind of soil.

Artificial manures are now largely used by Chrysanthemum growers, owing to the easy manner in which they can be applied; the convenience with which they can be obtained by those persons who have not the opportunities to obtain animal manures; and lastly, for the reason that they are so efficacious. Thomson's Vine and plant manure is one deserving notice, possessing qualities well suited to the growth of these plants. In potting the plants to 1 peck of soil we add one 4½-inch potful of manure. For top-dressing the plants during August this manure is excellent, encouraging free root action on the surface of the soil. For stimulating during the summer, especially in wet weather when it is not possible to give liquid manure, this manure is good—one teaspoonful to a 10-inch pot, say once a fortnight. Mr. McKenzie, Linton Park, and Mr. Doughty speak very highly of this manure. Beeson's is another of the artificial manures largely employed in the growth of Chrysanthemums; it creates good firm growth without being too gross, preserving a healthy tone to the foliage. Surface roots are freely made when the plants are top-dressed with it in the proportion of a 5½-inch potful to 1 peck of soil. For mixing with the soil at potting we use 2 lbs. of manure to 1 bushel of soil. In the north of England this manure is largely used and highly spoken of by Mr. T. B. Morton, Darlington,

who is a successful grower. Standen's manure is highly valued; some of the best blooms we have had were grown by the aid of this manure used at the rate of 1 lb. to 1 bushel of soil, also used afterwards at the rate of 1 teaspoonful to a 9-inch pot once in ten days. Mr. Mease, who has cause to be satisfied with his successes, speaks highly of Standen's. Ichthemio guano is favoured by many growers, and with good cause, as their productions testify. When this manure is used the plants retain a healthy colour without the growth being too gross, a sure sign that the manure agrees with them. For potting, to 5 bushels of soil add one-quarter peck of guano; for use in a liquid state, give a 5½-inch potful to 36 gallons of water. Jensen's guano is highly approved by some growers, used at the rate of a 10-inch potful to 15 bushels of soil, also applying the guano in a liquid state once a week at the rate of 1 teaspoonful to 1 gallon of water. Clay's fertiliser is another manure used with good results, as Mr. J. Doughty can testify by the blooms staged by him at the recent show in the Aquarium, as they were some of the best seen during the season; he sprinkles it on the surface occasionally to be watered in, commencing in August.

There are other kinds of manure which need further trial for completing experiments before I can speak with accuracy as to their merits. Nitrate of soda is the quickest in action of any manure that I have tried. It is useful once or twice in a season should the plants not appear to be making free growth after their final potting; in that manner nitrate of soda excites and prepares the plants for other food, which will tend to solidify the growth thus made. Should the season promise to be a wet one, nitrate of soda must not be used, as there would be a greater difficulty in ripening the growth. Half a teaspoonful to a 10-inch pot, crushing the soda finely, spreading it on the surface, and watering it in once or twice at the most, according to the season, will be beneficial, but on no account must it be used if the plants are not well supplied with active roots. Sulphate of ammonia, in careful hands, is an excellent manure, perhaps unequalled as a stimulant, but it must be used carefully. My experience of it is that it imparts colour to the leaves of the plant and richness to the blooms. The cultivator should be guided by the state of the weather at the time of application, and also by the state of the roots of the plants; indeed, this is the all-important point to consider.

Sulphate of ammonia should not be given to the plants until they are well furnished with roots. Used in safe quantities in a liquid form is the correct way to apply it. Some growers say that sulphate of ammonia tends to make the blooms damp, and I think they are right when it is used injudiciously; for instance, too strong doses often kill the roots, not only on the surface, but half way down the soil in the pots; especially is this the case when the sulphate is put on the soil in a dry state and watered in. From experiments made during the past season I can say that plants of all the sections in our collection were supplied with water which contained sulphate of ammonia every time the plants required water, from the time the buds were swelling freely until the blooms were developed, with the result that there was less damping of the blooms, including those of Empress of India, which is a notoriously bad "damper," than upon other plants treated differently. Of course, the plants were in good condition for receiving so much sulphate of ammonia, the pots and surface being full of roots, while the growth was not sappy. This was an experiment purely to test the effect of this stimulant on the damping of the blooms, but I cannot say that the blooms were of the best quality; the flowers in the incurved section showed a tendency to coarseness and hollowness in the centre. The best way to apply sulphate of ammonia is by dissolving a quarter of an ounce in 1 gallon of weak liquid manure from the farmyard tank, commencing as soon as the flower-buds are swelling freely, increasing the strength gradually until half an ounce is reached to each gallon of water; to be given once a week. Dissolved bones are perhaps better in some soils than ground

bones, as they act more quickly. Especially are they preferable for heavy soils. Mixed with turfy loam, two parts to one of the bone-meal, and applied as a top-dressing early in August, the roots quickly find their way into it, while the continued waterings wash the richness down among the roots.

Animal manures used for making liquid food for the plants are much appreciated when they can be obtained. Sheep manure forms a capital liquid by placing it fresh from the fields into a bag to prevent the manure dissolving and mixing with the water, which renders it too thick. By placing the bag in a tub or tank of water, allowing it to soak for twelve hours, the water will be ready for use. Cow manure used in the same way is good. Drainings from manure heaps are also good. They should all be applied weak and often rather than strong and seldom, in the latter form the roots being more liable to be injured than in the other method of application.

Having named the manures which have come under my notice, I will now state the time when I think they ought to be commenced and how applied. It is not intended that one person should use all those named. Experience only will teach accurately those best suited to each locality. Some people consider the plants ought to be supplied with stimulants when they are in small pots previously to being finally potted, but my experience does not lead me to adopt this plan. I think the proper time to commence the use of stimulants is when the roots have taken full possession of the soil, after the last potting. Some say that feeding should not commence until the flower-buds are formed. This I think a mistake, because in some cases they do not form until the middle of September. From this time until the plants are in bloom is too short a space to allow them a chance of deriving much benefit from applied stimulants. The plants ought to be fed before they form their buds, so that they will be strong at the critical period. During the time the buds are forming the plants should not be excited by giving them stimulants, these being better reserved until after the buds are set and commencing swelling. The applications may be increased in strength as the buds swell satisfactorily. The character of the season must be considered as to the amount of stimulants the plants shall receive and the nature of the soil, be it heavy or light. In a wet season the manure given should be on a small scale compared to that needed in a dry one, as wet summers are inimical to the maturation of the growth, and an excess of stimulants would aggravate this evil, and the plants fail to produce flowers of the finest quality. We commence with soot water first. One bushel of soot in a bag will be ample in a tank holding 100 gallons of water. We give this every time the plants require water for a week, then withhold it for three weeks, when it is again used, this time with liquid from the farmyard tanks, or from that made from sheep manure. After the first course of soot water we give clear water for a day or two, then an application of liquid made from cow or sheep manure about the colour of brown brandy, varying the sort every second or third day, when clear water is given, say once, returning then to the liquids. After the buds are formed and swelling freely, stimulants should be given regularly, varying them constantly, as a change of food is desirable. Whatever sort is used, it should not be continued beyond three or four days at a time. The weakest growing plants should not have it so strong as those of a more vigorous habit. During a spell of wet weather, it is not possible to use liquid made from animal manures; a small portion of any of the artificial kinds should then be sprinkled on the surface of the soil. By this means the plants receive nourishment; whereas if liquid manure were entirely depended upon, the plants would not be in a state to receive intervening waterings. Any of the artificial manures named, when sprinkled on the soil and watered in according to the instructions given, make a good change of food for the plants.

The snow covering.—Rarely have we had a snowfall so light, so protecting, and so harmless to vegetation as was that of the 10th. Its dis-

appearance under the influence of the cold yet thawing rain of the 13th was almost remarkable, for on the following morning the whole of the surface of the soil was clear and vegetation looked so fresh and bright that it seemed as if the snow had been but a nightmare. I have never seen plants after the departure of the snow looking prettier or less injured. Ordinarily we have with snowfalls fierce cutting winds, and then as every leaf becomes exposed it is cut and withered in the blast. Then snowfalls leave behind unpleasant memories. I do not hold to the theory that snowfalls are Nature's protectors of plants. As a rule, they do plants more harm than good. The recent heavy snow has proved to be so friendly, that it merits a word of special praise.—A. D.

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSES AND SO-CALLED DEW.

IN reply to the question, Whether Roses last better when cut in the early morning or when cut the previous evening? the advice has been so often given to cut in the early morning before the dew is off or the sun upon the flowers, as to amount almost to a commonplace.

The Dean of Rochester in his fascinating book about Roses suggests that the blooms should be cut in the morning "when they awake with the sun, refreshed with gracious dews." In the "Rose Garden," Mr. William Paul says: "In gathering the flowers, choose the morning for the purpose ere the sun has risen upon them;" and Mr. Cranston, in his "Cultural Directions for the Rose," counsels the amateur "when cutting blooms, to choose, if possible, the early part of the morning before the dew is off."

Yet, notwithstanding such distinguished authority, it has often been experienced that Roses cut over-night have lasted better than similar blooms cut in the early morning, and there are a considerable number of practical rosarians who would support the statement that generally, in fine summer weather, Rose blooms cut between five and six o'clock in the evening will have a better appearance at noon the next day than if their cutting had been deferred for twelve or even ten hours.

That such should be the case always appeared somewhat incongruous, in consideration of the accepted convention of the refreshing dews of night; but practice takes little note of sentiment, and perhaps an explanation is to be found in Mr. Aitken's discovery, or rather definite proof of what had been previously guessed at, that "all is not dew that glitters."

Dr. Wells, Musschenbroek, and Dr. Mool seem to have suspected that plants exuded moisture through their leaves otherwise than by the evaporation of water through the stomata during the day, but it appears to have been reserved for Mr. Aitken to demonstrate clearly that the diamond drops, which in the early morning after a clear, still night bedeck the margins of growing leaves, giving them the appearance in the brightness of the rising sun of being set with the most dazzling jewels, are not really dewdrops at all, but are simply the natural juices exuded from the leaf itself, the true dew—the moisture deposited on bodies cold enough to cause the condensation of surrounding aqueous vapour—being only the inconspicuous humid film which covers the surface of the leaves.

Mr. Aitken spared no pains to verify this conclusion, making innumerable experiments, of which one of the most interesting and convincing was the substitution for root pressure of

the pressure of a column of water, the water having been previously coloured with aniline blue. A leaf so treated showed that the sparkling globules of moisture were not deposited from without, but were exuded from the leaf's own inner tissues, by the fact that in this case the "diamond dewdrops," which were soon visible along the margin, appeared as pale as sapphires.

Now is it not conceivable that a part of a plant which is liable to lose so much water between sunset and sunrise will be likely to endure better when cut overnight than when the cutting is deferred till the morning?

The freshness of a plant or of a part of a plant cut off depends simply upon its turgidity, and after any considerable waste of the water contained in its tissues, it might reasonably be expected that a somewhat rapid loss of freshness would ensue.

It is true that the difference between the lasting powers of Roses cut over night and Roses cut early the following morning is not constantly apparent; but then it is observable that the amount of water exuded by any given plant is by no means invariable. For Dr. McPherson expressly points out that, as in the case to a great extent of real dew, "the formation of drops on plants that exude moisture depends on the rate of supply, the humidity of the air, and the velocity of the wind"—all three factors which are constant only in their incessant variability.

It is also interesting to note that the amount of exuded moisture found upon plants in the early morning is a direct indication of their health and vitality, the marginal globules being less in proportion as the growth is less vigorous, while unhealthy, sickly leaves are found practically dry, but for possibly a moist film of real dew.

Thus Mr. Aitken's discovery will induce a twofold interest of novel character in the close observation of what has so long been regarded as dew; for every rosarian's first consideration is the health of his plants, and any additional means of estimating their condition is of value; while the question of the lasting powers of cut Roses, whether intended for the house, for exhibition, or for market, is one of the most general importance to all growers, and it may confidently be hoped that during the coming season means may be found for comparing the endurance of blooms cut at various times with direct reference to the amount of exuded moisture observable on the plants during the night subsequent or prior to the time of cutting.

The Rose conference at Chiswick.—The Royal Horticultural Society has published a long list of names of high rosarian fame as being the general committee of the proposed July Rose conference. That the exhibition which will accompany the conference will be of a very diverse nature from those usually seen under the auspices of the National Rose Society there can be little doubt, as myriads of flowers may be looked for which are not acceptable in prize collections. Attempts to reform or vary our present methods of showing Roses seem so far to have failed as without doubt being difficult to adopt at Rose exhibitions. But this Chiswick exhibition, in association with which there will be no prizes nor practically any competition, seems to offer specially favourable opportunity for the introduction of diverse methods of arranging Roses for effect, and it would have been specially valuable had the promoters of the conference provided a class for the most artistically arranged group of cut Roses. I am told that the conference is not an exhibition in the ordinary acceptance of the term, but for that very reason it seems to offer the very opportunity desired to in-

vite variations of these arrangements. Why should Roses, which have not to be judged either individually or collectively, be arranged at this conference in the stereotyped ugly boxes, giving lines as devoid of beauty or of effect as it is possible to conceive? Who can doubt but that some new and charming method of staging cut Roses would not be welcomed by Rose societies and exhibitions henceforth. The show box for the finer flowers may still be tolerated, but classes for pleasing effect in arrangement would become very popular.—A. D.

ROSES IN HIGH ALTITUDES.

THE growing of Roses in the more favoured parts of the United Kingdom is a very different thing to attempting it up here, between 900 ft. and 1000 ft. above sea-level and in a very exposed position. Here the wind sweeps over the hills and charges through our Rose gardens like a squadron of cavalry. It is a bad case for any shoot which has happened to be left untied when one of our south-westerly gales bursts upon us. A bad job, too, for the opening blooms, full of promise and beauty, perhaps, some still summer evening just when the sun goes down. How many a time have I retired at night with the thought "How glorious the blooms will be to-morrow," and how many a time have I looked out the next morning on a scene of desolation, to see the trees and shrubs bent nearly to the ground, to hear the wind whistling through the windows and doors, and to see the beautiful buds of the night before all battered and beaten to pieces. In winter, too, the plants get sadly used. I have seen, after a cutting wind in mid-winter, the shoots dead as if burnt on the side next the wind, while the opposite portion of the branches remained alive and green. And yet we have our advantages, in one respect particularly, and that is in the matter of foliage. I think this in the north is finer and cleaner than it generally is in the south, at least it seems so to me. I do not think that dreaded pest orange fungus will ever make much progress here. I have noticed it occasionally on French seedling Briers, but it never makes any headway, for which fact I am extremely thankful. My exposed situation, too, gives me practically an immunity from mildew, another great blessing, though I must confess that I have had some these last two seasons. I know a sure cure for this disease, but it is difficult to work it. It is to keep our plants always perfectly healthy; if we can do this we shall have no mildew, but how to do it is the rub.

Our seasons are very short ones, for our Roses are not really in bloom before the second week in July, and autumn follows so closely on the heels of summer in these parts that we rarely get a second crop of bloom worth anything. However, by means of our cutbacks, which come into bloom first, and our maidens, which follow and keep up the supplies while sun heat and fine weather continue, we manage to get a pretty fair return for all our trouble.

Our pruning is of the severest description. We go down as far as we can with the scissors and get strong breaks from underground. In the books, by-the-by, one reads a great deal about pruning to a prominent bud and so on. Now if anyone will take the trouble to cut down his plants as low as he can, quite irrespective of buds, prominent or otherwise, he will find in due time that from the collar will issue forth fine strong shoots, the points of which were before quite undiscernible, and which, were it not for this hard cutting, would probably never have grown out. Our pruning is a rough and ready system then, no searching for buds, but a simple cutting away of everything. In the case of such growers as Charles Lefevre, this system must

be somewhat modified; here we leave a few inches above the ground. To return for a moment to the close-cutting system, there is no knowing where a bud will start out. The plan may be well tested in the case of a standard, which being cut right back to a very stump, will push out a number of fine bold shoots. Were a miracle to happen, or, in other words, could anybody persuade or convince me that long pruning were the proper system to practise, I fear Dame Nature, to whom we must all give way, would step in with her frosts and snows and do the bulk of the pruning on her own account in many seasons. As a matter of fact, an extra severe winter, by destroying everything down to the snow line, and in some cases—too many to be altogether pleasant—considerably below it, taught me my present system of pruning, for the return of spring brought up a grand show of strong shoots crowned with fine blooms.

The stock we love is the Brier, and given that we do not care much if it be the seedling or the cutting. Here may I pause to remark upon the amount of clatrap talked about tap roots in connection with the former. The French growers, and some English, too, grow the seedling in a rough and ready way, by sowing the seed and budding the stocks when large enough as they stand; result, a long straight root something like a whip-lash. This is not as it should be, for the Brier should be transplanted and the tap root removed before being replanted in the place where it is to be budded. If this, the proper plan, be followed, there will be no tap root, but a fine lot of fibrous roots such as we see on a well-grown plant on the cutting Brier.

We are compelled to use the Brier as a stock, for the simple reason that no other will do. To plant Roses on Manetti here would be near akin to madness. I have had a most disastrous experience of this stock, every spring showing a quantity of gaps and dead ones, which were most disheartening, and which almost drove me to giving up the attempt to grow Roses altogether. But the Brier, or rather a trial of it, put new life and hope into me, and now I rarely have any losses, no matter how severe the winter may be. One so-called advantage claimed for the Manetti is that it commences to grow so early, but for this neighbourhood this is one of the principal reasons why it should not be used, because the late spring frosts are pretty sure to destroy the young growths.

Our land being simply sand and stones, and our subsoil, if it may be in any way termed soil, millstone grit full of clefts and cracks, we are compelled to make beds of the best soil we can procure, and mix therewith a liberal allowance of good cow manure. Dressings of lime are also applied, and also clay, both being placed on the surface in autumn or winter, and dug in when pulverised.

Our caterpillars are few and far between as a rule, but I must plead guilty to having a fair crop of them this season. Our earwigs, too, swarmed everywhere, and not content with the Roses, invaded the house, the rooms, the furniture, the beds even. We do not in ordinary seasons have any green-fly, but this year we have had a goodly number. We enjoy almost an immunity from all insect and fungoid pests in most seasons, and I ascribe this to our exposed position and our hard pruning. The latter consigns the bulk of the insect eggs and fungus germs to the rubbish heap with the branches and shoots pruned away, and the former allows the free access of the pelting rains to our plants to scour and wash away all impurities and drown

out the young newly-hatched caterpillars. The fresh air and constant currents prevent the germs of mildew from lodging on the leaves. Our manuring is done annually in the winter; we use cow manure. If it is rank, we let it lie on the surface for a short time, but it is always forked in during spring, generally when the pruning is completed, and the beds are made tidy for the beginning of the season.

Our beds are arranged on a lawn, open to the south, sheltered by shrubs from the north and east. The sun shines on them all day. We make the beds 12 feet long and 3 feet wide, with 3 feet of Grass walks between. We plant only one variety in each bed. We began with a great many sorts, but gradually abolished a number of them, and now we have five or six or more beds together all containing one variety. La France, Baroness Rothschild, Charles Le-fevre, Fisher Holmes, E. Y. Teas, Senateur Vaisse, and others figure largely. Last and best comes Merveille de Lyon, the best of all white Roses for beds on lawns, or for anywhere else. When some ten or twelve years ago I began to grow Roses here, my friends confidently predicted failure, and though possibly and probably my Roses are not so fine as those grown in the more favoured parts of the kingdom, I cannot say that I am disappointed with the result. One thing I have proved conclusively, that is, that if we have sunshine and pure air, no matter how cold the climate, no matter how bad the soil, we can, provided we plant them on the Brier stock, grow Roses anywhere.

I hope the day will never come when I must cease to grow Roses, for each succeeding year, even in this bleak spot, finds me more "eager for the fray," and more and more in love with them.—DUNCAN GILMOUR, JR., *Sheffield*, in "The Rosarian's Year-Book."

ROSE MADAME LAMBARD.

I HAVE found Madame Lambard a splendid—most splendid—exhibition flower now and then. I do not think that she should be pruned in a cruel fashion, but rather be fed very well and always be top-dressed. This alone, from my experience, is the secret of getting fine, well-formed blooms of what, about this district, next to Anna Olivier, is the most popular Tea Rose.—T. A. WILLIAMS, *Alderminster, Stratford-on-Avon*.

— As a pot Rose for early forcing this is the best of the bright red Teas. The early flowers are usually much brighter than those produced later on. The plant being of a vigorous habit of growth, with foliage of good substance, it will force better and is not so liable to lose its leaves as are many of the Teas when subjected to a slight change of temperature. I should certainly class it as the best red Tea Rose for forcing. This Rose is remarkable for the great variation in its colour, as the bronzy tinted blooms of the autumn can hardly be recognised when compared with the bright red flowers produced in spring.—A.

— Mr. Girdlestone has requested me to answer the queries in THE GARDEN of Feb. 2 about the Tea Rose Mme. Lambard, which I now do to the best of my ability.

1. The beautiful and varying colour, and the fine dark, glossy foliage are quite distinct from those of any other Rose.

2. If it has any fault, it is that it is not quite full enough.

3. I regard it as hardy of its class.

4. I have grown it in a poor, light soil at Sidmouth, in Devonshire, and in a good loam at Stockbury, in Kent, and found it did well in both.

5. I have grown it on the half standard Brier and on the Brier cutting, both of which suited it well. I have never tried it on its own roots.

6. I think it should be pruned hard for good blooms.

7. I have never grown it in pots or under glass.

8. I do not know anything about its market value.—A. CHRISTY, *Hill Green House, Stockbury, Sittingbourne, Kent*.

Rose De Meaux.—It is very desirable that we should have it authoritatively stated what this really is. Various opinions exist upon the point. My first acquaintance with a Rose under this name was made many years ago, and occurred in a garden where Roses were largely grown, and which contained beds of Baronne Prevost and similar kinds, and all edged with dwarf-growing sorts, amongst which was one called De Meaux, and which might be generally described as a dwarf Provence Rose. It only showed a tendency to grow 18 inches or so high, but, if I remember aright, was annually cut over with the shears. The foliage was small, otherwise similar, and the flowers medium or small-sized, of a rosy pink colour, opening to a flat outline, and sweetly perfumed as the old Provence is, and this I have all along looked upon as Rose De Meaux. Another kind now doing duty under the name is much smaller in all its parts, of very deep bushy habit, with small and very pretty foliage and full double flowers which are not more than 1½ inches or 2 inches across, and are of a sort of lilac-rose colour. This is also known as the Burgundy Rose. Of the latter I only know the one kind; of the former there is a white form, a choice morsel, and one or two others differing slightly in colour and stature. Can any reader of THE GARDEN clear up this matter?—T. SMITH.

GARDEN FLORA.

PLATE 689.

ITALIAN STARWORTS.

(WITH COLOURED PLATE OF ASTER AMELLUS AND VARIETY LINARIFOLIUS.)*

THE time and attention given to the improvement of the North American portion of this genus have been well spent, and although we have not by any means reached the desired haven, we will certainly leave these useful plants nearer the florist's ideal than they were when we found them. There are several workers in the field now, and their mode is to select from the seedlings which are being raised by the hundred, many of them being crossed, and carefully watched. This, however, is rather precarious if the plants are grown in close proximity, as they certainly hybridise on their own account, in proof of which one has only to raise seeds of numerous *Novi-Belgii* forms growing together and carefully note the result. The species that most concerns us at present, however, is *Amellus*, which also ripens seeds, and the improvement of which seems to have been sadly neglected. It has been for generations increased by division and cuttings, which if taken off in spring root freely, but we have seen a few cases of its having been raised from seed. For ordinary gardens it is certainly the best of the genus. It grows well in almost any soil, never fails to produce flowers in the greatest profusion, is not troublesome by means of root-runners, and is of such a dwarf, compact habit as to make it suitable for any position. As an autumn-border plant it has few equals, and when the clumps are large the masses of purple-lilac flower heads are always very attractive.

ASTER AMELLUS, the subject of our coloured illustration, is by far the best of the numerous Michaelmas Daisies now in cultivation. A large number of them are doubtless extremely useful in their way, and could be ill dispensed with from the mixed and shrubby borders; but for a generally useful plant, suitable alike for the rockery, flower garden, and mixed border, there

* DRAWN FOR THE GARDEN OCTOBER 20, 1888, by H. G. MOON. Lithographed and printed by Guillaume Sovereyns.



MICHAELMAS DAISIES (ASTER AMELLUS L. A. LINNÆUS)

are none to equal this. As an old English garden plant it is known by everybody, and we are told that there is every likelihood of its having been cultivated here since the time of Virgil. There can be little doubt of its having been known to Gerard, 1596, and Parkinson tells us that in his time it was known under the title of "*Aster atticus italorum flore purpureo*," which may in some measure account for Gerard's name of Italian Starwort. However interesting this historical matter may be to the reader, the cultivation and improvement of such a truly handsome subject is certainly of more moment to the gardener, and the only way to look for improvement in *Aster Amellus* will doubtless be from seed. It is somewhat remarkable that a plant cultivated from the earliest times should show such a small range of variation as does *Aster Amellus*, but such a state of things could easily exist where the increase has been usually by division, cuttings, &c., instead of by seed. In warm, dry summers seeds ripen very freely on the plant, and the seedlings, if carefully raised and watched, would

type, with leaves perhaps a little narrower; indeed, the plant is not unlike one we recently saw under the name of *Amellus amelloides*, which grows from 3 feet to 4 feet in height and flowers very freely, the flowers being of deeper colour and smaller than those of the type. The best variety, everyone will tell you, however, is *bessarabicus* (see illustration), and two plants are found in gardens that answer to the name—one with a large semi-double flower, with broad rays and somewhat prominent disc. Mr. Baker in his notes on the cultivated *Asters*, gives *bessarabicus*, *ibericus*, *tinctorius* and *pseudo-Amellus* as synonyms; this is no doubt intended in the broad sense, and means to the gardener that these names have been given to nearly allied plants. *A. Amellus roseus* is, in our opinion, the least desirable of all the forms of this plant. It differs from the type chiefly in its reddish-purple flowers, and is certainly less pleasing as a border plant.

A. A. CASSUBICUS.—Under this name we some time since had a plant from Messrs. Smith, of Worcester, but we are unable to find the name anywhere except in their catalogue. The flowers have a very broad bright golden disc, the rays regular and deflexed, and rather larger than in the type.

In the notes referred to above by Mr. Baker it is stated that *pseudo-Amellus*, a species from the Western Himalayas, differs from *Amellus* mainly by its large outer bracts, which exceed the inner in length. It is probably a variable species; at any rate, seeds lately received by us from the Himalayas were sown, and the result is a dwarf plant, producing plenty of flowers, it is true, but so small and of such a dingy purple withal, as to tempt us to mark it as a plant to be avoided. D. K.

FRUIT GARDEN.

GRAFTING.

THIS art of late years has been sadly abused, but I fail to see how it is to be entirely dispensed with. In getting up stock of new plants or trees, or perpetuating any particular variety, the nurseryman can hardly keep pace with the times without having recourse to grafting; but, once he has a good stock, other modes of propagation by cuttings or layers should be practised. There is hardly a plant or tree which the professional propagator cannot increase by cuttings, and where these fail, the good old method of layering from stools, as practised many years ago, might be resorted to. In some good old nurseries which I could name the stool ground formed not only the most important, but the most interesting department, and once good stools were established, the output of young plants as hardy as the parents was considerable. In these express days, hardy plants like *Roses*, *Clematises*, *Conifers*, and a thousand other things are reduced to a soft pulpy state, and stuck on bits of stocks in 2½-inch pots plunged in or over bottom-heat. The union soon takes place, but with what result? Well, a large percentage, imperfectly hardened, are as good as dead by the time they reach the purchaser. He, unless he is acquainted with the nurseryman's mode of stewing, treats them as hardy and settles the business. Taking *Roses* alone, which any handy labourer can propagate

in his way, the grower gets a dozen or a hundred direct from the grafting house, and thinks himself fortunate in securing a pair of buds from each—new variety, of course—before it gives up its short life. A perfect bloom is out of the question. It is this prostitution which has done so much harm; but nurserymen alone must not bear all the blame, for so long as buyers of this cheap ready-made rubbish are to be found, the trade in the neck-and-neck race are bound to produce it.

The remedy, in my opinion, rests entirely with the owners of private gardens, who should set their faces against cheap hot-house grafted stock, and insist upon having all hardy plants from the hardy propagating ground. It is just possible they would have to pay a little more per dozen, but they might make a smaller number of these sturdy plants suffice, and the trade would very soon accommodate them. Not so many years ago, in a conversation with the late Mr. William Osborn, I learned that the only stock upon which *Acer polymorphum atropurpureum* could be induced to take was too expensive, as it must be imported from Japan; but this difficulty did not put the nurserymen, especially the introducers, out of their way, as they knew the owner of every garden would insist upon having a Red Maple. But how did they proceed? Did they send to Japan for stocks which cost as much as the genuine kind? Nothing of the sort; for the first time I looked through the Coombe Wood Nursery, temperate houses were full of stools, and propagation was going on splendidly. In this one example lies the kernel of the whole affair. Deprive the nurseryman of suitable stocks and he will make plants from roots, cuttings, seeds, or leaves. Decline his grafted stuff, and leave him to find his own way out of the difficulty. So far good; but will it be wise to set our faces against and condemn everything that is grafted? Will it be just to encourage inexperienced purchasers to decline all grafted plants or trees offered to them? I think not; otherwise the consumer, as well as the producer of nursery stock, will suffer for an idea. The ancient art of grafting must and will be continued, if only to get up stocks of choice plants or fruits, or to hasten the fruiting of some new seedling by attachment to a tree in full vigour. The conversion of our old cider orchards again must come to a dead stand if we throw away our grafting tools, and the strengthening of weak-growing varieties by grafting on vigorous stocks, or *vice versa*, will be at an end. This, I think, would be going beyond the bounds of wisdom or reason, and yet we must draw the line somewhere, it is quite certain. Why not invite all conscientious and thoroughly practical nurserymen to express their views upon this important matter, for really and truly it affects them quite as much as it does their customers, and I think the extravagant mistake gardeners have fostered and encouraged may soon be rectified.

Instances in which grafting has been a great gain to the country might be cited, such, for example, as the magnificent specimens of *Picea nobilis argentea* or *glauca* at Castle Kennedy and Madresfield Court. *Picea bracteata*, again, of which we have but one batch of seedlings in the country, has been grafted most extensively, and whilst asserting that my trees worked on the common Silver Fir (*P. pectinata argentea*) equal the seedlings, I can bear out the late Mr. Fowler in his statement made a good many years ago, that the beautifully frosted *P. nobilis* succeeds perfectly on this stock, whilst in some places on its own roots it is a com-



Aster Amellus bessarabicus, showing detached flowers.

soon give the desired variation. In an old book I have, mention is made of a white variety, but I have never seen it, nor heard of its ever having been cultivated in English gardens. We have at present about half-a-dozen varieties in catalogues, although it seems to me very difficult to fix the names with certainty. The names chosen are not always appropriate, as may be seen by the form *linarifolius* in our coloured illustration, which must not be confounded with the North American species of that name, which is always under 2 feet in height, with stems very leafy close up to the heads, the leaves narrow, linear, and the rather small flowers with deep violet rays. There is, of course, no comparison between the two plants, but names are often misleading when people do not know the circumstances. The *Amellus linarifolius* grows rather taller than the

parative failure. These trees, as a matter of course, can be grown from cuttings and layers, but well chosen stocks in these two instances have saved many years in giving thousands of perfect specimens to the country. This is a case in which grafting is of use to man, but it does not weaken my aversion to it when applied to soft cheap plants like the Rose and the Clematis.—W. COLEMAN.

— Having always taken a great interest in grafting, and having practised it in a variety of ways, I cannot agree with the notes that have lately appeared on this subject in THE GARDEN. I have no doubt that, as grafting is a very ready means of manufacturing plants, it is more often made use of than is needed, and frequently to the subsequent detriment of the plant. But then, on the other hand, it cannot, I think, be gainsaid that the use of a suitable foster parent has enabled the gardener to cultivate and bring to a greater degree of perfection many plants and fruits which he would otherwise have experienced great difficulty in growing, not to mention the numbers of flowers and fruits which through its agency have become common in our gardens. I therefore should consider the abolition of grafting from our gardens as a calamity to horticulture.

Many of the evils complained of are simply the results of bad work, such as a wrong selection and careless preparation of stocks, grafting in the wrong place, &c. The scion is best inserted, if not immediately upon, as near to the root as possible. With stocks that are raised from seed there is a portion of the stem destitute of incipient buds where the union can be effected, and those raised from cuttings are easily denuded of all the buds below ground without interfering with their rooting. When the stocks are carefully prepared in this particular, suckering is reduced to a minimum. There are, however, some plants which will throw suckers as freely when propagated from cuttings or layers as when grafted. The Plum is one of these, and I should be surprised if a Plum orchard on its own roots would not when left to itself as soon become a mass of suckers as one planted with grafted trees, as the strong kinds would in time over-run the weaker ones.

It is a mistake to imagine that grafting is confined to nurserymen. Market gardeners and fruit growers practise it largely on their own account, and they are not the class of men to neglect the best and most profitable means of propagation and culture, or to adopt anything detrimental to the success of their crops, be they fruit or flowers.

With regard to Roses, far be it from me to say a word to discourage the propagation of own-root Roses; nevertheless, it is a fact well known to those who have tried this means of propagating them, that many are unsatisfactory, while others are free and good. Some will say, then, discard the former, and stick to those only which strike and grow freely. The rosarian is not content to do so, but tries each Rose in various ways until he finds how it succeeds best. Tea Roses will root readily, and under glass, with few exceptions, will grow and bloom freely upon their own roots, whilst if planted outside they would dwindle and die. By calling in the aid of the Brier and budding upon its roots, Tea Roses are rendered more hardy and vigorous.

Many fruits, too, by the operation of grafting are improved in flavour and rendered more prolific by reason of the extra strength which is infused into them. Others, again, would never become trees of any size unless grafted. Take Rivers' Early Prolific Plum, for instance.

To raise a stock of standards of this variety from cuttings or layers would, indeed, be an endless business; so precocious is it, that growth would be arrested while the trees were yet small. It might certainly be grown as a bush, but then this form is not adapted to everyone's requirements; whereas when grafted upon a free-growing stock it soon forms a good head. After all, grafting is only substituting the roots of our native plants, or those which have been thoroughly acclimatised, to sustain and develop varieties of the same order or species which, in the process of improvement and refinement in one sense, have lost in another—that is, stamina. Thus we employ the Crab for the Apple, the Brier for the Rose, the Traveller's Joy for choice Clematis, and so on, because they possess roots in greater quantity and of a more hardy nature than choice varieties of fruit and flowers would be likely to form of their own.

It is a fact well known amongst gardeners that the smallest and weakest seedlings invariably produce the best varieties, and this rule, I think I may say, has a general application; therefore, I see nothing absurd in setting one plant to help another if by such means we can more readily propagate and more successfully cultivate them.—A. BARKER.

— Grafting is at the present day undoubtedly carried to a very great excess in the propagation of plants, but, at the same time, I should not be inclined to vote for its entire abolition. A form of grafting that perhaps scarcely comes under the scope of the present discussion, but still a very useful one to the horticulturist, is that of grafting a small branch on to a piece of root. This is available for the increase of many plants, and as the point of union is below the surface of the soil, the scion soon pushes out roots of its own, and becomes established in this way. Should stock and scion be the same, of course suckers need not be troubled about, but where the root of some allied kind is employed, suckers, in the case of a plant prolific in their production, are often an intolerable nuisance. It may be employed with advantage in the case of the two beautiful stove climbers, *Ipomœa Horsfalliæ* and *Combretum purpureum*, neither of which can be struck from cuttings, and yet a union is readily effected between a growing shoot and a piece of root. In the case of these two, grafting is undoubtedly an advantage, while, as a set-off to this, I may mention that some Lilacs once came under my observation that had been grafted in this manner, and the continual production of suckers became such a nuisance, that at last the plants were taken up and the foreign part of the roots removed. The plants had, to a greater or lesser extent, roots of their own, and in time became again established, yet the check was very severe and valuable time lost. Grafting the many varieties of Clematis is, again, not an unmixed good, and I am inclined to think that plants on their own roots will in time supersede grafted ones. In the case of trees and shrubs planted not for fruit, but for ornament alone, the watching for and removal of suckers need to be continuous, and surely much of this could be avoided by propagating as far as possible by means of cuttings or seeds. It is, indeed, very discouraging to purchase some new tree or shrub and receive a tiny shoot perched on the top of a broomstick-like stock, and which prevents the plant showing its true character, even should it grow. I have had especial trouble from purchased plants of the various double-flowered Peaches, *Pyrus*, several kinds of *Cerasus*, and especially some of the varieties of *Prunus*, including *P. triloba*. They were grafted or budded on the Sloe, and this shrub, so prolific of suckers when in its native hedgerow, was doubly so when used as a stock for a weaker growing scion. The evils of suckers amongst Roses is well known to everyone, a continual watch having to be kept for their removal, and if neglected for a little while a bed of these Roses becomes little else than a mass of wildings.

An illustration of this came under my observation in a bed of the Japanese *Rosa rugosa*, which had been allowed to run wild. Some of the plants raised from layers had made handsome specimens, while others budded on some strong stock had not made such satisfactory progress, as the suckers almost smothered the original plant. Azaleas, again, though nearly always grafted, can be just as readily struck from cuttings, and though they may not make quite such rapid progress during their earlier stages as grafted plants, still, I prefer plants on their own roots, and have propagated a great number in this way. For several hard-wooded plants grafting is very valuable, as they will make far more satisfactory progress when grafted on some allied kind than when on their own roots. Among plants to which these remarks will apply may be mentioned *Crowea saligna*, which does far better when grafted on to one of the stronger growing *Eriostemons* than when propagated by means of cuttings. The same may be said of the weaker growing *Eriostemons*, *Correas*, *Boronias*, and others. In none of these are suckers pushed out from the stock, and consequently objections to grafting on that score do not apply.—H. P.

RENOVATING OLD PEAR TREES.

It often happens that Pear trees after attaining a certain age and size cease to prove as productive as is desirable. This reduced fertility is caused in several ways, over-cropping, neglected pruning and training being the chief causes. The fruit spurs become large and knotty, the growth is weak, and the fruit buds are reduced to a few upon the youngest parts of the tree, which has now become altogether unprofitable. The question therefore arises, whether it is better to destroy the tree and plant a new one in its place, cut off the limbs and re-graft them, or make an effort to renovate the spurs? Those who know the years it takes to form a good trained tree are loth to uproot and start afresh even with cordons, which provide a quick means of replacing it.

Re-grafting has much to commend it when a different variety is desired. When, however, a change in this respect is not required, the variety being good, if the tree is tolerably healthy it may be restored to a satisfactory state by cutting all the old gnarled spurs clean off and forming a fresh set, proceeding in the following manner: September is a good time to commence the operation; if not done during this month, it is best deferred until March or April following, as when carried out during winter, the trees then being dormant, there is a greater possibility of decay setting in than if they are cut off when the sap is in motion. A sharp, fine-toothed saw should be used for the purpose, removing the spurs only from every alternate branch the first year. I have known this method of renovation to be successful when the whole surface of the tree has been cleared of the old spurs at the same time, but I consider it safer and more likely to be attended with success when only one half of the tree is taken in hand at one time. When growth commences, numerous rudimentary buds will be excited into action upon the branches which have been bared of spurs. When these shoots have grown about 4 inches long pinch out the points, and where the breaks are too numerous remove some altogether, but not the short ones, as these are the most likely to form fruit buds. Little will then be required at the winter pruning besides shortening the longest shoots a little. The other half of the tree should now be operated upon in a like manner, when at the end of the second year the branches will again be provided with a clean set of shoots and spurs, which will soon develop fruit buds in quantity, leaving clean, good fruit. The roots will also need attention. When the tree has again become furnished with new shoots, take out a circular trench 4 feet from the stem, 3 feet wide, and deep enough to touch all the roots. As many of these as possible must be saved uninjured and relaid into new compost, the surface soil also being removed at the same time down to the roots and replaced with fresh. It is wisest to avoid the use of manure with the soil, excepting,

perhaps, upon the surface. A liberal admixture of crushed bones, however, will considerably add to its recuperative powers. In regard to unhealthy trees, it is hardly worth while attempting their restoration, the better plan being to root them out and plant new ones in their place. Unless it is particularly desired to restore a tree of this description, the roots must then have precedence, with the object of restoring healthy action, without which it would be useless to attempt a renewal of the branches.

Re-grafting, although perhaps not quite so expeditious as the preceding, is, nevertheless, an excellent method of renovation. By its agency the variety can also be changed, if desired, sometimes with advantage.

The method of grafting I prefer for this purpose is that known as crown grafting, or, as some call it, sap grafting. It is performed in April or May, according to the earliness or otherwise of the season, as it is important that the sap be well in motion at the time. The stocks, however, should be headed down in March and the scions nearly buried under a north wall until wanted. The size of graft I like best is about the thickness of one's little finger, and consisting of well-ripened wood of the previous year's growth. Older may be used if it is clean and furnished with buds. In preparing that part of the stock intended for the reception of the scion, pare the newly-cut end to form a slightly sloping surface. Then, commencing at the top of the slope, make a longitudinal cut through the bark downwards about 3 inches in length; then take the scion and cut it in an oblique direction, commencing at about 3 inches from the bottom end on one side; bring the knife out at the bottom on the opposite side, thus forming a tapering spatula-shaped tongue; pare off the bark on one side of this tongue, then raise the bark on one side of the cut on the stock and insert the scion, at the same time taking care that the bark on the other side comes in contact with that on the pared edge of the scion. The graft is now ready for tying in, which should be firmly done without causing injury to the bark, employing soft matting. Cover the newly-cut surfaces with grafting wax, and as an extra precaution against drying winds, encase the whole, except the top of the scion, in clay daub. A re-grafted tree will, if successful, bear fruit in three years' time. Sometimes partial restoration only is needed. The ends of the branches or the leaders, from the influence of wet seasons, on heavy soils especially, often die back, or growth is frequently arrested from allowing fruits to mature too near or upon the terminals, causing bare spaces upon the walls or trellis. In such cases the branches should be cut back to sound wood and grafted with scions from another tree of the same variety. An effort should also be made to re-furnish with shoots or spurs any spaces upon the branches which have become bare. Several plans are in vogue for accomplishing this object. The one I prefer is bud-grafting in August, either with a single bud or a short spur, prepared in the same manner as for shield budding. It should be performed when the bark will run freely, and although some difficulty may be experienced in placing the buds when the bark is rough, with care they can generally be inserted with every chance of success. A. BARKER.

Gooseberries and Currants.—As Mr. Coleman holds that Currants are commercially more valuable bush fruits than are Gooseberries, I put the matter the other day to one of our market growers, who grows both fruits largely and remarkably well. He, however, gives a diverse verdict and favours the Gooseberry. This hardy bush fruit enjoys its pride of place as a market commodity specially because of the long season over which the fruits may be marketed—fully ten weeks; whilst Currants are limited to about four weeks. Gooseberries are, indeed, far more largely sold in a green state than in a ripe condition, and the fruits in that state have a better market value relatively, because they are much less perishable. Ripe Gooseberries or Currants will sometimes, and especially in bad weather, spoil if left in the baskets a couple of

days; but green Gooseberries in a cool, dry place will keep sound for a week. Growers of bush fruits for market generally put down two-thirds of Gooseberries to one-third of Currants of both kinds. That fact strongly illustrates the value of the Gooseberry in the market. Then Gooseberries, on the whole, perhaps, bear heavier and more constant crops than do Currants. The practice of gathering two-thirds of the crop whilst green relieves the bushes early and assists in promoting bud-production for the following year. Bushes of considerable age prove very fruitful if they be well thinned every winter, and by regularly removing the old wood almost new bushes are eventually formed. These, when well manured and lightly dug about, carry large crops of fine fruit, and thus prove wonderfully profitable.—A. D.

HARDY FRUIT NOTES.

THE GOOSEBERRY.

To prune or not to prune is a question upon which a great number of fruit growers deliberate until the sap is in motion and the buds are swelling freely, when the birds are down upon them, and, independently of the state of the weather, they are obliged to push forward the work. If this wavering procrastination ensured the crop, one might put off until the last moment the pruning, manuring, and tidying up of the Gooseberry quarters, but it does nothing of the kind, for, independently of the loss of hundreds of buds by the hand of the pruner, we invariably find these bushes, pushed forward by shelter from a profusion of twigs, affording the first toothsome morsels when bullfinches put in an appearance. I have given up this putting off now for some years, and have good reason for being satisfied, as I find very early pruning long before the buds commence swelling retards the bushes, no important matter in low-lying gardens subject to spring frosts, and makes them harder and better able to resist inclement weather. Under the old system we pruned late, dusted with quicklime and soot, syringed with thin limewash, and then lost a large percentage of the buds. Now we prune early, put the quarters in order, and watch the arrival of our feathered friends or foes. As these birds invariably work in pairs and are exceedingly jubilant, we soon learn that the time for protection has arrived. Having each quarter permanently surrounded by wire netting set on edge and secured to Larch stakes, with threads of galvanised wire running breast-high right across the squares, enclosing the top is as simple as it is expeditious. Thin twine nets are always at hand for use, and these we draw over the bushes until the crop is safe, when they are removed to let in insect-eating birds. The wire netting round the outside of course remains, and the square-meshed twine netting is put back again when the fruit is ripe enough to attract the wary blackbird. These nets cost about 8d. per yard, and being elevated 3 feet at the sides and 5 feet in the centre of the squares, they are out of the way of the pickers of the fruit; consequently, under ordinary care, they last a great number of years. But why use a perishable article for the roof when aviary wire netting is so cheap and durable? and why take it off in May to be restored in July or August? Well, these questions are easily answered, for some years ago I paid a visit to a grand garden in which not so much as a tomtit could enter the Gooseberry quarter from New Year's Day to the end of December; but what a sight for the misguided owner and possibly a joy for the poor famishing grub-eating birds. Not a leaf was to be seen; caterpillars innumerable had made a clean sweep, and this wreck decided me in favour of a light pliable net for protecting first the buds, then the ripe fruit, and giving the small birds a clear course when enemies worse than bullfinches are on the warpath. In the neighbourhood of towns where birds are scarce and

Caterpillars are an annual pest, preventive measures of another kind must be put in force, not only amongst Gooseberries, but amongst Currants also. But first of all it may be well to know something about the habits and movements of these in-

sects, otherwise much time and trouble may be thrown away upon them. Late broods of the grubs, we learn, find their way into the ground, change into the cocoon state, and remain dormant through the winter. If left alone these change to the chrysalis in the spring. In due time the saw-fly emerges, ascends the bush, lays her eggs on the young leaves of Gooseberries and Currants, and so the work of destruction goes on. When this pass is reached half measures are of no avail; therefore, some of the well-known remedies or preventives must be put in force. Extermination by preventing the females from ascending to lay their eggs is the proper course. Nature sometimes does this work for us, but we may do it for ourselves, first by removing all the loose soil from beneath the bushes immediately after they are pruned, and second by syringing and soaking with soapsuds, followed by a good dressing of quicklime. The pruning must be performed early, for the twofold purpose of catching the grubs before they get deeply seated amongst the roots, and preventing a check by the use of the fork or spade in the removal of the soil. As this soil will contain most of the cocoons, it should be wheeled away and buried in the waste-yard, a good fresh turfy compost, to which soot and lime may be added, replacing it. Owners of gardens near towns boasting a tan-yard sometimes place a thick layer of tan beneath the bushes, and the tannin no doubt destroys the flies; but I do not care for raw tan, especially when the first plan is effectual as a preventive and beneficial as a top-dressing. Copious washings with soapsuds as soon as the bushes are clear of fruit is a most excellent manurial preventive; in fact, I feel satisfied that repeated use of this laundry waste will very soon make a complete clearance of cocoon, fly and caterpillar. Its use as a wash when the bushes are in fruit is out of the question, but as an underground root stimulant and insect destroyer all the year round it is invaluable.

WORK IN FORCING HOUSES. VINERIES.

Early Vines.—The shoots having been tied down and stopped at the second joint beyond the last bunch, it will now be necessary to proceed with the pinching of the laterals, at the same time retaining intact one nearest the extremity for laying in wherever there is room for extension. In the manipulation and laying in of these laterals great judgment is needed, as laterals which at first appear thin may be sadly crowded when the foliage is fully developed; therefore, in order to avoid waste by subsequent cutting out, followed by bleeding, it is better to extend by degrees than to retain more leaves than can have full exposure to light and air. The adept at this work with finger and thumb takes out each point when it is no larger than a pin's head. There is no carrying away of wasted laterals by apronfuls, and yet when each leaf is fully developed the trellis is evenly covered with foliage, which can move freely and allow glints of sunshine to pass down into the body of the house.

Fertilisation.—A constant circulation of semi-dry warm air being essential to a good set, the temperature when the flowering stage is reached should be raised to 65° by night for Hamburgs and 70° for Muscats; that by day may range 10° higher from fire-heat, and 80° to 85° or 90° when the sun is bright and the external air is soft and balmy. The intense heat and arid atmosphere once insisted upon are detrimental to setting, as the anthers get dried up before the pollen is properly developed, the Vines suffer, and not unfrequently the first outbreak of red spider may be traced to this unnatural treatment. Vines when in flower, on the contrary, should have just enough fire-heat to raise the temperature to the above figures with a circulation, not a cold current, of air, and the floors and walls should be damped with warm, pure water to feed the foliage and prolong the perfection of the myriads of flowers. Hamburgs—in fact, all Grapes, I believe—are improved by artificial fertilisation, although they do not always receive this attention. Muscats, Sweetwaters, and others known to be shy may be greatly assisted in two ways—first, by drawing the points of the bunches

up towards the glass; and, second, by charging a camel's-hair brush with Hamburg pollen and running very lightly over the clusters every day at noon or whenever the temperature has reached the maximum. The first half of the day, when the Vines are fresh and vigorous from the night's rest, is the most favourable time for setting; hence the advisability of giving that rest through the hours of darkness.

Thinning.—A pamphlet might be written upon the thinning of the different varieties of Grapes, but my remarks here must be confined to a score of lines. Hamburg, Madresfield Court Muscat, Buckland Sweetwater, and Foster's Seedling generally come first to the scissors, and as these constitute the gardener's sheet anchor, the capabilities of each Vine are pretty well understood. Like all other operations, thinning should be commenced before the superfluous berries have time to rob those which must remain. Free setters may be thinned pretty freely when the berries are about the size of swan shots, and the nearer the approach to the retention of the exact number the larger will they be when ripe. Muscats and shy setters should be perfectly fertilised before they are taken in hand, as nothing so injuriously detracts from the appearance of an otherwise perfect bunch as a sprinkling of seedless berries. If these are taken first, perfect berries somehow continue to fill up the space, but once a few of the latter are taken and seedless berries, apparently where most wanted, are left, their ultimate removal leaves a gap which time fails to fill up. As Grapes—Hamburgs, for instance—vary so much in closeness of bunch and size of berry, a sharp journeyman on the spot knows better than I can tell him how many berries he must leave; but this I may say, when ripe, each berry should be perfect in form, and yet the bunch must be full enough to retain its form when cut and laid upon the dish.

Temperature and ventilation.—When the Grapes are set and thinned, making allowance for increasing length of days, there need be no great reduction in the maximum mean when the weather is bright and mild, but that by night may go back some 4° or 5°, or a range of 60° to 65° on cold mornings. Night air is a great help, even if it is but a small chink, but this should be shut off at daylight to ensure the full benefit of the vapour bath from damping the walls and floors. When the temperature begins to rise air should be given at 70°, and steadily increased as the mercury ascends to 80° or possibly 85°, but the moment the sun begins to wane, the house must be closed and again filled with atmospheric moisture. The great secret of ventilation at this critical season is the maintenance of a steady rise and early closing to ensure progress, as no amount of solar heat will scald the foliage or elongate the shoots after the house is shut up for the day.

Succession Vines now breaking may be well syringed until the bunches are prominent, when it must be discontinued, vapour from damping the walls and floors and the lower parts of the stems being substituted. Fermenting material, consisting of Oak or Beech leaves, to which a few fresh horse droppings may be added every morning, is a powerful aid, as it keeps the house moderately charged with ammonia and economises fuel. Outside borders do not require fermenting material, but they should be kept covered with a good layer of leaves or Bracken to prevent the surface roots from becoming chilled by snow and cold rain. If the inside borders have not been watered since the house was closed, a good supply of weak liquid to old Vines and pure water to young ones, at a temperature of 80°, should keep them going until the Grapes are set. When the Vines are disbudded and tied out, a rise to 60° by night, and 70° by day from fire heat, and 5° to 10° more under bright sun, will draw out the bunches, which, by the way, should be reduced to one on each shoot, and that naturally the best. By the best I must not be understood to mean the largest, as compact shows of medium size, and a reasonable number of them, always grow into the most pleasing crop when ripe.

Late Grapes.—If these are not on the move, with

the experience of the past cold, sunless summer fresh on our minds, they should now be coaxed forward by moderate supplies of tepid water and early closing with sun-heat and moisture. I assume that the Grapes were cut by, if not before Christmas, and the Vines have been fully and freely rested since the beginning of November. If they have not, and the penny-wise-and-pound-foolish system of saving fuel in the spring and wasting it in the autumn has been adopted, why then they must be kept quiet well into March. This method of stealing a march upon bad summers, and running in with Gros Colman fit to eat as well as to look at, I have advocated for more than twenty years, but as yet the economy of burning a ton of coke in the spring to save two in the autumn is not fully appreciated. All the late Grapes require time as well as heat; hence the importance of an early start, Muscat treatment, and early rest.

PEACHES.

Early houses in which the fruit is beginning to swell freely must be well syringed with tepid water twice a day when the weather is fine, and once when it is cold and cloudy. As no one waters Peaches during the flowering stage, a liberal supply at a temperature of 70° should be given to inside borders when the young fruits have attained the size of small Peas and the trees are forward enough for disbudding. As it is rather doubtful if Peaches in well-drained borders under glass can be over-watered, whilst a great number of trees suffer from the want of this element, the surface should be pricked up and mulched to ensure its even and steady descent until it passes into the rubble. Vigorous young trees do not require feeding; in fact, they may be seriously injured by stimulants, but old stagers which set every flower and carry heavy crops annually derive great benefit from weak diluted liquid or pure water passed through a generous mulching. Disbudding must be regulated by the vigour or weakness of the trees and the crops of fruit they are carrying. If the former, the young shoots may be taken off with a liberal hand, but not to an extent that will produce a check; whilst weakly trees may be coaxed into a free growth by delay and the exercise of patience. As this process is carried on, the set being good, all inferior fruits may be rubbed off, triples and doubles reduced to one, naturally the best, an abundance, point upwards, being reserved for future operations. If green-fly puts in an appearance, fumigation with tobacco paper on a calm, dull afternoon when the foliage is quite dry must not be neglected.

Succession houses started about the beginning of the year must be well supplied with atmospheric moisture, not so much from direct syringing as from damping the walls and floors and turning the fermenting material placed upon the borders. A nice syringing once a day is beneficial, but the old method of keeping the trees constantly moist is detrimental now soft moist heat from fermenting leaves and hot-water pipes has taken the place of that obtained from the parching flue. As the trees approach the flowering stage, green-fly must be destroyed by one or two moderate smokings, otherwise this pest, so easily killed, will mar the trees if it does not ruin the crop of fruit. A temperature of 45° to 50° at night and 60° to 65° by day from fire-heat will ensure a strong perfect bloom, which after this date will set freely enough provided the pipes are kept warm and the house is carefully ventilated. As few, however, care to leave a single stone unturned, and thorough cross-fertilisation increases the size of the fruit and minimises dropping at stoning time, the brush should be passed over the flowers every day. Although Peaches set very well on walls without the aid of artificial heat, they always succeed best when bright sun raises the temperature to 70° or 80° and the atmosphere is moderately charged with moisture. These, then, are the conditions, minus the risks from storms and frosts, we should endeavour to produce in our forcing houses; and although we cannot compel the sun to shine, we can maintain a brisk, buoyant temperature by increasing the warmth in the pipes and the admission of plenty of fresh air.

Late houses in which the best midseason, and perhaps one or two late varieties are allowed to come on very slowly must have an abundance of air whenever the weather is favourable, not only by day, but, also through the night. Water, too, must be plentifully supplied to the roots, especially where the whole of them are inside and the drainage is good. Tepid soft water, no doubt, is best, but lacking this, that from springs or underground pipes may be greatly ameliorated by passing through a good mulch of fresh short stable manure on its way down to the roots. As the buds approach the opening stage, a dash with the syringe on a fine bright day will do them no harm; whilst smoking, still more important, must not on any account be neglected. These late houses in almost every garden have become crowded with plants of various kinds, including forced Roses and pot Strawberries, carrying about them a colony of green-fly wherever they go. Their presence, no doubt, is an unavoidable evil; but forewarned, forearmed, the grower may benefit the plants as well as the Peach trees by repeated fumigation. When retarding has lost its charm and the trees begin to expand their flowers, gentle fire-heat, equal to the maintenance of 45° to 50° by night and 60° to 65° by day, will facilitate the setting of the fruit. W. C.

TREES AND SHRUBS.

KETELEERIA FORTUNEI.

THIS coniferous tree, a native of South-eastern China, has been by various botanists considered to be a species of *Abies*, a *Picea*, a *Pinus*, and a *Pseudo-tsuga*. Mons. E. A. Carrière, however, finding that it possesses certain characteristics quite distinct from those of any other Conifer, considered these differences sufficiently great to call for the establishment of a new genus, which he has named *Keteleeria*, in honour of M. Jean-Baptiste Keteleer. In the *Revue Horticole* he describes the tree as having the spreading habit of a *Podocarpus*, while the heavy branches resemble those of a *Torreya grandis*. Its cones also, although borne erect, like those of an *Abies*, have persistent scales and remain entire on the tree for several years. The largest specimen of *Keteleeria* at present existing in Europe is to be found in the nurseries of Messrs. Rovelli at Pallanza, by Lake Maggiore, in Italy. This was planted in 1859, and now measures nearly 49 feet in height and over 8 feet in circumference at the base. The bark is very thick, furrowed, and corky, like that of *Quercus suberosa*. The spread of the branches is about 40 feet across. For some years past this tree has fruited, the cones and seeds attaining a normal development of size, but the latter, although very large and apparently well formed, are destitute of kernels, and consequently incapable of germinating. The following precise description of this tree will show how far M. Carrière was justified in classifying it as the representative of a new genus:—

A tree of erect growth, forming a loosely spreading pyramid. Bark ashy grey, often split and furrowed, constantly increasing in thickness, at first soft and full of coarse fibres, afterwards becoming firm and corky in texture; bark of the young shoots of a rusty red colour and covered with short down. Branches in whorls, sometimes alternate or scattered in young plants raised from cuttings, layers or grafts, at first obliquely erect, afterwards spreading loosely, sometimes slightly divaricated and deflected like the branches of a Cedar of Lebanon. Leaves thick, flat or slightly convex, soon becoming stiff and very hard, green, sometimes glaucous on the under surface, especially in young plants, acutely pointed, from 1 inch to 2 inches long and about one-sixth of an inch broad. Young cones (see illustration) erect or nearly so, generally close together on the sides of the branches, more rarely solitary, having a stout foot-stalk and

short scales, ovoid in shape, abruptly obtuse or truncate at the apex, and attenuated towards the base, at first of a grass-green colour, soon changing to a reddish violet with a hoary glaucousness; bracts somewhat prominent, especially towards the base of the cone, where they are reflexed, soon disappearing, or at least most of them, either from being pushed off or else covered over by the advancing growth of the scales below them. Full grown cones (see illustration) about $3\frac{1}{2}$ inches long and 2 inches across, continuing for several years persistent on the tree with all their scales attached; scales woody, thick, broadly roundish on the upper margin (which in old scales is sometimes split, these old scales being of a chestnut-red colour and often slightly hoary), stalked or clawed, varying in shape according to the position which they occupy on the cone, and having at the base a bract which is sometimes overgrown and covered by the scale immediately below it. Under each scale two seeds are produced; these are about five-eighths of an

Keteleeria differs entirely from any other Conifer of either the Fir or the Pine tree family.

Ligustrum Quihoui.—This is a pretty and distinct species of Privet, forming a low, much-branched, but spreading bush, with small, deep green leaves and a great profusion of loose terminal panicles of white blossoms. It forms indeed a very pretty flowering shrub, and is especially notable from the fact that it is at its best after all the other Privets are over. Pretty though some of the Privets are when in bloom, notably this and the Chinese Privet (*Ligustrum sinense*), they must not be planted in immediate proximity to dwelling houses, as the heavy odour of the blossoms is to most people very disagreeable. *L. Quihoui* is, I believe, a native of China, but it is at present a somewhat uncommon shrub.—T.

Kœlreuteria paniculata.—This is a very ornamental, small-growing tree, well adapted for

which grow as readily as those of the different kinds of *Rhus*. A notable feature in the case of the *Kœlreuteria* is that it grows well in a chalky soil, which cannot be said of many of our hardy trees.—T.

PLANTING TREES FOR SHELTER.

As regards planting trees for shelter, I am satisfied that more lasting satisfaction would be obtained if, instead of selecting the fastest growing trees, which not unfrequently lose their lower branches after a few years, more attention were paid to those subjects which do not make such rapid progress, but which are hardier and closer growing. Quite recently I have been engaged in advising what to plant for shelter to a garden that is much exposed to the north and east. As it was necessary that the protection provided should be of a lasting character, I have had planted a double line of the Evergreen Oak (*Quercus Ilex*), and behind these



Keteleeria Fortunei, showing young cones.



Keteleeria Fortunei, showing cone, natural size.

inch long and about five-sixteenths of an inch broad; wing persistent, more or less broadly rounded on the ventral side of the seed, to which it adheres firmly, almost straight on the opposite side where it is attached near the end of the seed from which it is prolonged sometimes beyond the margin of the scale, this characteristic being very variable both in the same cone and in different cones.

A feature which distinguishes the *Keteleeria* in a remarkable manner is the difficulty, or rather the impossibility of propagating it by means of grafting. Sometimes scions took when grafted on *Abies pectinata*, chiefly when the method of grafting by approach was employed, but none of them continued alive for any length of time, so that besides raising plants from seed (when this is obtainable) the tree can only be multiplied by means of layering or cuttings, and even these are very slow in taking root. In this repugnance to "the art of grafting" the

planting on a small lawn, or where there is a wide expanse of turf, half-a-dozen or so in a group forming a pleasing feature. The value of the *Kœlreuteria* in this respect is enhanced by the fact that it does not blossom till towards the end of the summer, at which time nearly all flowering trees are out of bloom. The *Kœlreuteria*, as a rule, grows with a clear stem, not very straight, and a rather open head of branches, clothed somewhat thinly with very handsome pinnate foliage. The flowers are yellow and borne in large terminal panicles, at which time a specimen is very handsome. The blossoms are sometimes succeeded by rather curious inflated seed-pods, and when they are present in considerable numbers (which, by the way, does not always happen), they have a very uncommon appearance. In autumn the decaying foliage assumes a rich yellow colour before it drops. The *Kœlreuteria* is a native of China, and though quite hardy in this country it is seldom planted. Propagation is readily effected by seeds, or by cuttings of the roots,

another double row of *Pinus Laricio* (the Corsican Pine). I should mention that the Oaks are intended as a permanent shelter, the others to be removed at some subsequent date, or as soon as those which are intended to remain have grown of sufficient height to give protection. The Oaks are planted in rows 6 feet apart and the same distance between the plants, the latter in the last row being put midway between the others. The *Pinus* is planted three rows deep at 3 feet apart each way.

Of the ultimate success of this piece of planting I have not a doubt, providing the plants are well cared for and the Firs not allowed to encroach on the others. Of the value of the Evergreen Oak to afford permanent shelter when it has attained to moderate height, no one can question who is conversant with its hardy character and the density of its growth. Its slow growth tells against its general use. In the instance I have referred to it was not a question of waiting, because there was sufficient

space available to plant behind them a more fast growing tree to give the necessary protection until the others provided it. I know of a long line of trees that was evidently planted for the purpose of affording shelter that must be considerably more than a hundred years old, and the trees are now in perfect health.

There is much less difficulty in planting for shelter when there is plenty of space beyond the boundary line. In the case I have referred to it did not exceed 35 feet. Where there is plenty of space I prefer to plant a fringe of Evergreen Oaks on the inner side, and to fill up the remainder with such fast-growing subjects as the Lombardy Poplar, Wych Elm, Horse Chestnut, and the Silver and Austrian Firs, planting them in equal proportions moderately close together in the first instance with a view of the subsequent removal of some as they become crowded.

If I were confined to one form of deciduous tree to plant for shelter for the protection of fruit orchards, I should select the English Elm, and plant trees about 5 feet high. These I would plant in a line 4 feet apart, and allow them to grow their own way for five or six years. If space is restricted I should shorten back the side branches so as to cause them to grow thicker, still leaving the leaders to extend until they had reached the desired height, when both the leading shoots and side branches may be annually cut back. Under this treatment this Elm will make one of the most reliable and lasting forms of shelter that anyone can desire. The great merit of this Elm is that it will thrive in almost any kind of soil, and will bear severe pruning. If annually pruned, the growth gets so thick that a single row of trees will afford good shelter whether they are in leaf or not.

J. C. C.

KITCHEN GARDEN.

SIMPLE METHODS OF FORWARDING VEGETABLES.

THOSE who have abundance of heating material and numerous pits and frames at their disposal are in a position to force a good variety of vegetables, and also to forward many plants for stocking the kitchen garden, but these are in a minority, as there are numerous gardeners in charge of small places and a considerable number of amateurs who do not possess such facilities. These must perforce adopt some simple method of attaining the same end, or otherwise fail to produce an early supply of much appreciated vegetables. Of the many contrivances adopted by persevering gardeners for forwarding vegetables, there are none which give better returns than a spring bed or slight open-air hot-bed formed late in February or early in March. Not only is it possible to raise a good supply of early Carrots, Radishes, and Mustard and Cress without the aid of glass, but with these also may be raised sufficient Lettuce, Cauliflower, Brussels Sprouts, Cabbage, and Celery plants to stock a small garden. The value of strong early plants of the different vegetables last named cannot well be over-estimated, these alone more than compensating for the labour and expense entailed in their preparation.

All that is needed at the outset is a heap of heating material, a few stout stakes and strong boards, and some kind of protecting material, such as mats, strong canvas, or even fish netting. The owners of or those in charge of places where there are no stables usually purchase the requisite supplies of manure, and there is no reason why a portion at least of this should not at first do duty as a hotbed. Two tons of nearly fresh stable manure, and which ought to be delivered at no more than 5s. per ton, would, with the addition of an equal bulk of leaves, sweepings, and other decaying rubbish, be sufficient for a small, yet most serviceable spring

bed. All should be well mixed and thrown into a heap to ferment for a few days, and if the stable manure preponderates, at least one turning and a further delay of four or five days would be necessary to properly sweeten the mass. A sheltered well-drained position ought to be selected for the bed, and the latter should be made not less than 2 feet in depth, flat, and rather firmly put together. What shall be the exact dimensions of a bed must be determined on the spot, but to be of good service it ought to be not less than 6 feet by 4 feet, and for these four common deal boards or some substitute 9 inches or more in depth are needed. These should be fixed inside of tall and fairly stout stakes driven into the sides of the bed, their purpose being to enclose the needful depth of soil, while the stakes, with perhaps a few cross pieces, will support the mats or other protecting material clear of the bed. Rather fine and sandy soil, such as may be obtained by sifting over a heap of old potting-bench refuse, is the best, and of this or the lightest soil procurable there ought to be a depth of about 6 inches, the surface being made quite smooth. Unless nothing but stable or farmyard manure is used in forming the bed, there is little danger to be anticipated from over-heating, and in most instances the seeds may be sown at once, or, at any rate, as soon as the soil is warmed through. About one-half of the bed may be thinly sown down with either Scarlet Horn or Nantes Horn Carrot, and with the Carrot a thin sprinkling of Wood's Frame and French Breakfast Radishes, or, if preferred, the early forcing Turnip-rooted varieties may be substituted. A patch 2 feet by 18 inches may be thinly sown with one or two varieties of Celery, a white sort being included if an early row is desired, otherwise the preference should be given to either Sulham Prize, Standard-bearer, Major Clarke's Solid Red, or some other good pink or red variety. With the Celery may be sown a pinch of Early Paris Market Cabbage Lettuce and Paris White Cos Lettuce. A patch similar in size may be devoted to raising Brussels Sprouts, an early and late Cauliflower, Dwarf Erfurt and Autumn Giant being suitable, and, if particularly needed, a pinch of Cabbage seed may be sown with them, each variety being kept quite distinct. After the various seeds have been evenly and very lightly covered with fine soil, the Mustard and Cress may be sown, an end strip 18 inches wide being available for forcing this, one-half to be sown at once and the other in a week hence. These ought to be kept apart and sown very thickly, the seed almost hiding the soil. In this case no covering should be applied, but the seed should be evenly pressed into the surface and covered with stout brown paper. If small birds are numerous, it will be necessary to cover the bed with fish netting, and if this is doubled or trebled it will also afford some protection from cold winds and late frosts. If mats or other heavy coverings are used, these may be left over the bed till the Radishes are showing above ground, after which they must be left on during the nights only.

Supposing the Radishes were sown thinly, no thinning out will be needed, and these will be, or ought to be, cleared off the bed before the Carrots are far advanced. The latter, again, if the plants come up about 3 inches apart each way, should commence bulbing without any attention, the thinning out commencing directly they are about the size of small Walnuts. All the Lettuce plants should be pricked out early on a warm border before they smother the Celery plants, and it will be also necessary to prick out the Cauliflowers and other plants before they spoil each other. The Mustard and Cress ought

to be uncovered directly the seed is sprouted, and if a little extra shelter can be afforded the growth will be more rapid. When a space is cleared of it, cleanly shave off the surface soil, replace with fresh, and re-sow.

Should this heap of manure not be required for Celery and other late crops, it may be further utilised for the production of a crop of Vegetable Marrows. The plants of the latter may be raised in pots under glass early in May and planted during the first week in June, or seeds may be sown where the plants are to grow. Three plants are sufficient for such a heap, and one of these may well be Pen-y-Bydd, the Long White being also a favourite variety. In dry, warm weather an occasional gentle watering may be necessary while the seedlings occupy the bed, and the Marrows should be attended to till they commence active growth, after which they are quite capable of taking care of themselves.

W. I. M.

POTATOES FOR EXHIBITION.

ALTHOUGH less is heard now about the growing of Potatoes for exhibition, yet there seems to be no cessation of the production of new varieties. Only a few years ago the exhibition fever was credited with the introduction of so many varieties into commerce. Now that very little is heard about show Potatoes, the production of new varieties goes on just as rapidly as ever. Very possibly now a score of new ones are put into commerce every year, it may be that very many more are offered, but their fame does not reach to the press, hence they are unknown outside their respective localities. However, it is enough to know not only that the production of new kinds goes on, but that the elimination of inferior kinds from trade lists and from general cultivation goes on also. During the past five or six years trade lists of Potatoes have undergone a great change; and as old kinds are unasked for, or are replaced by superior varieties, so do the former disappear as rapidly as the new varieties come to the front. It is of no use to complain that we have too many varieties. All the complaints in the world will not check production, whilst production of novelties, even if but a few out of the whole number prove to be worthy of permanent existence, is well justified with such a result. We have now a finer lot of Potatoes in commerce than we ever before possessed, but, unfortunately, very many of these fine kinds are unknown to the great mass of Potato growers, as each trade house has its own special selection, whilst the whole of the good varieties are heard of by very few. It is well, therefore, for opinions of novelties to be pronounced by those only who have had the privilege of growing them. We miss very much now the international Potato shows, because they did very largely indeed serve to educate people in Potato knowledge. Not only were samples of every good kind in commerce usually represented, but fair estimates of their respective merits could usually be gleaned also. It is not enough that a variety should be good in one place; it should be found good in many places and soils. Especially is it most unfair to condemn a variety from an isolated trial. Not only do Potatoes differ very largely in quality and in cropping from year to year in the same soil, but nearly all differ in various soils. No other vegetable is so variously affected; therefore it is well to show wide charity before any variety is thoroughly condemned. A worse season for Potatoes generally, and for early ones in particular, than was last summer has hardly been known, whilst the exceeding drought of the previous year in bringing growth to an abrupt conclusion was almost equally adverse. We seldom get an ideal Potato season; therefore in estimating the qualities of any variety it is well to allow a wide margin for diversities of seasons.

In really good soils where Potatoes usually do well, such, for instance, as the soils about Banbury, from whence come the most beautiful exhibition tubers seen for several years, almost any sort will give

handsome samples, but necessarily some kinds give beauty of form in greater proportion. Thus, whilst every variety may be said to be a show sort, there are some kinds to which the term is more fitly applied, because the tubers are more invariably even and handsome. It seems odd that beauty should be regarded by some as evidence of lack of quality, but the estimate is an absurd one. We find the Lapstone, one of the best flavoured of Potatoes, to turn out in suitable soil the very best of samples, and if not so often seen on exhibition tables, that absence is due to the indifferent constitution of the Lapstone, its common tendency to disease, and very moderate cropping qualities. Our worst exhibition varieties were found in the Americans, with which, when bad seasons prevailed for English varieties, our show classes were often crowded. These, however, are now fast disappearing. They did crop up again somewhat last year because we had such a bad season, but it was probably but a temporary appearance. No grower for exhibition will prefer the American as long as he can set up superior home-raised varieties. It was remarkable that, adverse to the Potato as last season was, there should have been produced chiefly from the midlands some of the finest exhibition tubers ever seen; but these were, nevertheless, exceptional, for over large areas good clean samples were rare indeed. Without doubt one of the secrets of securing fine clean handsome tubers is found in quick growth. Potato breadths which are long about, are perhaps planted too early, or receive checks from cold or frost, rarely turn out the wonderfully bright samples produced under quick growth. Generally, therefore, it is wiser to plant in April than earlier, but planting must of course be guided by general conditions of climate and position. Then the tubers planted are invariably carefully selected, and those of medium size and handsome, which have further been set up in shallow boxes and carefully sprouted, the eyes being reduced to but one or two, and before planting carefully hardened, always produce later on the handsomest and most even samples of tubers. Sets well sprouted and hardened, planted at the end of April, in rich light deep soil, will accomplish wonders in the way of growth and tuber-production by the end of July. Of course sets planted specially to produce exhibition samples should have plenty of room. Growers too often grudge space, and yet the resulting crop invariably repays for the ample room afforded to both tops and tubers. In deep rich soils 4 feet between the rows is none too much, as the tops expand wonderfully if they have ample room to do so.

Coarse fresh manures are not good for Potatoes under any circumstances. That from Mushroom or spent hotbeds or good rotten leaf soil is better than raw manure. Soil well dressed for Peas or Cauliflowers as previous crops is quite good enough for Potatoes, especially if some phosphatic artificial manure be added. Phosphates add to the starchy quality of the tubers and to the brightness of their skins. In the same way a sandy soil promotes brightness, because in the rapid swelling of the tubers there is active friction. The beautiful skins found in tubers lifted from the best sandy soils provoke both wonder and doubt in many minds, but they are real. All the rubbing and scrubbing in the world will fail to give to the tubers that bright polish which quick growth in good sharp soils produces.

Some little care is needed in lifting the roots of Potatoes when specially fine clean samples are required. A careless workman will disfigure many fine tubers. With really enthusiastic growers for exhibition this lifting is almost a labour of love, and is done personally with all possible care. As each root is thrown out, the experienced eye detects at a glance which of the tubers are worth selection, and these are at once carefully set aside. Then when the entire row is up, the selected tubers, now quite dry, are carefully gathered up into a basket and re-selected, are placed into boxes or bins in sawdust, or are well papered up and put away safely until needed. It is of the highest importance, for the preservation of freshness and purity of colour of the skins, that the tubers should be excluded from light and air as soon as possible. Even if simply buried in sawdust, the covering

should be a thick as well as a dry one. The following present a good selection of twenty-four kinds, all as handsome as can be found, good croppers, and in quality the best perhaps of their respective sections. Most of those named are very familiar to exhibitors; some few others are newer, and will find favour at exhibitions in the course of a year or two:—

White rounds.—London Hero, Schoolmaster, Satisfaction, Abundance, Prime Minister, and Prolific.

Coloured rounds.—The Dean, Purple Perfection, Reading Russet, King of Russets, Conference, and Blue Eyes.

White kidneys.—Snowdrop, Governor, Chancellor, Cosmopolitan, Magnum Bonum, and Reading Giant.

Coloured kidneys.—Edgcote Purple, Mottled Beauty, Beauty of Hebron, Reading Ruby, Prize-taker, and Blue Beard.

Of the coloured rounds, Conference is a seedling from Radstock Beauty, white blotched carmine, and is a very superior Potato. Blue Eyes is from the same parent, and has blue blotches on a white skin. Mottled Beauty resembles a Lapstone, but has stripes of purple on a white skin. Blue Beard is a light purple kidney, of great size and fine quality. Magnum Bonum and Reading Giant are somewhat alike in tuber, but are still distinct in growth and both fine croppers. A. D.

TOMATO GROWING OF THE FUTURE.

I QUITE agree with the remarks of "J. C. C." on this subject in so far as they will tend to temper enthusiasm with prudence and discretion. But we must not run into the opposite extreme, and come to the too sweeping conclusion that the culture of Tomatoes in the open air is doomed. For as one, or even a few swallows do not make a summer, neither does one season with hardly a summer in it make or fix a climate. Hence, it is likely enough that this year, 1889, will bring us back our normal, or, probably, even an excessive measure of sun heat, and with it, of course, also our ability to grow Tomatoes in the open with equal success to any we have yet attained. Success will, however, be rendered more certain by the adoption of "J. C. C.'s" starving regimen, for there can hardly be a doubt that a semi-tropical plant like the Tomato may be fed into abnormal tenderness, as well as starved into unnatural hardness, and the cultivator for profit should strive to steer such a middle course between these two extremes as shall ensure the most profitable return at the least risk of failure either from faults of climate or of culture. Something may also be done to produce hardier varieties. In the eager pursuit after improved forms and more attractive colours and finish, it is to be feared that the primitive vigour and hardness of the older varieties have suffered very considerably. Hence, no doubt, in part, the return of not a few growers to the old red, or improved forms of it. The yield from these has been heavier and the crops more certain than from many of the more modern and highly-finished forms.

Possibly even these hardy and robust strains might be further improved in these most desirable qualities by careful selection or crossing. The demand for Tomatoes is so enormous and is growing so rapidly, that it seems hardly possible to supply it at such reasonable prices as shall not greatly check or choke it off unless it continues possible to grow large quantities of Tomatoes in the open on walls and in unheated houses. Some of my earliest attempts at Tomato culture in the open were by the use of warm banks, with a sharp pitch to the south, and on raised ridges, warmed by about a yard of hot manure and leaves in the same manner as for ridge Cucumbers, Marrows, &c. Good crops were ripened thus; but as the seasons improved or Tomatoes became hardier, capital results were obtained on walls, and so the main ridge methods of culture were generally abandoned. Tomatoes as standards in gardens and fields and as ground crops also began to be more or less common; and though last summer gave a severe check to these

venturesome modes of culture by dooming all such to absolute failure, it is more than probable that with the return of our normal climate, especially if accompanied with hardier strains, all these rough-and-ready modes of growing Tomatoes will not only be resumed, but greatly extended, while their culture under glass—heated as well as unheated—may possibly equal, if not exceed, that of the Grape Vine itself. D. T. F.

KITCHEN GARDEN NOTES.

HOTBEDS FOR RAISING PLANTS.—A frame or frames set on a mild hotbed will be found of the greatest service in raising a large or small number of plants as required for stocking the kitchen garden. When the seed is committed to the open border, any that is not quite sound or somewhat old will fail to germinate, while there are birds and numerous pests to prey on both the seeds and tiny plants. Moreover, those plants raised under glass will be a long way ahead of any reared in the open, and in many instances this is a great gain. We form a hotbed about 30 inches in depth of well-prepared leaves and manure, on this setting two or three frames. The latter are half filled with the heating material and faced over with about 6 inches of fine light soil. The latter is made quite smooth and watered if at all dry, the seed being then sown rather thinly in properly separated square patches and duly labelled, a light covering of fine soil completing the operation. The frames are kept closed till the seedlings appear, when air is given freely on mild days, and more sparingly when cold winds prevail. The seedlings must be protected from frost and also be kept as sturdy as possible, being eventually pricked out, with few exceptions, on a sheltered border prior to being transplanted to where they are to mature. The following may be sown now:—

BRUSSELS SPROUTS.—It is important that these be raised early, as they require a long season's growth. When the seed is sown under glass at the present time, and the plants duly pricked out, they are available for their final destination in June, or by the time breadths of early Potatoes are moulded up. Ne Plus Ultra is a good variety, for the more southern districts especially, but the more robust Exhibition, Perfection, and Matchless strains are hardier, and are the best for colder districts.

BROCCOLI.—It is a mistake to sow much Broccoli seed now, as sufficient plants to form a close succession to the Autumn Giant Cauliflower is all that is needed. We rely principally upon the Self-protecting Autumn, a long succession being secured by raising more plants a month or six weeks later in the open ground. Failing this variety, I would sow either Michaelmas White or Autumn White, these varieties hearting in from September to December.

CAULIFLOWERS.—If there is a scarcity of autumn-raised plants, either the Early Forcing, Erfurt Mammoth, or Mont Blanc may be raised under glass. As a rule, spring-raised plants of such varieties do not pay for the trouble taken with them, and we prefer to raise and grow the somewhat later, but much superior Pearl, King of the Cauliflowers and Magnum Bonum. In addition to one or more of the last-named, it is also advisable to raise a few score plants of Eclipse and Autumn Giant, an unbroken succession being thereby secured.

CABBAGES.—There is not often much demand for late Cabbages or those obtained by sowing seed now, but if they must be had, a pinch of either Ellam's Early, All Heart, or any other quick-growing variety may be sown. If the plants are pricked out and eventually transplanted to rich ground they will form good hearts in succession to those that have been kept in the seed beds all the winter and put out this spring.

CELERY.—If very early Celery is needed, a good white variety ought to have been sown last month or early in February, and the pans set in a brisk heat. For second early and main crops, the pink or red-stalked varieties are preferable, these, if they do not blanch so quickly, usually being less liable to bolt prematurely, the quality also being superior.

Those who may wish to try a white variety should sow either White Gem, Superb White, or Sandringham Dwarf White, but the White Plume is worthless. Good pink or red-stalked varieties are Major Clarke's Solid Red (Leicester Red being synonymous), Sulham Prize, and Standard-bearer. The last is suitable for either the main or late crops, and is a good exhibition variety. If there is no frame room available for either Celery or the other kinds above mentioned, the seed ought to be sown in boxes and set in gentle heat.

LETTUCES.—A batch of plants raised early under glass is valuable for planting at the foot of sunny walls, on warm borders and in the open, these forming a close succession to any raised in the autumn. Of Cabbage varieties, the earliest will be found in Early Paris Market, this hearting in quickly; either Golden Queen or Golden Ball, and All the Year Round will follow closely, and Perfect Gem is also good. There are no extra quick-growing Cos varieties, and we are content to sow a good stock of Paris White.

ONIONS, SHALLOTS, AND GARLIC.—We usually defer transplanting autumn-sown Tripoli Onions till the state of the ground admits of the summer crops being sown. Where the ground dries quickly the seed-beds may safely be thinned out earlier, the thinnings being replanted on good ground in shallow drills 1 foot apart, a distance of 9 inches dividing the plants; any left in the seed-bed are usually available for early use. Those who still grow the Potato or underground Onion ought always to plant these early in the year. The bulbs may be put out on rich ground from 6 inches to 9 inches apart in rows 12 inches apart, burying them about half way in the soil. Shallots and Garlic ought also to be planted early, or as soon as the ground can be got into good working order. Give the preference to quite sound dormant bulbs, the largest of these eventually splitting up into several smaller ones, while small bulbs swell to a good size. These do well on borders recently planted or only partially shaded with fruit trees. The ground should be moderately rich, well worked, and made firm. The bulbs ought to be pressed into the soil, but not quite buried, 6 inches apart, in rows 12 inches apart. All that is subsequently needed is to keep the ground free of weeds, and to well harvest the bulbs as soon as the tops die down.

PARSLEY.—We have now abundance of Parsley, and all who are similarly situated have good reason to be thankful, as it is very certain a scarcity is vexatious to both the gardener and cook. Should there be a likelihood of a failure later on, it is advisable to lift a number of old roots, planting these rather thickly in frames set on a mild hotbed, or else in pots or boxes, placing these in a forcing house. A serviceable crop of leaves soon results. If there are no old roots available, the next best plan is to sow the seed in a frame on a hotbed prepared as for Carrots. The seed may be either sown broadcast or in drills, and being duly thinned out, those reserved will yield a quantity of fine leaves long before any raised in the open air are fit to gather. In some gardens it is somewhat difficult to grow, the tiny seedlings being destroyed by grubs or pests of some kind. In this case especially it is advisable to sow seed in fine soil on a gentle hotbed, with or without the protection of a frame. When the seedlings have formed two or more strong leaves they can be lifted and transplanted readily. Our best beds are invariably obtained in this manner, the seedlings being dibbled out 6 inches apart midway between the rows of Shallots and Garlic. The latter crops mature and are cleared off before the Parsley covers the ground, and a fine bed of the latter is obtained. This transplanting checks early running to seed, but we make another sowing in the open in May, the plants resulting proving harder than those raised earlier. Those who experience no difficulty in growing Parsley where sown, usually sow seed in February or as early in March as the state of the ground permits. The rows ought to be quite 10 inches apart. W. I.

STOVE AND GREENHOUSE.

NOTES ON EPACRISES.

THE different varieties of Epacris are at the present time among the showiest of flowering plants, and are especially valuable where a display has to be kept up at all seasons. The want of fragrance in the blossoms is an advantage, for they can often be employed where such heavy smelling subjects as Hyacinths would be inadmissible. If the demand for hard-wooded plants of this class continues to increase as it has done for the last two or three years, we may expect to see Epacris take their proper place in most gardens, for they are among the least fastidious of hard-wooded plants, and will flower well even during winter in an ordinary greenhouse temperature. In common with their allies the Heaths, all the Epacris dislike more fire-heat than is absolutely

specimen dwarf and bushy. As soon as growth re-commences after this operation is the time to pot the plants, using for the purpose good sandy peat, and taking care that the pots are thoroughly drained and not too large. In this way the plants will grow freely, and during the latter half of the summer may be turned outdoors. A good bed of coal ashes should be prepared on which to stand the plants, and they must be carefully attended to in the matter of water, taking especial care that they are not allowed to become too dry, as, like their allies the Azaleas, their delicate hair-like fibres are sadly injured if they once happen to get parched. There is a great number of varieties, a few good ones being Lady Pannure, white; Eclipse, scarlet and white; miniata splendens, rosy red; salmonea, light salmon; alba odorata, white, sweet scented; Fireball, bright red; Vesta, white and pink; Model, pink; with the different varieties of E. miniata and E. hyacinthiflora. There is a very singular Epacris known as E. onosmaeflora or purpurascens, which is not particularly showy, but is remarkable from the fact that there is a pretty variety of it with double flowers. This has the upper part of the shoots wreathed with little rosette-like blossoms, which when first expanded are pure white, but become slightly tinged with pink before they die off.

H. P.

Monochætum Lemonianum.—This is especially valuable from the fact that, given ordinary greenhouse treatment, it will flower throughout the winter and early spring months. A dry atmosphere is essential to its well-doing, as in a moisture-laden structure it will not thrive during the winter. In this species the flowers, which are about 1½ inches in diameter, are borne in great profusion, their colour being a very pleasing shade of deep rose. These plants are well worth more attention than is bestowed upon them at the present day. **Monochætum sericeum multiflorum** is another pretty winter-flowering kind with mauve-coloured blossoms. A soil principally composed of sandy peat meets the requirements of this class of plants.—T.

Aphelandra nitens.—When in flower this is very bright by reason of the intense fiery-scarlet colour of its blossoms. They are borne in a close terminal spike in the same way as in most of the other species of Aphelandra, nearly all of which have the foliage more or less marked with a silvery tint, while in this the leaves are of a deep metallic green; in fact, quite of a bronzy hue. These Aphelandras flower freely even when quite small; indeed, they are seen to greater advantage in this way than if allowed to run up tall, as they then usually lose their bottom leaves. When small they may be grouped in a pot or pan if a large specimen is required, or if kept in small pots they are available for many purposes where larger subjects would be inadmissible. Showy as the blooms of Aphelandras are when on the plant, they are of no use for cutting, as they drop so quickly. A few old plants will yield a supply of cuttings, while seeds are often produced even on small plants, and these if sown at once will quickly germinate.—T.

Carnation Mrs. Llewellyn.—This winter-flowering Carnation is one of the best of its class, and has all the points requisite in a good flower. The habit of the plant is so dwarf and sturdy, that it cannot be called a Tree Carnation. Its flowers are carried erect and on strong foot-stalks, and come in earlier than those of any other variety similarly treated. The colour is rose, striped with a darker shade, but seen at a little distance off it has the appearance of being self-coloured, so nearly alike are the shades. The scent is not strong, but decided, and scented winter Carnations are not numerous. Pippings struck during this month will make good blooming plants in about eleven months if they are planted out on a south border during the summer months, and lifted and potted in September or early in October. Where labour is plentiful the best results may be obtained from plants



Flowering shoot of Epacris miniata splendens.

necessary to keep them safe from frost, and at the same time air should be given whenever possible. If the long sprays are cut just as the flowers expand, they retain their freshness for a long time in water. Though the plants are not difficult to propagate by cuttings, yet it is a delicate operation, and one that needs skilled hands to carry it out successfully. In commencing their culture, the most satisfactory way is to purchase a few neat bushy plants in 5-inch pots. Messrs. Low's nursery has been for years noted for its hard-wooded plants, and a visit there about the end of the summer will show the growing demand for the various kinds of Epacris. After the newly-purchased plants have flowered, they should be cut down by shortening back the long shoots, and thus keeping the

grown on in pots, but they need much less attention when planted out, and are safe from neglect in the matter of watering. The plant from which the enclosed bloom was cut is growing in a 5-inch pot. There are nine other buds in different stages on the centre spike. No other flowers last so long in perfection during the winter as Carnations, provided the surroundings are right.—J. C. T.

BERRIED PLANTS IN THE STOVE.

At this season of the year there are many stove plants whose principal beauty consists not in flowers or in foliage, but in their brightly coloured berries, and though one seldom sees more than *Ardisia crenulata* and *Rivina humilis* so employed, these two by no means exhaust the list, as will be seen by the following notes. *Ardisia crenulata*, with its bright sealing-wax-like berries, is not the only one of its class worthy of a place, for there is a whitish-fruited variety of it, whilst a comparatively new species—*Ardisia mamillata*—is a very desirable acquisition. It is a dwarf, compact-growing plant, with oblong spreading leaves, the upper surface of which is thickly studded with small teat-like elevations, and springing from the centre of each is a stout whitish hair that imparts a hoary aspect to the foliage. The berries are of a rich coral-red colour, borne in great profusion, and will retain their freshness for months. *Rivina humilis*, so well known, is usually grown as dwarf as possible, but it has also a very pretty effect when allowed to ramble up the end of a structure or in some such position. The next to mention, *Psychotria cyanococca*, is a stove plant of a half-shrubby character, with clusters of insignificant whitish blossoms. These are succeeded by berries about the size of small Peas, and of a beautiful rich bright blue colour. There are often as many as two or three dozen berries in a bunch. It is a plant of easy propagation. The Indian *Callicarpa purpurea* will succeed in an intermediate house, yet it is equally at home in the stove, and has been an object of beauty therein for some time. This is a shrub of rather loose growth, and to be seen at its best requires to attain the dimensions of a fair-sized bush, as then the long flexible branches dispose themselves in a graceful manner. The individual berries are small, but they are borne in large, closely-packed clusters, and often for more than a yard along the slender shoots. The colour is a very pleasing shade of bright purple. Another very pretty plant just now is *Coccocypselum repens*, an easily grown subject, whose procumbent habit fits it for use as a basket plant, or for draping the edges of stages, very large pots, or tubs, or in similar positions. When suspended, the shoots will hang down for a considerable distance, and when studded, as they are now, with berries the size of large Peas, and of a beautiful indigo-blue colour, they form a very pleasing feature. I have also seen this *Coccocypselum* trained round a few stakes. The flowers are blue, but very small, so that the berries are the principal feature of the plant. *Columna Schiedeana*, a subject well worth growing for the sake of its flowers, is also very pretty when in fruit, and distinct from any previously mentioned. This forms a stout growing herbaceous plant, whose peculiarly variegated flowers are succeeded by white berries, not unlike those of the Snowberry (*Symphoricarpos racemosus*), and nestling as they do in the red star-shaped calyx they present a very pleasing feature. *Palisota Barteri* is a most uncommon plant, but very showy when in fruit. It is a herbaceous subject, forming a stout, stemless plant, with deep green leathery leaves, while the flowers are borne in a dense

spike. The blossoms are whitish and not showy, but the berries which succeed them are bright scarlet in colour when ripe, and last fresh a considerable time. It is a plant of simple requirements, and one that does not often need repotting. I have also seen it grow freely and produce an unusual number of berries when planted out in the stove.

In noting *Rivina humilis* with its deep red-coloured berries, I omitted to mention *R. tinctoria*, which is of a lighter and brighter hue, and *R. flava*, the fruits of which are pure yellow. They are both of much the same habit as the first-mentioned form, and may be grown under exactly the same conditions. Among berried plants that require only the temperature of a greenhouse the different forms of *Solanum* stand out conspicuously, and the finest variety of all is that which is usually grown for the London market. Though seeds of this are, as a matter of course, produced in the greatest profusion and germinate so readily that they will sometimes commence to grow while still within the berry and suspended on the plant, still where small bushes full of fruit are needed the better way is to strike them from cuttings, which root easily enough. By so doing the very best variety only need be propagated, and when raised from seed the product is often somewhat variable. Should, however, standards be required, seedlings are the best, as they grow much more quickly than plants raised from cuttings. H. P.

Eucharis amazonica at Shoreham Place.

—I recently saw some very fine specimens of this at Shoreham Place, Kent. Mr. Cliffe, the gardener there, devotes a span-roofed stove entirely to them, and the fact that he thoroughly understands their requirements is demonstrated by the immense masses of dark green foliage and the profusion of flower-spikes seen here. Mr. Cliffe's treatment is very simple. He does not believe in the old drying system. The plants, most of which are large specimens in 18-inch pots, are grown in a temperature of 70°. They are copiously syringed with clean, soft water and shaded from the hot sun. They are only potted once in five or six years in good sound loam, with sufficient broken charcoal and sand to render the soil porous. This, together with an occasional watering with manure water when making growth after flowering, seems to meet their requirements exactly. I would advise all intending growers to obtain good, sound, healthy plants to commence with, and by following the above treatment, I think they cannot fail to be successful.—F. Y.

The Moving Plant (*Desmodium gyrans*).—A lady writes me, saying that a friend had told her there was a plant that moved spontaneously. She says, is this so, or is it a fable? If such a plant exists, tell me where it can be procured, and how to grow it. By this I presume the above plant is the one referred to. The plant belongs to the Pea family, and is also known by the name of *Hedysarum gyrans*. It is a native of the East Indies, where it rejoices in the name of *Burram Chandali*. It is a somewhat slender plant, seldom exceeding 2 feet in height; the leaves are not large, but trifoliate, the two leaflets at the base being much the smallest, and these comprise that portion of the plant which appears to be continually on the move, but the movement is very irregular, although rapid. It has been said that the plant does not like sunshine, but from my own observation the plant moves more rapidly on a bright summer's day than at any other time. The texture of the plant is somewhat thin, the colour of the leaves being a bluish green, and the constitution appears somewhat delicate. I believe it to be a biennial, but have found it difficult to keep the plant alive during the winter months; therefore seeds should be carefully saved whenever attainable. Seeds can be obtained from the principal seedsmen, and next month will be an excellent time to sow them. The

soil may consist of about equal parts loam, leaf-mould, peat, and sand. Drain well and pot firmly, but avoid large pots. The plants become characteristic as soon as the first leaves next the seed-leaves are formed, and the eccentric moving powers are developed. It does not like cutting, and the best plan to produce a bushy plant is from time to time to pinch out the extreme point of the shoot. It enjoys strong heat and a moist atmosphere. It is one of the most extraordinary plants in the whole vegetable world, and upon that account is well deserving attention, but it does not possess any beauty.—W. H. G.

MANETTIA CORDIFOLIA AND M. MICANS.

I RECENTLY noted these two plants flowering in the stove in an out-of-the-way garden, and it really surprised me that the plants had gone out of memory through being so seldom seen; and I would here specially recommend them to amateur Cattleya growers. These plants, by furnishing the rafters, would produce a small amount of shade without being obtrusive, and contribute their quota to the decoration of the house by the production of an abundance of elegant and brilliant flowers.

M. MICANS is a truly beautiful plant, and was, I think, introduced upwards of twenty-five years ago by the Messrs. Veitch, through Pearce, who was then collecting plants for them in Peru. It is a tolerably strong-growing plant, and is said to attain a height of 20 feet, but I have never seen it so large. If it does attain these dimensions, it is all the more valuable as a stove climber; but about half that size will better represent the height of the plant I am now referring to. The leaves are from 2 inches to 3 inches long, opposite, and bright green, the flowers being numerous and brilliant reddish orange in colour.

M. CORDIFOLIA is an older plant in our gardens, and is a native of Brazil. Its root is used in that country as a cure for dysentery. It does not grow so strongly as the previously-named kind, but it is exceedingly beautiful, the tubular flowers being some 2 inches in length and bright scarlet in colour, pendent on slender stalks 3 inches long. These two plants certainly deserve more attention from our plant growers. W. H. G.

SHORT NOTES.—STOVE AND GREENHOUSE.

Sparmannia africana.—I have never known this to succeed in the open air for any length of time, but cuttings rooted in March will make fine bushy plants in 6-inch and 8-inch pots by September, and there is no difficulty in inducing them to bloom profusely from November until April in a temperature ranging from 65° to 70°.—J. MUIR, *Margam*.

Eucomis punctata.—Have any of your readers ever tried to propagate this from seed, and with what result? Will the seedlings vary in foliage or bloom from the parent? Last year I had a flower-spike 2 ft. long, and it remained in condition almost two months. I have a few seed-pods ripened in this country, but I presume, even if the seed ripens sufficiently, it will take some years for the seedlings to flower. It is a curious, easily grown, and almost hardy Cape bulb, suitable for the open garden, cool greenhouse, or window.—W. J. MURPHY, *Channell*.

Clematis indivisa lobata.—This is a splendid subject for flowering in a warm conservatory in the early spring. Its long slender branches are most graceful, and the little star-like, pinkish white flowers are beautiful. A friend of mine in Edinburgh who attended the last meeting of the Scottish Horticultural Association in that city writes in praise of a branch of this *Clematis* that was submitted for the inspection of the members by Mr. Mackinnon, of Melville Castle. It was 14 feet in length and carried 1500 blossoms.—J. MUIR, *Margam, S. Wales*.

Amherstia nobilis.—In answer to "Inquirer" in THE GARDEN, Feb. 16 (p. 156), this magnificent leguminous Indian tree, I think, flowered in this country for the first time in 1849 in the gardens of the late Mrs. Lawrence, of Ealing Park, Middlesex. The soil best adapted for it is good light fibrous loam, with a liberal addition of sand. The plant,

after being potted, should be placed in bottom-heat of about 80°, and the temperature of the house should range from 85° to 90°, or even 100° by sun-heat, the house being kept moist and shaded from the hot sun. The way we cultivated the *Amherstia nobilis* at Ealing was in a large slate tub about 6 feet over and 3 feet deep. This was set 18 inches above the bottom of a tank that was 5 feet deep and 10 feet wide, and filled in, for the production of bottom-heat, with tan, which was turned and renewed several times a year. As far as I can remember, the plant, which occupied the centre of the East India house, was about 12 feet high and 12 feet wide.—W. CHAPMAN, *Harknessyard, Rugeley, Staffs.*

WORK IN PLANT HOUSES.

STOVE.—The greater number of stove plants do not require nearly so long a season of rest in winter as they are often subjected to. The prevailing opinion is that if enough heat is maintained to keep plants moving during the short winter days the growth must necessarily be weak. This is simply a question that is ruled by the description of the house in which the plants are located and their arrangement in it. When the house is constructed on modern principles so as to admit all the light that is possible and the plants are stood well up to the glass, there is no danger of weak growth, unless the heat kept up is greater than necessary. In stoves such as indicated, a night temperature of nearly 70° will do no harm, allowing it to rise more or less in the day, according to the state of the weather. In dark, old-fashioned houses the light is intercepted by buildings or trees if no attempt is made to get the plants up to the glass. The leaves and wood made during winter will, no doubt, be deficient in substance, but under any circumstances it is a mistake to subject stove plants indiscriminately to so low a temperature as will stop all growth. The difference between maintaining the amount of heat which the plants like and following the cool starvation course means many weeks' difference in the length of the flowering season in all stove plants that either bloom continuously during the summer and autumn or that produce successional crops of flowers.

THUNBERGIAS.—Plants of *T. laurifolia* that have flowered through the autumn months should now have their branches cut in freely. With strong free-growing climbers of this description it is necessary to remove much of the preceding season's growth, as without this the tops take up too much room, and, in addition, get thin of foliage. If the plants are in pots, as soon as they have again started into growth they should be turned out and have a good portion of the old soil removed, replacing it with new and giving larger pots where necessary. The plant under notice is a free rooter, and exhausts the soil completely in a single season, no matter how much manure is put in it, even when manure water is used freely during the time of active growth. Fresh turfy loam that contains a good deal of vegetable fibre, mixed with a liberal quantity of rotten manure, say one-sixth, and some sand, is the best material to grow this *Thunbergia* in. In potting make the soil moderately solid. When the plants are turned out in beds or borders these should be limited in size, or there will be a difficulty in keeping the growth within bounds. As much of the surface soil as can be removed without disturbing the principal roots should now be got away, and replaced with new of a like character to that recommended for the plants grown in pots. Young examples struck from cuttings last spring, that have been pushed on since, and that are intended to be planted out, may soon be put in their permanent positions, as it is better that the disturbance of their roots should be got over before much young growth has been made. In planting, the roots, if much matted, may be partially disentangled, so as to admit of their being spread out in their natural position. In the case of young plants, one year old, that are to be grown on in pots, they may soon have a shift. Their naturally vigorous habit is such that they may be at once transferred to the pots in which they are to flower. Such as

are 16 inches to 18 inches in diameter will not be too large. Afterwards they should be stood in the position where they are to be grown, and the branches trained to the rafters or under the roof they are intended to furnish. These *Thunbergias* extend a long distance in the course of a single season, and are not well suited for positions where the tops have not room to spread. They look far better when allowed to ramble freely, with the shoots hanging down loosely.

ARISTOLOCHIAS.—These also are among the quickest growing stove climbers. Plants that were struck early last spring and have been well attended to may be supposed to be now in 10-inch or 12-inch pots, and should soon be moved to those they are to flower in. Fresh turfy loam, with about one-fifth of rotten manure and leaf-mould in equal parts added, and enough sand to make the whole sufficiently porous to admit of the water passing freely through it, is the right compost for all the different kinds. The strongest growers, such as *A. gigas* and *A. ornithocephala*, require much larger pots than the less vigorous sorts. The species named are most suitable for training to a rafter or to a wire over a path, in which way their singular-looking flowers are best seen. The weaker growers, of which *A. floribunda* is an example, do not need so much room either for their roots or their tops. This kind is one of the most desirable stove plants. It can be grown as a trained specimen, in which form it is very effective; but when managed in this way the branches should be allowed freedom, and not confined to the sticks or trellis more than is necessary. This species will do very well in a 12-inch or 13-inch pot; whilst the stronger sorts should have two or three sizes larger. Where *Aristolochias* are to be turned out in a bed, it is better not to give them too much room, especially as there is no need for keeping the plants until they get old. One or two years is enough to retain them, as they are quickly grown to a reasonable size, and when they are replaced in this manner at short intervals, the soil can be entirely renewed. The bed into which they are to be planted should be well drained, as copious supplies of water must be given during the season of active growth. The soil should be of a similar description to that advised for the plants when in pots, except that it may be used in a more lumpy state. When the specimens are to be kept on for another year, the surface of the bed should be removed, and renewed with soil made rich with rotten manure. *Aristolochias* are gross feeders and soon exhaust the soil; to keep it up to a condition that will maintain the necessary growth, in addition to the solid manure that is mixed with it, manure water must be given in summer. To have the plants in good condition, they should be grown in a warm stove with a moderately humid atmosphere, and should be syringed freely every day, otherwise they are liable to the attacks of red spider.

TUBEROUS BEGONIAS.—Tubers that were dried off after they had flowered in autumn should now be started. They will require pots proportionate in size to that of the tubers. In the case of large old roots, the pots should be quite 3 inches larger than the tubers, or the soil will get exhausted before the summer is over, and it is not well to repot after the plants have begun to bloom, neither is there any necessity for this if enough room is given in the first instance. Six-inch or 7-inch pots will in most cases be large enough for tubers that were raised from seed last year. Fresh loam with some leaf mould, rotten manure, and sand is the right kind of soil for them. The crowns of the tubers should be kept slightly above the soil, and in this way I have always found them do better than when entirely below the surface. There has been a marked improvement in the varieties of this section of *Begonias* within the last two or three years, both in the single and the double forms. The large coarse flowers are being superseded by those that are smaller, more refined, and altogether better in appearance, whilst the character of the growth is less straggling, and in many cases the bloom-stems are stronger, so that the flowers are held more erect, and in this way they come

more directly under the eye, though they may be somewhat less elegant than the drooping-flowered varieties. These *Begonias* mostly keep on blooming from the time the earliest flowers begin to open up to the end of the summer, but unless the plants have the habit of pushing up successional shoots the branches become far too long, have a straggling look, and require more support in the shape of sticks and ties than is desirable. Raisers of these *Begonias* should still further direct their attention to securing this habit of producing successional shoots from the crowns of the tubers, and those who save their own seed would do well to only gather it from plants that possess this habit. Where a long succession of bloom is wanted it is a good plan to start the tubers at two different times, giving the earliest a little warmth. The second set of roots may be kept unpotted until they begin to push growth, after which they should be potted and allowed to come on slowly in a cool greenhouse, where, if they are stood close to the glass and have a moderate amount of air given them, the growth will be strong and sturdy.

TUBEROUS BEGONIA SEED-SOWING.—No time should be lost in sowing seed. It is not well to sow the seed too thickly, and the little plants should be pricked out from the seed-pan whilst much smaller than in the case of most things, as they have a disposition to form strong roots that descend straight down, and these roots are liable to get injured if the seedlings are allowed to remain long before being pricked off. They are all the better for being pricked out a second time before they are put separately in pots. A genial growing temperature should be maintained from the time the seed is sown until there is enough sun heat to keep the plants moving freely. T. B.

HINTS ABOUT LAWNS.

STRICTLY speaking, the term lawn is applied to a natural opening, of limited extent, clothed with low verdure (Grass or small bushes) and surrounded by woods dense enough to confine the eye. Its essential qualities are openness, breadth, seclusion, and repose, together with a subtle combination of contrast (between its openness and the shady mystery of the wood) with harmony (the sense of seclusion being common to both).

In creating a lawn, considerable variation from the natural type is permissible, provided its essential qualities are preserved. For instance, the element of contrast with the wooded borders is heightened if the lawn is covered with an unbroken sweep of finely clipped turf, even though the lawn loses something of its charm of naturalness thereby. Likewise, it is not essential that the inclosing wood should be composed solely of large, tall trees, showing their trunks and with dark shadows under and behind them, nor that it should present a simple mass of foliage faced out or bottomed out with smaller trees and bushes, so that the interior of the wood is invisible; both of these conditions are common in Nature. Other minor features of woodland scenery may partially border a lawn, such as herbaceous plants, rocks, steep banks, or even water, but all such features should appear natural and subordinate. A lawn should have a moderately undulating surface, because a dead flat would be suggestive of artificiality. If a lawn is to be smoother than is natural, the turf must be kept short, preferably by the most natural means, as by the grazing of sheep. The difficulty of adjusting the planting of the borders of a lawn so that it will not be injured by the browsing of sheep or cattle has, however, led to the general use of the scythe and the lawn mower, but the more natural way should be kept in mind and reverted to when practicable. A lawn is often used, in connection with a house, as the foreground of a more extended, park-like opening or distant view. The extreme neatness usually desirable immediately about a house suggests that that part of the lawn should be clipped, leaving those parts further away to be grazed. Such an arrangement is, in fact, common abroad, the pastured ground being cleverly separated from the clipped ground by a sunken wall (called a ha-ha), or by a ditch with turfed slopes,

deepenough to conceal a fence placed in the bottom, or by a river or elongated pool simulating a river. Even though the means of separation be visible, the disadvantage of the division in breaking the apparent continuity of the view may be, in a great measure, compensated for by the economy of pasturing over, clipping, and by the greater naturalness of the pastured lawn. However intricate and irregular in shape a lawn may be, it should, as a general rule, have a predominating, central, unbroken area in order to give it its characteristic qualities of breadth and repose. The element of openness is essential. It is not uncommon to leave many existing trees scattered over a lawn or a single tree in the midst of it, or to plant trees promiscuously over it. This is usually done either from a love of trees as beautiful objects, or from the dread of a bare, unfurnished look. No greater mistake could be made.

It is with a lawn as with a picture. The subject of a picture should be at or near the centre, the composition should be such as to direct attention toward the subject, other subjects shown should be subordinated to the subject, and there should be a border or frame to assist in confining the eye to the picture itself. So in a lawn, the eye should rest at or near the centre instinctively and easily, and since the turf is the characteristic and valuable thing, no other object should be allowed so near the centre or be so conspicuous as to distract the mind from receiving the impression which the lawn is calculated to produce. It would be as reasonable to put a large yellow star in the middle of a picture as to have a fountain or bed of flowers or a specimen tree in the midst of a lawn.

While there certainly is, in the long run, a more refined and lasting enjoyment to be obtained from a lawn, the borders of which are so planted as to appear absolutely natural, and which makes a complete scene in itself, yet a good deal of the value of a lawn—its suggestion of simple breadth and repose—may be retained, while a certain amount of gaiety of foliage and of flowers, of interest in specimen plants, and of beauty of constructive art, is associated with it in the same view as a foreground, but not as a part of the lawn. There would be a contrast which might enhance the effect of gaiety, but at the expense of the lawn, because the sensation of gaiety and the interest in the artificial objects would overwhelm the milder, slyer feelings properly to be derived from the contemplation of the lawn. The one tires, while the other refreshes, the mind.

A lawn is at its best when there is no evidence of the handiwork of man—no formality in the grading, none in the planting, no exotic plants, no fountain-jet or basin, no vase or statue, no nicely trimmed path, no fence nor formal terrace. Such a lawn conveys the purest impression and gives the most lasting satisfaction. One who cultivates a taste for formality and things evidencing the skill of man is apt to tire of any one object or composition of that kind. It is true that there is a certain kind of refreshment to be obtained from variety in such things, but it is a stimulating, nerve-consuming kind of refreshment, the opposite of that which is encouraged by repose. But to one who cultivates a taste for the beautiful and picturesque in Nature, a single, purely natural scene is never tiresome if seen again and again. The infinite variety in the details and in their disposition, the differences of aspect caused by changes of weather and by the seasons, by the growth of plants, by birds and other animal life—all are harmonious with the natural scene, are not conspicuous enough to injure any artistic impression which the scene may give, and yet make the scene endlessly interesting.

Too often a lawn is spoiled for the gratification of tastes and pleasures that have nothing to do with the true source of the enjoyment to be derived from looking at it. And it is usually done, too, under the mistaken idea of decorating or improving the appearance of the lawn. That is the pity of it. For instance, it is not an uncommon thing to see a formal bed of scarlet Geraniums in the midst of a lawn that would otherwise have had much suggestion of a natural breadth and repose. The bed of flowers

may be a good thing in itself. It is bright and gay, enlivening and stimulating, and it is well set off by the surrounding turf, but the lawn is sacrificed to it—that which has a permanent worth is made to give way to that which has but a passing value, a source of endless satisfaction to a pretty toy of which everyone soon tires. Again, consider the case of a lawn “decorated” with statuary. A beautiful nymph splashing in a fountain, were it not a very hackneyed idea, and where it is the work of a true artist, would be a most enjoyable and valuable possession; but a poor, cheap, painted, cast-iron imitation of such a piece of sculpture, placed so as to dominate a fine lawn, is a barbarism which it is hardly conceivable that any intelligent person could be guilty of. The same thing might be said of almost all the usual so-called “decorations” of lawns. To decorate the face of a beautiful woman with painted ornaments would not be one whit more savage. Our civilisation is spotted all over with the relics of barbarism; good taste is always striving to get rid of them, and they should be particularly avoided when we set about making a natural lawn.—J. C. OLMSTED, in *Garden and Forest*.

* * If landscape gardening were as true and clear as the above sketch, that art would not now be the horror it is to sensitive men.—ED.

SOCIETIES.

NATIONAL CHRYSANTHEMUM SOCIETY.

A MEETING of the general committee of this society was held at Anderton's Hotel, Fleet Street, on Monday evening last, Mr. R. Ballantine presiding. The hon. secretary read a letter from the late president thanking the society for its vote of thanks passed on his retirement and for electing him a member of the general committee. After the reading and approval of the new exhibition regulations, which will be found fully set out in the new schedule, it was resolved that the usual exhibitions of early and late flowering varieties be held, the dates of the former being fixed for the 11th and 12th of September, and the latter the 8th and 9th of January, 1890.

One-third of the floral committee having to be re-elected, the retiring members again put up for office. There were eight nominations in all, the votes recorded being in favour of Messrs. Castle, Kendall, Swift, Wright, and Sanderson.

Mr. E. C. Jukes stated that Lord Brooke, eldest son of the Earl of Warwick, had consented to be nominated president of the society, and that his name would therefore be proposed at the adjourned annual meeting on the 28th inst. upon the recommendation of the general committee.

The hon. sec. announced that he had been in communication with several gentlemen of position to accept the office of vice-presidents. Favourable replies had been received from Sir Guyer Hunter, Mr. Sanderson, and Sir Edwin Saunders, who had given a donation of £10 10s. to the society and promised an annual subscription of one guinea. These and probably several other gentlemen will be recommended as vice-presidents at the adjourned annual meeting.

The Tottenham and Edmonton Society, recently formed, was admitted into affiliation, and several new members elected. The September schedule, so far as the Dahlia classes are concerned, has been, as previously reported, placed in the hands of the committee of the National Dahlia Society for revision. As the result, Mr. Holmes stated that the draft was now in his hands, and that the committee had kindly nominated the following judges, all of whom had expressed their willingness to act in an honorary capacity: Mr. Douglas and Mr. Glasscock for show Dahlias; Mr. Harry Turner and Mr. Wyatt for fancy Dahlias, and Mr. Girdlestone and Mr. Henshaw for Pompons and singles.

With regard to the general schedule of the National Chrysanthemum Society, it was arranged that a sub-committee, consisting of Messrs. Castle, Rundle, Bevan, Mardlin, Geo. Gordon, Dean, Addison, and Stevens, be appointed to carry the work through.

An interesting report was read from the secretary of the affiliated society in Australia. Mr. Ballantine also reported the safe delivery of the challenge trophy into the hands of the Weald of Kent Society. In consequence of the reply from the authorities at the Mint that medals could only be struck there by permission of the Lords of the Treasury, it was resolved that the hon. sec. be empowered to co-operate with the Rose Society. A query being raised on the price to be charged to affiliated societies for the official catalogue, it was moved that they should be entitled to purchase it at the rate of 10s. a dozen, on application for not less than that number.

The hon. sec. read some correspondence on the subject of the forthcoming Chrysanthemum conference at Chiswick. The question as to the National co-operating officially with the Royal Horticultural Society was discussed at some length, and it was finally resolved not to entertain the idea.

Grubs on Lily of the Valley (H. B.).—The grubs you sent are the caterpillars of the common ghost moth (*Hepialus humuli*). I do not think that there is anything to be done when the plants are attacked but go over them carefully and try and find the enemy. Any insecticide which would affect the caterpillars would, I am afraid, injure the Lilies. Keep the garden free from Nettles and Burdocks, which are favourites of the caterpillars.—G. S. S.

Snowdrops diseased.—When the snow disappeared last Thursday (Feb. 14) morning, I was dismayed to find many of my choice Snowdrops dying away through being attacked by some kind of fungus. I sent specimens to Mr. Worthington G. Smith, who has made a study of this kind of disease. He supposes the mould to be *Polyactis galanthina*, and states that the disease is very prevalent this season. Unfortunately, Mr. Smith is unable to suggest any remedy. Can any of your readers help me in this matter? I have a very complete collection of Snowdrops, besides a large number of very fine seedlings, many of which are hybrids, and it is most depressing to see the work of the last eight or ten years perishing in this way.—JAY AYE.

Habenarias.—I was highly interested in “A. D. W.’s” note last week respecting these lovely plants, and from experience feel satisfied he will have but a poor measure of success if he plants them in the ordinary border. I have been for many years trying these hardy Orchids as a whole, and have never yet met with anyone who has fully succeeded. “A. D. W.” assuredly struck the keynote of the whole question when he said that a great deal depended on climatic conditions, as here lies the secret, and try how you will, if the climatic conditions are not favourable, success will only be partial. When M. Correvon, of Geneva, was over in this country a few years ago, I asked his advice about hardy Orchids. His answer was, plant them in the Grass and you will have no trouble with them; and he was right, for the second year there were none left to trouble about. If “A. D. W.” will take the advice of one who has tried and succeeded, he will grow his North American Habenarias in pure Sphagnum. Simply dig out a large hole in a shady spot, fill with Sphagnum, plant the Habenarias, and keep them always damp.—K.

Death of Mr. J. T. Peacock.—We have to announce the death of Mr. J. T. Peacock, of Sudbury House, Hammersmith. His gardener, Mr. W. Vicary, writes: “His garden was a source of great delight to him.” Sudbury House has for years been famous for its collection of Orchids and Cactus plants, the Orchids comprising large quantities of a few well-tried species rather than new or rare species and varieties. A few years ago at the summer exhibitions at South Kensington the groups of Cactus plants from the Sudbury House collection were a source of unusual interest. Mr. Croucher had charge of them at that time.

Names of plants.—*J. G. M. G.*—*Cyclogyne Massan-gena*.—*H. B.*, *L. cestis*.—*Retinospora squarrosa*.—*J. Lingard*.—*Dendrobium fimbriatum oculatum*.—*J. Lingard*.—*Dendrobium fimbriatum oculatum*.—*G. M. Ash.*—The *Phalenopsis* is *P. amabilis*; the *Dendrobium* is a form of *lasiocarpum*.—*R. Miller*.—Ordinary form of *C. Skinneri*.

WOODS & FORESTS.

UNDERWOOD AND GAME COVERT.

BEFORE the hurry of the spring work commences it would be well to have the game coverts examined and renovated where found necessary by cutting out all dead wood, cutting back any strong rambling branches to keep the bushes in proper form, removing dead plants where they occur, and filling up the blanks with properly prepared stuff from the nursery. In cases where it is desirable to plant new groups of underwood the ground should be thoroughly drained by cutting open ditches as may be required. The ground should likewise be trenched to a depth of about 18 inches, and in cases where the soil is of a poor, hard, thin texture, a good dressing of leaf-mould, bog earth, or fibry turf well broken up and mixed with the staple will prove beneficial. The size of the different groups may be regulated in a great measure according to taste and the open spaces to be filled up. In cases where the mixed system of planting is to be adopted, the tallest growing species should be planted in the centre and the dwarf kinds around the margins. This is very necessary not only to show off the plants to the best advantage, but likewise to afford to pheasants and other game easy access to the interior when in quest of shelter. As a general rule, but more especially among deciduous trees, evergreen shrubs should be used; as they not only afford covert and shelter for game when the trees are bare, and Ferns and other surface herbage laid prostrate on the surface, but also relieve the monotony of such plantations at this particular season of the year. Preference as far as possible should also be given to such species and varieties as are not apt to be cut over and destroyed by vermin. The common Juniper, the different varieties of Laurel, Rhododendrons of sorts, Daphne laureola, common Yew, Privet, Mahonia aquifolia, Berberis Darwini, St. John's-wort, Gaultheria Shallon, Box, Aucuba japonica, Ruscus aculeatus, Kalmia latifolia, and Cotoneasters of sorts make good covert, and although I have had some of them occasionally nibbled by rabbits during a time of hard frost and snow, yet I have grown them for many years without being protected with wire netting.

I have planted the common Holly and its varieties below trees, where it thrives well, but requires protection. This can be done in a very efficient manner by simply tying a few small branches or a handful of Heather around the stem to a height of about 18 inches from the surface level. In cases where the plants can be seen from roads and drives they should be protected with a piece of wire netting, which has a tidier appearance. The size which the different species of plants attain under ordinary circumstances will be a very good guide to the planter as to the distance apart at which they should be grown. It is a mistake to plant covert so thickly that in the course of a few years it becomes a mere jungle. As a general rule, game, and especially pheasants, prefer open runs throughout the plants, so that too close planting should be avoided, otherwise the pruning knife will require to be used pretty freely to keep the bushes within due bounds. As a means of attaining success it is important that the surface of the ground be occasionally broken up with a hoe during the growing season, and even in cases where no surface weeds appear I have found it to be very beneficial to break the surface crust occasionally with the hoe and rake for the first few years of the plants' growth, and until they got thoroughly established. It is sometimes desirable to raise a covert of Whins and Broom on rough places

unsuitable for the growth of many other covert plants used for that purpose. When such is the case, the best plan is to sow the seeds in the month of April. The dwarf Mountain Pine (*P. Pumilio*) may be grown as a covert plant with advantage. I have used it with perfect success on high exposed places, where the soil is poor and thin, as well as on ground of a damp, boggy nature. It only attains the size of a straggling bush, but makes fine covert in such positions. The seed may be sown on the spot, or the plants raised at first in a nursery, and then planted out where they are to remain. This latter plan is the surest where vermin is plentiful.

J. B. WEBSTER.

PRICES OF HOME-GROWN TIMBER.

THE prices of home-grown timber have not increased during the past year; indeed, they rather show a downward tendency. This is much to be regretted, for the quantities of excellent timber that are lying about in many an English woodland, in some instances rotting on the ground, and that cannot be sold at a price that would compensate for the cost of felling and conveyance, are certainly far from small. The thinnings from young woodlands are in the same state; and as for coppice wood, the quantities that may be seen within a radius of twelve miles of London show but too plainly that the demand for this is very small. Hop-growing, in Kent at least, seems greatly on the decline, the consequence being that poles for supporting this once favoured crop are not nearly in such demand as they were even half a dozen years ago. Firewood, too, hardly pays for cutting and carting, letting alone the rent of the ground on which it was produced; while fagots, both large and small, are so cheaply contracted for now-a-days that one needs to economise in both time and wood to make both ends meet. The small profit to be got from these bye products of the woodland, as we will term firewood and fagots, is, however, as nothing when compared with that from large and well-grown trees of from fifty to a hundred years old. When one has to sell superior Oak timber at from 1s. 6d. to 2s. per foot, and Elm and Chestnut (Sweet) at less than those prices, and Pine wood at about 6d., how can the cost of labour in planting, felling, and carriage be paid for and leave any margin whatever for the rental of the land?

Less than fifty years ago, the prices to be obtained for some of these afore-mentioned woods were more than double, and we may now well ask the question, Why is this great falling off in the value of home-grown wood? The question is, happily, readily answered: First, Canadian and Norwegian supplies can be so cheaply delivered at our very doors, that they have driven the home timber trade from amongst us. Second, foreign timber arrives seasoned and squared up—at least such is usually the case—and ready for immediate use, this giving it a great preference over our home supplies. Thirdly, and this I have frequently pointed out, proprietors and their agents are greatly to blame for the low prices that are at present to be got for home timber of the best quality. There are few estates in the country where foreign timber has not been used in preference to that of home growth, and where the latter would have served the purpose equally well. I do not say that home timber is fitted for all estate purposes, but that there are legions of ways in which it might take the place, and serve the purpose equally well, of foreign importations I am quite convinced. The fact is this: builders and joiners—I am referring to those employed on an estate—cannot and will not be at the trouble to season and convert our native logs when they can get foreign spars and battens already seasoned and of the requisite size. I have sent in to the saw-mill logs of British grown trees of as good quality as ever were sent from Norway or Canada, but the fault-finding and objections against those poor native trees were too great for a second consignment to be risked. The fact is, the seasoning and cutting up to various sizes of home-grown timber are so troublesome, that

it is neglected, and so of necessity that of foreign growth has to take its place.

Were proprietors and their agents to issue a decree that no foreign timber was to be used on their estates where that of home growth would serve the purpose equally well, and see that the order was rigidly carried out, the prices of English timber would soon be in the ascendancy, and a check to foreign supplies quickly brought about. I know an estate where Pitch Pine fencing posts are used, and on the same estate the finest Larch can hardly be sold at 1s. per foot. On another, more than £1000 are expended on the timber used in quarrying, and not one-fourth of that sum comes back to the forester, who, at the same time, can hardly get rid of his pit props at 2d. the lineal yard.

If a proper method of timber seasoning and converting into the sizes usually required on an estate was instituted, I have not the slightest doubt that the greater portion of our home timber could be used, to the exclusion of that from abroad. The value of the wood of Spruce and Silver Fir for covering outdoor buildings is well known, yet how seldom is it used, and that, too, on estates where these very trees cannot be sold and are lying rotting on the ground. Were the planks as readily obtained just as wanted, as are those of foreign wood, the case might and would be different. The same case applies to the wood of our tried and valued Oak and Elm, not to speak of the Ash and Chestnut. Why, might I ask, was the timber of the Highland Pine so valued in the last century? Is not it as good now? No one knows, for it is never tried, foreign balks of untried character filling its place. But the low prices of British timber are not the only evil, for a direct consequence of it is that, unless for the purpose of ornament or perhaps shelter, landowners are most reluctant to engage in planting operations. Even, too, in the case of those who heretofore have shown considerable appreciation of the benefits to be derived therefrom both in a direct and indirect manner. I am perfectly safe in saying that during the past ten years not a hundredth portion of the trees has been planted that formerly was in any other ten years of the past century. Where lands are being bought in, planting on a small scale is usually found to be a necessity, whether for shelter or to improve the landscape beauty of the property, but in the case of reclaiming or planting waste mountain or lowland ground of any great extent the work has become a thing of the past amongst us. That the low prices of timber have much to do with this, every keen observer must notice; although that it is the sole cause would be a grave mistake for me to admit—the long period that elapses before a young plantation recoups even half of the expenses connected with its formation alone, and which rarely falls to the actual planter, but his successors, being a powerful motor against clothing our bare country with thriving woods.

Following hard in the wake of the non-planting policy comes yet another evil, and one of great magnitude, in the non-employment of labour throughout the country, for there can be little question that if even a tithe of the planting was engaged in which almost stern necessity for the good of the community at large demands, employment might be given to hundreds of our poor starving fellow men.

The evil is hard to mend, and to strike at the root of the matter we must begin by utilising more of our home-grown wood, thus raising its value and decreasing foreign importations, inducing landowners to plant more largely than at present, and giving much needed work to the great number of unemployed.

A. D. WEBSTER.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

THE COTTON WOOL NUISANCE.

NEARLY every day examples come before us of the misuse of this material. As a packing material for cut flowers or living plants, cuttings, scions, &c., it is the very worst if employed in immediate contact with vegetable tissues. I saw some young plants of the rare pink-flowered Banksian Rose the other day which had been swathed up in dry cotton wool, and the stems were blackened as if by fire wherever it had touched them. Flowers packed with this wool around them arrive limp and drooping, and over and over again have we seen Peaches with all their freshness and beauty destroyed by this substance. If fruits are wrapped up each separately in tissue paper, the wool may then be used with advantage as a soft padding, but if it comes into immediate contact with either flowers or fruit, they are always more or less damaged by it. The rule to observe in using cotton wool is to wrap everything in paper before using it. It is most useful in packing fruits if this rule be observed, but for flowers and living plants and cuttings of all kinds, fresh, clean wood Moss is infinitely better in all ways. We have received boxes of flowers packed in living Moss, and have admired the packing almost as much as the flowers themselves. Of course, very delicate white blossoms should also be wrapped in tissue paper before the Moss is placed near them, but as used in any way there is no better and safer packing material for flowers and plants than the fresh Hypnum Moss of our woods, and there is really no comparison between it and cotton wool.

I have been told that Nepenthes seeds packed in green Moss in a clean glass jar arrived in London alive and growing after a three months' voyage, and it is a well-known fact that soft-wooded cuttings grow well in fresh Moss for a considerable time. In a word, while Moss is congenial to all plants when used for packing, cotton wool is often most injurious, especially if in actual contact with the growing tissues.

F. W. B.

ROSE GARDEN.

ROSE MADAME LAMBARD.

THIS interesting discussion on the merits and demerits of one of the most distinct, popular, and provoking of all Tea Roses reminds me of the friendly exchange of experiences which invariably takes place whenever a railway carriage full of rosarians is on its way down to some distant Rose show. More often than not these lively debates are carried on at midnight, and it is after this pleasant fashion that many a weary hour is whiled away. As Mme. Lambard happens to be one of those Roses which I have myself seldom managed to flower satisfactorily, I had hoped Mr. Girdlestone would have allowed me this time to stand out, while other experts who had been more successful with it were week by week supplying valuable hints as to how the smiles of this capricious beauty might best be won. In fact, I rather wanted to imitate the conduct of that young enthusiast in the corner of the railway carriage above referred to. He is evidently too modest to take any part in the debate that is going on,

but sits there with parted lips, eagerly devouring every word that is uttered by his companions, I dare say with the view to picking up a few wrinkles for his own future guidance. As, however, Mr. Girdlestone refuses, and I think rightly, to listen to any such cowardly, selfish, or indolent excuses, I will at once proceed to answer his inquiries as best I may, for after all we are simply asked for our individual opinions and experiences of "the best and hardest of the light red Teas." There is also some comfort in knowing that some of the most valuable contributions to "T. W. G.'s" Lambard monograph will doubtless come from those who, like myself, fancy they have nothing worth relating as to this particular variety. Having come to this virtuous decision, I venture to suggest that Mr. Girdlestone might with advantage circulate among all competent Rose growers the following lines which I came across recently in an old portrait album:—

Come look at my album, and learn ere you look
That all are expected to add to my book.
You may quiz as you please, but the penalty is—
That you also leave something for others to quiz.

1. The distinctive excellences of this Rose as a plant consist in its vigorous and hardy constitution, excellent habit of growth, and great freedom of flowering. In these respects it more closely resembles one of the Chinas than any Tea Rose with which I am acquainted. As a flower, it is valuable for its great range of tint. Indeed, I do not know any other Rose which appears at different times and under different conditions in such an endless variety of shades of colour. Moreover, altogether unlike most Teas, its blooms stand wet weather remarkably well. Something may, perhaps, be learnt respecting the requirements of this Rose from the following facts: At the National Rose Society's metropolitan exhibition Mme. Lambard was in 1887 set up in only two winning stands; whereas last year it was staged in no fewer than fifty-one of these stands, and with one exception (Marie Van Houtte) more frequently shown than any other Tea or Noisette whatever. Now the summer of 1887 was very hot and dry, the exhibition day being also unusually warm. On the other hand and in complete contrast, in 1888 the summer proved cold and wet, and the day on which the Society's show was held remarkably cool. This would seem to teach us that a rather moist position, screened from the mid-day sun, would suit it better than a more sunny, dry, and open one. In other words, its blooms, although less full than those of many other Teas, require to be leisurely built up, and, like the inhabitants of those sunny climes from whence at least some of its ancestors originally came, detest being in any way hurried. Should this conjecture prove correct, Mme. Lambard might appropriately adopt as her motto that of the Onslow family—*Festina lente*.

2. Its chief defect as a plant is that, unlike such Roses as Souvenir d'Elise Vardon and Niphetos, it has a tendency to run to leaf and wood rather than to concentrate its best strength on the complete development of its flowers; consequently its blooms are seldom large enough for exhibition. They also too often come with split centres, while their colours under anything like trying circumstances soon become dulled.

3. Even in this cold climate I have found it to be fairly hardy. Indeed, it must be here classed as quite hardy, for there are few Teas whose shoots are able to resist a severe winter as well.

4. I have grown it on a light yellow loam over sand, and in a mixture of clay and flints over chalk. In both soils it has done well, but,

as might have been expected, rather better on the cooler soil and subsoil. Under No. 1 I have indicated the soil and situation I consider would suit it best.

5. I have it on the seedling Brier and Brier cutting, and am now trying it on dwarf standards. With me it grows equally freely on both the dwarf stocks I have mentioned, but I am hoping the dwarf standard if liberally treated may enable it to supply me with finer flowers.

6. When the winter frosts have allowed me any choice in the matter, I have always pruned my Mme. Lambards moderately hard, but, last year excepted, have scarcely ever had any extra good flowers. I have now and then come across grand specimens at the shows, and I have invariably wondered how these had been obtained. For garden decoration all the old and weak shoots should be cut away, while those that are left need only be pruned back to sound wood. In my opinion Mme. Lambard is a splendid type of what a garden Tea Rose should be. Unless, however, this series of valuable notes throws, as it is to be hoped it may do, sufficient light upon the subject to enable us to understand the peculiar idiosyncrasies of this variety better than at present, it must, I fear, ever remain a very uncertain exhibition Rose.

7. It has not proved itself with me so well adapted for pot culture as many other Teas, and yet there is scarcely another Rose among my small collection that I would not more unwillingly part with. It is the first and last to flower, while its pleasing and unique shades of colour render it always acceptable. A strong plant brought into a cool greenhouse before its growth is checked by frost will continue to supply neat flowers up to Christmas.

Berkhamsted, Herts. EDWARD MAWLEY.

Arrangement of Rose shows.—The remarks of "A. D." in THE GARDEN Feb. 23 (p. 171), though intended only to apply to the approaching Rose conference, yet afford scope for general discussion. This condemnation of the stereotyped ugly boxes is well timed. Who that has visited a Rose show has not heartily lamented the use of so much timber in the display of a subject that readily lends itself to freedom, grace and beauty? Art has done a little too much for us here. Nature should be allowed more play; indeed, a Rose show should give us, so far as is practicable, the idea of a Rose garden, and the National Rose Society would earn the well-deserved thanks of every lover of the queen of flowers were it to encourage originality of idea in the arrangement of our Rose exhibitions. Some charming effects are capable of being produced. What says the Dean of Rochester, who has done so much for the national flower by his brilliant writings on this important subject?—J. B.

Hardiness of Tea Roses.—In reviewing Mr. W. Paul's new edition of "The Rose Garden," Mr. Girdlestone takes exception to the author's statement when he says that Tea-scented Roses are too tender to be cultivated successfully except in the most favoured districts of England. I have no hesitation in saying that the author of "The Rose Garden" is by no means in error, so far as my experience and observation of the behaviour of this class of Roses when cultivated in the open air in the west of England go. There may be some places in which the soil is rather light and dry and the situation sheltered where Tea Roses may be found doing fairly well, but these places are wide apart. Only a few days ago I was looking over a large collection of Roses in Mr. Fowler's garden, near Taunton. Mr. Fowler is an enthusiastic amateur, and he pointed out to me two long lines of Hybrid Perpetuals which had been recently planted, where Tea-scented varieties had stood two years, but which had to be removed because they refused to grow. The refractory Teas, along with many others recently purchased, have now been planted in

another part of the garden, and a close fence is being built to protect them from cold winds, as the owner of this garden, as well as many others, have found out, that, as a rule, it is not the severity of the frost that injures these Roses, but the cruel, piercing wind of spring just as the young growth begins to start. I therefore maintain that when it is necessary to provide a close wood fence to protect Tea Roses in the Vale of Taunton, that the author of "The Rose Garden" gave sound and reliable advice to his readers.—J. C. C.

DEEP PLANTING OF ROSES AND SHOW BLOOMS.

THIS heading was written during the planting season, but unfortunately the article was neither written nor finished; hence it may now seem out of season, though anything relating to the vigour and beauty or longevity of Roses can hardly be out of season at any time in the pages of THE GARDEN.

The first point is to determine whether there is any correlation between deep planting and show blooms. Probably there is, though, perhaps, the quality of the root-run has a more potential influence on the quality of the flowers than its mere mass or depth. Still, qualities being alike, it may almost be taken for granted that the deeper the mass of good soil the better, and the longer it would be before it could get exhausted.

It must be admitted, however, that this mode of putting it somewhat savours of begging the question; for Rose roots may be fed from the sides and the surface as well as from below. In other words, the roots rise surfacewards and spread horizontally, as well as dig down vertically in search of food.

No rosarian can question the power or instinct of Rose roots to find the larder, place the plant where and how he may. But our question really turns chiefly on the further one, In which direction do Rose roots travel with most ease and rapidity? The answer of those most conversant with Rose modes of rooting and growth must surely be, downwards. Brier men from all districts will bear out this statement. The Dog Rose, whatever may be true of other species of the great Rose family, possesses a boring root. It is so intent on getting down that it seldom stops to form any, or many, fibres by the way; and the latter when formed are in hot haste to follow the vertical course of the main roots. Hence it may almost be inferred that deep rooting and deep planting, different things, however, would be likely to suit all Roses on the common Brier stock. It may also be affirmed with tolerable certainty that not a few failures in Rose culture have arisen from attempting to grow Roses too near the surface and in shallow tilths.

Taking a yard as a good average depth, another practical question is the depth at which Roses may be planted in it. To render this part of our inquiry practical, shall it be 3 inches or 6 inches under the surface roots? It may be taken for granted that unless in the case of old Rose bushes little injury comes to the growth or blooming of Roses through the burying of their collars, a practice that proves so injurious to the longevity of so many of our fruit trees.

It may also be said in favour of deep planting that the deep larder not only lasts longer than a shallow one, but is preserved at a more uniform temperature and in a more uniform state of fullness in regard alike to food and water. There is far less risk of seasons of dearth and excessive abundance than in flatter, shallower tilths. Now, it is constancy and regularity of food supply that firmly base, surely build up, and complete the quality either of foliage, bloom, or fruit; and hence there may be a close and sure correlation between the deep planting of Roses and prize blooms.

D. T. F.

Rosa humilis, next to *Rosa caroliniana*, is the most common Rose in the elevated mountain region of Virginia, Eastern Tennessee and Carolina. Here, unlike our other Roses, which frequent open

situations, it is found growing only in the shade of the forest, generally on steep slopes, and usually in very rich soil. As it appears growing in such situations it is one of the most distinct of all the American Roses, with its very slender stems, sparse, open foliage, and few long, slender spines.—*Garden and Forest*.

JUDGING ROSES.

I do not know whether a few observations on the knowledge which qualifies a person for the office of a judge should come at the end or at the beginning of these remarks. It is, I hold, essential that he be an active or practical grower, growing his Roses as well as, situation and soil permitting, they can be grown. I do not lay it down as an absolute rule that he should be also an exhibitor, but at least he should be a frequent attendant at the best Rose shows, and should be a careful and painstaking observer of the flowers shown. I hold he should be a grower, as the timely examination of flowers at their best on the plants alone gives him the necessary knowledge of the fittest condition of each individual variety, more especially of its right colour and most perfect form. He ought to keep his collection up to date in order to know what changes are occurring in the several classes—for example, in Tea Roses, a class in which flowers developing much higher qualities of colour and of form are being produced. Such experience must be supplemented by the careful observation of each novelty as it makes its mark in the boxes, by learning its power of retaining colour and form. One essential point, the difficulty of presenting certain kinds in perfect condition at the show, can be known only to the judge who is both a grower and exhibitor. It is on these lines that the executive committee of the Rose Society have chosen its judges for its exhibitions, and, as I think, with marked success.

Ten years ago Mr. Cheales prepared the rules for judging then adopted by the National Rose Society. In his article introducing in the "Year-Book" the rules, he gave a consensus of opinions upon the points in judging of twelve then exhibitors, mine amongst others.

They were, and I see no reason to change them or their order, of relative importance.

1st—Size, when with form.

2nd—Colour.

3rd—Evenness of stand (i.e., of flowers in stand).

4th—Foliage and vigour.

The business of judges (three if possible, and with no power of appeal from the decision of the majority) is to find out the stand of flowers which is the best in all these points.

The first two points are most decisive, points 3 and 4 being more often of use in the final decision between two otherwise equal stands.

In judging a class with numerous entries, a very careful selection of the best five or six stands should be first made by going through the stands, noting in each stand the good blooms and any bad ones. This eliminates the stands with the least good qualities. Each selected stand is then carefully examined. Three points are given for each full-sized bloom of perfect shape and of fresh bright colour. In all probability only to flowers of the very finest Roses, such as *Marie Baumann*, are three points given; and I think three points should be reserved for flowers of the highest quality only, of real perfection in form and colour. Two points represent, or should represent, good flowers of the finest sorts, or very good flowers of sorts which only give medium-sized blooms, the highest

award that is for good average flowers of exhibition qualities; the three points, I would repeat, only being given to exceptional flowers.

One point should be given to flowers of good shape and of fair colour, or to flowers of varieties usually small.

Probably few stands of twelve realise more than—

2 or 3 flowers of 3 each ...	9
5 flowers of 2 each ...	10
4 flowers of 1 each ...	4

Total ... 23

Deductions from these points must be made for any imperfect flowers, should there be any such in the stands. The defective points of such flowers are—

1st—Undersized, say a *Charles Lefebvre* the size of *Duchesse de Caylus*.

2nd—Past colour or faded, say an *Alfred Colomb*, still good in shape, but with faded colour.

3rd—Bad shape, say *Perle des Jardins*, with folded split at the side of the flower.

4th—An over-open flower, say *Thomas Mills*, showing its eye.

Up to the present time one point has been struck off for any such defective flower. I think two should sometimes be deducted.

No special favour should be shown to Teas because Teas. The flowers of Teas should be judged on the same principle, for size with form and colour.

Judged on these principles, point 4, foliage, will be mostly found to go with size of flower, but in case of two stands being equal in points, the judges should consider and weigh the evenness of flowers in the stands, and finally the general effect of the whole of the flowers, the even distribution of colour, and its harmonious arrangement; and I should even feel inclined to allow at least one point for variety of colour.

It is in this final decision of comparatively even stands that the value of matured knowledge in a judge is seen.

In judging trebles there is a diversity of opinion. Some judges consider each treble should be a perfect trio, counting each treble as one flower, one imperfect flower in the bunch causing the whole treble to be counted as bad. I differ from this, and see no reason why a single bad flower in one case should count against the stand more than another. It is, however, a matter for discussion, but until a rule be added to the existing ones to the effect that one imperfect bloom makes the whole three bad, judges should deal with the merits of each individual flower.

In the Tea and Noisette classes the standard of flowers may be raised to that of flowers in mixed classes. The detection of duplicates is a judge's duty and should not be shirked; but to enable him to do this properly too much work must not be given him to do. In cases of duplicates, other judges or officials may be called in to strengthen the judge's decision.—*GEORGE PAUL*, in "*Rosarian's Year-Book*."

A grafted *Grevillea* that dies.—*Grevillea Manglesi* is one of the most graceful habited plants that can be grown in a greenhouse or conservatory. It grows 10 feet or 15 feet high and its thin and slender branches droop as gracefully as those of the Weeping Willow, each now tipped by little clusters of lace-like white flowers. It grows freely and quickly from seeds which are often produced, and soon attains a flowering size, but the nurserymen nearly always graft it on to seedlings of *G. robusta* as a stock, and the consequence is

that the plant grows well for a time, and just when you are delighted with its graceful beauty and filagree-like delicacy of blooming, it suddenly dies! As we have shown, there is no real necessity for grafting this plant, and yet it is done at the cost of its life and beauty. Of all Grevilleas, this is I think the one that most people admire when they see a plant at its best, and yet it is very rarely seen on its own roots. Can anyone say where natural, *i.e.*, ungrafted plants can be purchased in England now?—V. B.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SEASONABLE NOTES.

WITH the weather of a milder nature, the days longer, and the sun more powerful, the plants which have been previously transferred to pots 3½ inches in diameter will be better now if they occupy a favourable position in a cold frame, provided the roots are running into the new soil freely. The frames should be so placed that all available sun be obtained, as this will much strengthen the plants, which they sorely need this season. I have never seen the plants so weakly in appearance at this period of the year before, nor do I remember a season when the cuttings required so much time to form roots. Both these failings are attributable to the weather of last season. Immediately after the removal of the plants from the house to the frame they should be carefully attended to, avoiding the admittance of air in quantity to produce a draught which is a precursor of mildew in many instances. Upon the first appearance of this pest dust the leaves with sulphur when dry. Plants in pots of the size named should be attended to carefully in the matter of applying water, which should always at this time be tepid. Draughts, intensely cold water, and too much of it at a time when the plants are only just removed from the house to the frame will in many cases produce sickly-coloured foliage. Owing to a scarcity of the best kinds of cuttings this season, recourse in many cases had to be had to stem cuttings, some of which are now showing a bloom bud. If the intention is to cultivate the plants with a view to produce the best quality of flowers in each section, the single main stem must be encouraged to grow away freely without interruption. Therefore if a flower-bud shows in the point of the new growth, promptly remove it. Some of the earliest potted plants will shortly need transferring to larger pots. At this season of the year when the plants are growing freely, roots are made in proportion, and to delay the potting of the young plants when once they are ready is a great mistake. More than this, plants which have grown freely have their pots full of roots and more readily suffer from want of water, which results in a loss of many of the bottom leaves. This may not take place at the time, but some weeks afterwards when least expected. Chrysanthemums grown for the production of exhibition blooms should not have their free growth checked in any way, but should be kept steadily growing. Where it is intended to flower the plants singly in pots, those 9 inches in diameter are large enough; indeed, some can be grown very well in pots an inch less, especially the weak-growing varieties. But it is not wise to attempt to cultivate successfully the more robust kinds, especially such as the Queen family, in pots so small as 8 inches, as they entail so much attention to watering during a dry summer. The size of the pots at this stage should be 5½ inches in diameter, and from these they will go direct to those they are to bloom in. The pots should be properly drained. The soil for this potting may be composed as follows: three parts fibry

loam, one part leaf-soil, one part of Mushroom bed material, adding a small portion of charcoal, some sand and dissolved bones. To each 4 bushels of soil add a 5-inch potful of soot. The soil should be pressed firmly into the pots at this potting, which induces a growth gradually rendered solid as it proceeds, which is much better than depending upon a hot autumn to ripen the growth all at once. The cold frame after potting is the best place for the plants, keeping the lights nearly close for a few days until the roots commence to run into the new soil; afterwards more air should be given gradually until the lights can be removed entirely during the middle of the day. In this manner the plants will gain strength.

ARE CHRYSANTHEMUMS IN SPRING REQUIRED?

AT the Chrysanthemum conference, held at the Royal Aquarium on January 9, it was intimated that Chrysanthemums could be had in flower not only in spring, but all the year round. Yet in the face of this startling fact and the efforts of those who are at present endeavouring to induce Chrysanthemum growers to try their skill at such a feat, the question arises, Are they required in spring, much less all the year round? I unhesitatingly say they are not; indeed, they require more care to produce flowers late in spring than they are worth. True, we have now many late-flowering varieties, yet few can deny that the flowers of these, beautiful as they usually are, are inferior to those of numerous kinds of spring flowering plants. Of course everyone will admit that Chrysanthemums in autumn and winter are indispensable in every garden; yet all, I am afraid, will not take the same view of matters with regard to having them in bloom all the year round. It is far from wise to follow that course. The specialists in Chrysanthemum culture had better turn their attention to the production of dwarf-flowering varieties. This would, in my opinion, be more serviceable to the majority of growers than varieties that will bloom in April. Most people would gladly welcome such grand autumn and winter-flowering varieties as we now have were they but in a dwarf form. No doubt some might say there are plenty of ways of modifying the growth. Perhaps so; yet these means are not within the reach of all; and as the majority of varieties are at present, that is when large blooms are grown, it is beyond doubt a difficult matter for some growers to find house room for the plants, with their 9 feet and 10 feet, or even more, of growth. Thus it would be more creditable to make a step in this direction than in the production of varieties that bloom when we have a supply of flowers that are more easily grown. Then, again, the late-flowering varieties require shelter during the winter, and it is in very few places where this would be forthcoming, as all available space under glass is at that period generally occupied. Therefore, I cannot but come to the conclusion that in endeavouring to give us Chrysanthemums to bloom in spring, it is a mere waste of time and labour, and the sooner the idea is abandoned the better. Early-flowering varieties sometimes prove an acquisition, though even these are not really necessary, seeing that we have plenty of flowers of all descriptions until the beginning of October. C. C.

Reflexed section.—Perhaps in this section the least interest is taken by the general body of cultivators. The reason is not far to seek, as lack of variety and a scarcity of colours have much to do with it. Although a few varieties rank high as decorative kinds on account of their brilliant colours, notably Cullingfordi, they are not, as a whole, so well adapted for growing in bush form, mainly through the weakness of their peduncles, which are not self-supporting. For growing in specimen form varieties of the reflexed type are especially valuable, most of them being of a free branching habit of growth, the flowers, as a rule, developing perfectly under this method of cultivation. A specimen of

such a brilliantly coloured sort as Dr. Sharpe carrying 200 perfectly formed blooms is a sight to be remembered. At present, with very few exceptions, this family contains the sweet-scented varieties. The best of all in this section is Progne. For outdoor decoration, such as the covering of blank walls, the reflexed varieties are specially to be recommended, the form of the blooms being of the right kind to throw off the moisture from the petals caused by rain or dews, so much so that the flowers last longer than those of any other class. When the best blooms are intended to be grown, the plants must have liberal treatment from the first stages of their growth, or the results will be blooms which are destitute of the main point in a typical specimen of a reflexed flower, namely, depth. The presence or the absence of this essential is quickly noted by all persons, perhaps sooner than in any other section of Chrysanthemums. Great difference of opinion exists as to what constitutes a properly reflexed flower. At present there are several varieties which cannot be strictly classed amongst reflexed blooms, for the reason that in some stages of their development they show too much of the incurved character. In Mlle. Madeleine Tezier, Felicity, Garibaldi, and Alma, the points of the petals show such a tendency to incurve as to make them out of place as reflexed varieties. A true reflexed flower should have the petals thoroughly imbricated, allowing little space between the points of each. I regard King of Crimson as a good type of the reflexed section. It is also one of the oldest varieties we have, having been introduced by Mr. Salter in the year 1845, but it was subsequently lost sight of for many years; indeed, it was not until the year 1880 that it was again brought prominently before the public and made for itself a lasting name as one of the best sorts of its class. In growth it is all that could be desired, being vigorous and a free bloomer.—E. M.

Chrysanthemum sports.—It will perhaps appear very strange to some persons to hear that in sporting, Chrysanthemums of one section or family produce blooms of an entirely opposite character, as, for instance, a true reflexed bloom results as a sport from an incurved variety, while from reflexed varieties a partly incurved form and an Anemone-flowered kind have sported. It would, indeed, be hard to account for the reason of these freaks, but if this sort of thing goes on increasing it will be difficult to say where we shall arrive in the matter of sports. This phase of the subject opens up an interesting point. If we could know the exact cause of sports and how to obtain them at will, we should then have no difficulty in obtaining a much greater variety in some sections than we have at present. I fear the cause, &c., of sports is all a matter of sheer fancy, and we appear to be as yet very much in the dark as to their origin. We have here under trial a reflexed sport from the incurved variety George Glenny. The new departure is exactly like its parent in the colour of the flower and habit of growth. For exhibition in a cut state I fear that this variety will never rank very high amongst growers of this class on account of the smallness of the blooms; but for growing in bush form for conservatory decoration where numbers of flowers are needed this new departure ought to prove valuable. In another locality King of Crimson has produced an Anemone variety of the same colour, and which should be an acquisition to a class at present not over-burdened with colours of a deep hue. I hear that the sport has been fixed, and will be introduced next autumn. I shall be interested to see this novelty brought out in perfection. The other variety referred to in the early part of this note is a partly incurved variety from Mrs. Forsyth. The growth is exactly like that of the parent, but the colour is nearer a pale lemon than that of Mrs. Forsyth, which is a dull white. Unfortunately, the flowers of the sport do not preserve their incurved form; the florets reflex after the flowers have developed.—E. M.

Chrysanthemum Avalanche.—This Japanese variety is a good late-flowering kind. To-day (February 23) we cut useful blooms from plants which were grown from cuttings inserted in August, pinched once

about 8 inches high, potted into 4½-inch pots, and given a cool position in the house. Being regularly fed with stimulants, the result is very encouraging. This variety does not, like many other good new sorts, always produce few cuttings. In the case of the present variety there is always plenty to be had, and generally they are of the best quality.—S.

BOOKS.

CACTUS CULTURE FOR AMATEURS.*

MR. WATSON has done well to reproduce in book form the series of articles contributed by him to the *Bazaar* in 1885 and following years, as he has given us a dainty, well illustrated volume that deals exhaustively with the strange, interesting, and easily grown Cactuses. The author has a right to speak on this subject, as at Kew he has abundant opportunities for thoroughly studying the various kinds, and that he has made a golden use of them we can judge from the present book. There are at Kew 500 species and varieties of Cactus, a unique collection, equalled by no other in the three kingdoms, although the late Mr. J. T. Peacock, of Sudbury House, Hammersmith, who made a speciality of these characteristic plants, also had a number of the finest and rarest kinds, which at one time Mr. Croucher, his head gardener, had charge of. His picturesque groups at the summer exhibitions of the Royal Horticultural Society were as much a source of interest and wonder as the gay banks of flowering Orchids. The title of the book is somewhat misleading. It is not sufficiently comprehensive, as it would satisfy the requirements of those who would scarcely feel flattered if called amateurs. There are eighteen chapters, the second dealing with the botanical characters of the Cactuses, and that will prove interesting reading to those who wish for something more than mere routine in cultivation. They are grouped into two tribes, the first comprising those in which the calyx tube is produced beyond the ovary, and the stem covered with tubercles or ribs, bearing spines, as the *Melocactus*, &c., and the other in which the calyx tube is not produced beyond the ovary, and the stem is branching and jointed, as *Rhipsalis*. This arrangement, says the author, is a key to the genera on the plan of the most recent botanical arrangement. The genera *Echinopsis* and *Pilocereus* are, however, for horticultural purposes kept up. The chapter on cultivation is of the greatest service. It gives advice on growing them in separate houses, with a sketch of the most suitable structure, in Wardian cases, window recesses, greenhouses, frames, and out of doors, so the amateur will have no cause to grumble at a meagreness of detail, although he might find fault in a book that is especially written for him at the wordy descriptions of the several species. The chapter on propagation is one of the best. It deals exhaustively with the various ways of propagating Cactuses by seeds, grafting, and cuttings, illustrated by an interesting, though none too well executed engraving of a specimen of *Pereskia Bleo*, with *Epiphyllum* and *Cereus flagelliformis* grafted upon it. The majority of the chapters are naturally devoted to the various genera, each genus occupying one chapter, in which the varieties, modes of culture, peculiarities, and other matters characteristic of the several species are described and fully explained for the benefit of those readers for whom the book has been written. There is a chapter on the dealers in Cactuses, that those who intend taking up their culture will find of some importance, and a selection of kinds suitable for cool house, stove, and outdoors, so that the intending cultivator can at once find out which are the best suited to his own special case without wading through a mass of detail. In the list of growers of these curious plants it is singular that there are now no collections in the United Kingdom. A few of the illustrations are good portraits of the plants they represent, especially those of *Echinocactus*

scopa (p. 118) and its singular variety, or rather monstrosity, *cristata*, and *Rhipsalis sarmentacea*, a curious creeping plant that is always found on the branches or trunks of trees in its native home.

"Cactus Culture" certainly deserves a corner on the book-shelf of every horticultural library as much as a book of reference respecting the many kinds of Cactuses, as in the words of the author, "no species or variety is omitted which is known to be in cultivation or of sufficient interest to be introduced" as for the valuable cultural hints which it gives to those who are novices in the matter. It is the hope of the author that this book will do something towards bringing Cactuses in favour, and it is of the right character to fulfil this wish. There is no race of plants that offers so many singular characters as the Cactuses. Their home is on the burning plain or the bare rocks, exposed to the fiercest of tropical suns and deluged with the heavy periodical rains; yet many of the flowers are of the richest colours, from the softest to the most brilliant tints, deliciously fragrant, and, in some instances, offering additional interest by appearing only at night. Then their strikingly grotesque characters are sufficient in themselves to warrant increased attention. If this book is the means of adding to the present handful of cultivators, it will have performed a useful service to horticulture. C.

MARKET PLANTS AND FLOWERS.

A VISIT to Covent Garden Market during the early hours of the morning is always of interest to the horticulturist, if for no other reason than to see the comparatively large and finely developed plants that are grown in the regulation 5-inch or 48-sized pot. Besides this, though the bulk of the plants offered for sale are limited to a few kinds, some plants that are not so commonly met with and consequently possess a greater amount of interest are occasionally seen. On February 2, the bulk of plants in flower was limited to Hyacinths and Tulips, and a goodly show they made. Of Tulips, the favourite seems to be the scarlet *Duc Van Thol*, which was offered in boxes closely packed full of bulbs, in pots containing five or more bulbs in a pot, and also in various combinations, such as four Tulips with a Fern springing from the centre, and a few spikes of Lily of the Valley peeping up through the foliage of the Fern. In others the arrangement was much the same, except that Roman Hyacinths took the place of Lilies of the Valley. These last were extensively offered in pots containing about a dozen spikes. Nearly all I noticed were from single eyes, that is to say, those usually known as German crowns, which are principally employed for early forcing. In these the bells are far more open than those produced by the clumps or masses imported from Holland, which are valuable for late blooming, as being established in a mass the roots are to a great extent undisturbed, and consequently the spikes do not flag so quickly when the sun grows stronger as those from single eyes do. Cyclamens, Primulas, and Cinerarias were, of course, represented, and in the case of all of them the improvement within the last few years both in colour and form is most noticeable. Spiræas were abundant, but very few *Deutzias*, beautiful as they are when well grown, were to be seen. Of Azaleas, the best is *Deutsche Perle*, whose massive *Gardenia*-like flowers are very easily recognised when associated with the thin papery blooms of the older varieties. While there are a great many Azaleas with blooms more or less splashed and striped, they do not seem to find favour with market growers, all of whom assure me that plants with blooms of this character are far more difficult to dispose of, not only in the case of Azaleas, but also *Camellias*, *Primulas*, and other things. A few *Epiphyllums* grafted on *Pereskia* stocks about a foot high and profusely laden with bloom were a very pleasing feature, and *Echeveria retusa* might also have been seen in quantity. This succulent is a valuable winter-flowering plant, whose bright red blossoms are borne in great profusion, and remain in beauty for a long period. Other flowering plants noted include *Acacias*, *Genistas*, *Narcissi* of diffe-

rent kinds, a few Heaths, and *Marguerites*. Strange to say, I did not see a single *Bromeliad*, thus showing a marked difference between us and our neighbours across the Channel.

The foliage plants mostly consisted of Palms—*Areca lutescens*, the ever popular *Latania borbonica*, *Cocos Weddelliana*, *Scaevola elegans*, a few pretty little *Geonoma gracilis*, *Corypha australis* (the Palm that will thrive in a sitting-room better than any other), and various *Kentias* comprising the bulk of this class. A few years ago it was quite a rarity to see any *Kentias*, while now they are met with everywhere, thanks, no doubt, to the large importations of seeds that have been disposed of in this country within the last few years. *Kentias* are certainly very beautiful Palms, easily grown, and do well in the dwelling-house. For the dwelling-house nothing is better than *Aspidistra lurida*, which, with its variegated variety, finds a ready sale. Of Ferns in 4½-inch pots, the common *Maiden-hair* was largely represented, and among *Pterises* the two most extensively grown are *P. tremula* and a large, bold form of *P. serrulata*, known sometimes as *major*, which is now principally grown to the exclusion of the ordinary species. *Aspleniums* of the flaccidum class also make nice well-furnished specimens; and there was also a quantity of *Cyrtomiums*, whose handsome dark green foliage looked as if thrips—so troublesome in many places—were unknown to them. Small Ferns, too, are disposed of in large quantities. The common *Selaginella Kraussiana* is grown in enormous quantities, and a number of good bushy specimens of *S. Martensi* presented a very pleasing feature. *Aralia Sieboldii* is such a first-rate town plant that it is nearly always to be met with; while the genus *Cyperus*, of which *alternifolius* has been so long the only species, is now represented by another—*C. distans*—the foliage of which is broader and not of so deep a green, while the inflorescence is more conspicuous than in the older kind. *C. alternifolius*, however, does not seem likely to be ousted by the new comer. *Ficus elastica* and different *Dracænas* were, of course, present, and various evergreen shrubs, such as *Euonymus*, *Aucubas*, *Box*, and several of the smaller *Coniferae*; but the principal demand for such things is during the autumn and early winter months. With the exception of many of the Ferns, which are disposed of in 2½-inch pots, most of the plants sold in Covent Garden Market are grown in 5-inch pots, as those of this size are very convenient for transport and also for furnishing purposes, as they can be dropped when required into the different ornamental pots, many of which would not contain one of a greater diameter than 5 inches.

CUT FLOWERS of subjects other than those above mentioned as blooming in pots were principally represented by the following: Violets, Primroses, Snowdrops, various *Narcissi*, especially the *Paper-white*, and *Anemone fulgens*. *Allium neapolitanum* is a first-rate plant for forcing, as it is remarkably pretty, bears its flowers on good, long, sturdy stalks, and the blooms are wanting in the disagreeable smell common to many of the *Alliums*, though it is present in the roots to a certain extent. Of course, such things as *Gardenias*, *Camellias*, *Callas*, *Roses*, double *Primulas*, and *Bouvardias* were represented in quantity, and while the *Bouvardias* were numerous in a cut state, I did not see a single plant. Christmas *Roses*, the spotless purity of whose blossoms showed that they must have been protected under glass, were also very common; while the large sprays of *Acacia*, principally imported, seem to meet with a ready sale. Zonal *Pelargoniums*, of course, furnish some bright bits of colour, and of these the double-flowered varieties predominate. I should, perhaps, have said double-flowered variety, for the bright-coloured *F. P. Raspail* seems to be grown almost to the exclusion of others. It is certainly a beautiful kind, and shows the length of time a variety may be in cultivation before its merits are fully recognised, as this was sent out by M. Lemoine, of Nancy, in 1878, and was that year grown in this country by a few who make a speciality of such things. H. P.

* "Cactus Culture for Amateurs." By W. Watson, Assistant Curator of the Royal Botanic Gardens, Kew. Published by L. Upcott Gill, 170, Strand, W.C.

DANNY PARK.

DANNY PARK is situated a little to the west of Hassock's Gate. The house stands in a magnificent park which forms a part of the estate of Mr. W. H. Campion. Here, again, we find another of those historic old Elizabethan mansions which stud the county of Sussex. The one under notice is built of brick, and although erected by one of the Gorings in 1595, it was preceded by another mansion which stood in the park, Royal permission to enclose which had been granted in 1355. The same simplicity of style and the many-gabled windows characterise this old house. The drive through the park is picturesque and beautiful. The Beech trees are very conspicuous, and though a few noble Oaks, with split stems and gnarled branches, show signs of decay, yet the majority of them, although enormous specimens, are quite vigorous. About halfway along the drive, on the

cimens and groups are conspicuous all over the park.

The greatest marvel among the trees of Danny is the one which forms the foreground in the engraving. This is probably the finest specimen of the Carolina Poplar in England, and it also shows one of the quaintest forms of tree growth ever met with in this country. Not only do the branches rest upon the ground, but some of them have rooted, and the new roots, infusing fresh vigour into the branches, have caused rival leaders to shoot up, some of which have now attained a height almost equal to that of the parent tree. If these upstarts put out branches like the parent there will be some day a forest of stems, like those of the Banyan tree, which spreads and covers acres. But the Banyan supports its head upon straight stems, which are like a great array of pillars upholding some mighty dome, the ground being left free and scarcely

that in which the tree is shown, gave the greatest diameter of ground covered as exactly 50 yards. If, instead of winding in and out, the branches had all grown out straight from the stem, much more ground would have been covered, for the longest branch, though confusedly interwoven with the others, is 45 yards in length, that being only 5 yards less than the greatest diameter of the branch spread. The tree also makes a large mass of distinct and noble-looking leafage, for the broad ovate leaves are nearly all about the size of one's hand. This wonderful tree is just on the outskirts of the lawn. Between it and the house is a fine expanse of turf forming the lawn. A few large beds of Rhododendrons and Azaleas, with some flower beds, diversify its surface. The lawn here passes into the park, which, in front of the mansion, is but a foreground, the Downs being so close that their ever varying charm of light and shade is enjoyed.



The Carolina Poplar (*Populus monilifera*) at Danny Park, Sussex. Engraved for THE GARDEN from a photograph by Mr. Pattison, Pett, Worthing.

left, the ground suddenly rises into a huge bank of sand, and upon this knoll is a fine group of Scotch Firs. Terminating as abruptly as it arose, there next spreads out a pretty sheet of water which runs back to masses of wood, the tree branches waving upon the water's surface, while but a short distance off the turfy slopes and crest of Ditchling, the highest of southern hills, suddenly rise to a height of 858 feet. The park landscape charms the visitor long before the house is reached. After passing the water the drive becomes still more striking, for it is literally hemmed in by gigantic stems of Elm trees, which, though not forming a formal avenue, yet in a long irregular line fringe the drive on either side, the greater number being on the right. In none other of the beautiful Sussex parks may be found so many great Elms as here, for in addition to fringing the drive, noble spe-

obstructed. The Poplar does otherwise. Its branches form a confused labyrinth of stems, crossing and recrossing one another, entirely impeding the progress of anyone who would walk beneath its shade. Is this a freak of this specimen only, or do all the Carolina Poplars exhibit the same peculiar habit of growth? Unfortunately, there is no record to show when or by whom this tree was planted, but we may safely presume that more than one century has been necessary to produce such a unique example of tree growth. The stem at 2 feet from the ground girths 13 feet, the first branch starting about 9 feet up the stem, while most of the others are found about 2 feet higher up. The greatest spread of branch is not that shown in the engraving, for a tape passed through the confused mass which covers the ground to the left of the centre stem, and in an opposite direction to

Two other trees upon the lawn worthy of note are a fine Tulip tree and a noble specimen of the deciduous Cypress, 70 feet to 80 feet high, with branches down to the ground. This tree is so distinct from all other Conifers in habit of growth, and especially in the light and fresh green tint of its elegant sprays of foliage, that it is surprising how sparingly it is planted. A little to the south-west of the house, but forming part of the grounds, is a wood intersected by numerous walks. Here, again, Oak, Elm, and Chestnut are striking in their magnitude. Two of the walks are especially beautiful. There are broad grassy glades, and one runs the whole length of the wood on the south side, commanding a view of a long range of the Downs; the other intersects the wood and forms a cool retreat from summer heat.

The glass department is not extensive, but

Strawberries, Grapes, Peaches, and Tomatoes are largely and well grown. In winter these houses are filled with Chrysanthemums, of which many hundreds are grown, and in the most useful form as large, bushy, dwarf plants, bearing a number of medium-sized flowers, which do not require any neck-stretching or ladder-mounting in order to see them. The kitchen garden is of fair extent, and is surrounded by good walls devoted chiefly to Pears and Plums, as Peaches will not thrive. In spite of the walls, however, the south-westerly winds sweep along the Downs and cause much damage in the garden. Herein is seen the benefit of the previously mentioned wood, which shelters the house from the line of prevailing winds. Doubtless this was the object its planters had in view, for even the most casual observer must have noticed that everything done by our forefathers about these old places received the best consideration, was well carried out, and in realising as we do such pleasure from the successful results of their handiwork, we cannot but regard these old places and all about them as memorials of the forethought, skill, and ability employed. A. H.

FLOWER GARDEN.

THE WATER FAIRY FLOWER.

(NARCISSUS TAZETTA VAR. GRAND EMPEROR.)

ON the 28th of December I received a bulb of this plant which a friend in New Jersey had sent to me, and a very large rough-looking bulb it was, with several offsets standing out from the main one at all sorts of angles. As a bulb it was ugly enough to make a Dutch grower feel quite angry, for it had not a single good feature about it from a bulb grower's point of view. I was told that these bulbs are imported from China in little bamboo buckets, and that they are accompanied by cultural directions in the language of the Celestial empire. The donor also told me not to plant it in soil or earth in a pot, as is the rule with us in Europe, but to place the bulb in a bowl, and to pile little stones on the top of it to prevent its floating, and then to fill the bowl with tepid water so as to cover it entirely, and then to place the bowl in a sunny window and await the results. This I did, changing the water once in twenty-four hours, as I was also directed to do. When the bulb came to hand it was quite soft and shrivelled outside, but after about a week's total immersion the bulb coats swelled out, and it began to feel quite plump and firm to the touch. In another week green points appeared and growth became more rapid, the first flowers opening in about six weeks after the bulb was planted in the bowl. The tallest leaves and flower spikes are now 20 inches high. There are in all eight growths from the bulb, five of which have yielded a spike each, and each spike bears from four to six fine flowers. The perianth segments are white and the cups bright yellow, having an orange tint, and they are deliciously fragrant. Altogether, there are five flower-spikes and about thirty leaves, and the whole now (February 14) forms a very beautiful ornament, and has been a source of much interest to myself and friends.

This Narcissus is very highly valued by the Chinese, who strive with each other as to who can grow the finest specimen for their new year's festival, and it was the emigrants to the United States from China who first imported the roots to America. They are now, however, imported by some of the seedsmen of New York and San Francisco, and are offered at from 40s. to 60s. per hundred. The finest roots

fetch more and are said to yield from seven to twelve spikes each.

The Chinese name of this plant is Water Fairy Flower, but whether it is a native plant or an introduction I cannot say. It may probably be a native, as *N. Tazetta*, in its varied phases or forms, is known to extend in a more or less unbroken line from the Canary Islands, through North Africa and the broad Mediterranean region, through Persia, Cashmere, and Northern India, and the mainland of China, and ending in Japan. It is a plant very often illustrated in Chinese and Japanese drawings, as may be seen by any visitor to the splendid collection now exhibited in the British Museum at Bloomsbury; indeed, the only species of *Narcissus* figured in Chinese or Japanese works on botany are *N. Tazetta* and *N. Jonquilla*. It would be very interesting to be assured that the last named is really a native of either North India, China, or Japan, as it is more often considered a rare species confined to Europe. *N. Tazetta* is one of the so-called sacred plants of China, and is illustrated by three original sketches in "Reeves' Plants of China," a series of native drawings now in the botanical department of the Natural History Museum at South Kensington. It would be interesting to know what are the sacred ideas attached to this flower by the Chinese or Japanese people, and I hope some visitor or resident in those parts of the world will kindly enlighten us on this point. The Japanese artists often give most spirited sketches in colour of *N. Tazetta*, showing its flowers and leaves as blown on by the wind, and very often—so often that one suspects that the constant union has a meaning—the little dusky wren (*Troglodytes parvus-fumigatus*) is associated with the flower.

Evidently there are more varieties than one found in China, or at least cultivated there. In the Reeves' series of drawings there are two single kinds, a larger and a smaller white with yellow cups, and a double-flowered form very similar to that we know as the double Roman, but which really seems to be a cultivated phase of a *N. Tazetta* found wild in the island of Cyprus. This originally came to Europe from Constantinople in the sixteenth century, and our more modern supplies being mainly grown in Italy may account for its popular name as used to-day. One of the most puzzling of all the peculiarities connected with double-flowered *Narcissi* is the fact that out of the two or three hundred varieties or phases of *N. Tazetta* now known only one should have yielded double-flowered forms.

No matter whether the Chinese *Narcissus*, or Sacred Lily, as it is also called, is really a native or not, one fact is clear, viz., that as grown in China the plant is very readily amenable to water culture, and as it grows at the rate of half an inch or more a day, or rather day and night, after its roots appear, it is just the kind of plant to interest invalids and children, or people who, knowing but little of plant growth, are impatient to see quick results.

Of course, bulb culture in water is no new thing, as it was quite usually practised in England many years ago, and no doubt well-grown bulbs of all kinds, especially *Narcissi*, Tulips, Hyacinths, &c., may quite readily be so grown; but the two points in which the Chinese method differs from our own is the total immersion of the bulb and the total change of water every twenty-four hours. Bulbs of *N. Tazetta* as grown in Holland, France or Italy and grown in pots of earth in our gardens are comparatively very slow in their development, and rarely produce more than two or three spikes of flowers

each, and it seems probable that the Chinese cultivators may conserve the energy of their bulbs by not allowing them to produce flowers for a year or two, and so induce the formation of more growth and flower-producing centres than is usually the case.

I have for many years had this Chinese *Narcissus* in my mind's eye, but never before had an opportunity of actually seeing a bulb and testing its rapid growth and profuse flowering character for myself. A very good and faithful account was long ago published in *THE GARDEN* by a New York correspondent (see Vol. I., 1872, p. 543).

It appears that the Chinese have a very interesting fable connected with their favourite Water Fairy Flower, and it is good enough to be repeated here:—

Thus once upon a time a father left his property to his two sons with the understanding that it should be equally divided; but the elder son seized all the tillable land and left the younger nothing but an acre covered with rocks and water. The younger son, failing to obtain justice, sat at the water's edge bemoaning his misfortune. A benevolent fairy appeared and giving him these *Narcissus* bulbs told him to drop them into the water. Shortly afterwards their flowers were developed, and the neighbours crowded to see the fairy's gift. In the course of a few years the badly-treated brother accumulated a fortune by the rapid increase and sale of his bulbs. Then the elder brother, envious of the prosperity of the younger, bought up great numbers of the bulbs—hoping to get a monopoly by getting all of them—at so heavy a price, that he was obliged to mortgage his property to procure funds for the purpose. He planted all his good land with bulbs, but they soon began to die, as they cannot live long out of water. He was ruined, while his brother, who had bought the mortgage, foreclosed it, and became possessed of the whole estate in time to replant some of the dying bulbs in the watery acre.

The Chinese call their variety Grand Emperor, and it bears some resemblance to the Staten-General of the Dutch growers, but is, I think, distinct from that variety, which I have never yet seen with five spikes from one and the same bulb.

So far as I know, these Chinese-grown roots have not as yet been introduced into England, but now that an experiment has been made and the most successful results recorded, perhaps more credit may be given to our brother flower grower, "the heathen Chinese," and an importation of bulbs next November or December would be sure to meet with a ready sale. Two or three of these roots in a glass vessel such as is used for gold fish, &c., would produce a charming effect when their fifteen or twenty spikes were laden with flowers. The New York bulb dealers offered them this season at £18 per 1000 roots, but no doubt they are much cheaper in the Chinese markets.

The bulb I tried so successfully was kindly forwarded by Mr. John N. Gerard, of Elizabeth, New Jersey, a well-known amateur gardener, whose cultural instructions as related above I carried out to the letter. An illustration of a double-flowered *N. Tazetta* growing in a bowl of water, is given from a photograph in *Garden and Forest*, March 21, 1888, but my specimen is a much finer one in every way.

F. W. BURBIDGE.

A gain in hardy flower gardening.—In *THE GARDEN* of Feb. 9, 1889 (p. 129), occurs a very interesting article quoted from the *Field*. I read it carefully, so should everyone who is in love with the flower garden. It advocates leaving the stems untouched of certain hardy plants—Japan and Sachalin Knotweeds, the Michaelmas Daisies,

Ferns, and a few others. This is good advice. Winter is as beautiful in its way as spring, summer, or autumn, but it is shorn of much of the beauty it would have by the annual clipping of every stem as soon as the first frost has withered the foliage. I was much struck with a bed of the Japanese Knotweed in St. James's Park the other day. All the stems had been left, and their rich brown colour gave almost as much pleasure in the weak sunshine of that December day as when the plants were full of leaf in July. This is only one instance of how much we lose by haphazard cutting down in the autumn.—T. W.

CHRISTMAS AND LENTEN ROSES.

THE last sentence in "F. W. B.'s" interesting article on Christmas Roses (Feb. 16, p. 141) helps to confirm an opinion I have formed with regard to *H. n. altifolius*, viz., that this variety will succeed with less sunshine and more moisture than the dwarf varieties of Hellebore. I have never seen this kind do so well anywhere else as it does on well-drained soil in the moist climate of Cornwall. Given good drainage, it did equally well in sunlight or in partial shade, and the best plants I ever had were grown at the north side of a large Oak tree, but quite clear of the branches. Some flowers from this clump reached in 1883 5 inches in diameter, and were borne on stems 18 inches in height. Very small bits of *Helleborus niger altifolius* grew well in partial shade here last year, but the typical *H. niger* has been a comparative failure, as in other places though grown in full sunshine on a well-drained border and in light, sandy, fairly rich soil. Another Hellebore which has done remarkably well this season is *H. foetidus*. This has grown fully 3 feet high, and is now opening its first flowers. It succeeds almost anywhere, and is so thoroughly robust and hardy that it holds its own in any company, amongst ground Ivy, under deciduous trees, and even under the common Laurel. Seedlings spring up here and there with tolerable freedom and at considerable distances from the parent plant, so that it should not be scarce by reason of its delicacy or fastidiousness. *H. foetidus* is a much neglected plant, but it should have a good time before it now that fine-foliated hardy plants are coming into greater favour. The handsome palmate foliage on tall, woody stems being in its greatest perfection in midwinter would make it specially valuable for winter groups.—J. C. TALLACK, *Livermere, Suffolk*.

—Writing in THE GARDEN, Feb. 16 (p. 141), "F. W. B." requests information respecting the behaviour of these plants during the past season. I visited several gardens in the neighbourhood of Taunton during the months of November and December for the purpose of noting the conditions of the early-flowering varieties of Christmas Roses. The most interesting lot of plants I met with was at Flook House, where there is about a score of very large clumps of the variety *maximus* growing in a variety of positions about the grounds, some in the shrubby borders partially shaded by trees, others in positions where they get all the sun. The condition of these plants left nothing to be desired, the foliage being large and healthy, and the blossoms of large size, pure colour, and freely produced. I should perhaps say that the majority of the plants have not been disturbed for several years, and that they are growing in a deep mellow, loamy soil with a decidedly moist bottom. The condition of these plants was such that it is quite evident that they like a deep holding soil, and the less the roots are disturbed the better. Except in places where they are made a speciality of, I question if anyone ever saw grander clumps of this variety. In another garden I met with a fine example of the *niger* variety growing in a tub about 2 feet over. This plant had about 300 flowers and flower-buds upon it, so that I do not think that the cold and damp summer of 1888 was altogether unfavourable for Christmas Roses in the west of England.—J. C. C.

—The climate of Germany is less favourable to the cultivation of *Helleborus niger* and its va-

rieties than that of England. We had this year long-continued frosts and no protective snow. Lately we have had heavy snow and 1° F., and in consequence of this the flowers were not so good as usual. With reference to the article on page 141, I beg to state that *H. niger lacteus* has proved most satisfactory. I cannot too strongly recommend this variety. A bed of two-year-old seedlings is quite a show just now, and the plants have been in flower since November. The flowers, as a rule, are not so large and not so well shaped as those of the Riverston variety, but this is compensated for by the quantity and the robust constitution of the blooms. Messrs. Paul and Son are in possession of plants of this variety. As to *altifolius* (*niger maximus*), I am led to suppose it will be eclipsed by seedlings coming on in a few years.—MAX LEICHTLIN, *Baden-Baden*.

DISEASED CHRISTMAS ROSES.

WHAT can be done to remedy the disease which has lately become so prevalent amongst Christmas Roses, especially the best and largest varieties of them? Mr. Burbidge has raised this question (p. 141), and anyone who can should answer it. Max Leichtlin has told us that prevention is in this case, as in most similar cases, easier and better than cure; but is there no cure, at least in the earlier stages of the disease? It is caused, as Mr. Burbidge tells us, by a minute parasitic fungus (*Peronospora ficariae*). Two other kinds of *Peronospora* are very destructive to certain crops; the one is *P. infestans*, the well-known Potato blight, the other *P. Schleideriana*, which in some countries destroys Onion crops. In the case of the Potato blight, the nature of the crop and the season at which it (the disease) appears make it hopeless to effect any cure when it is once established. But concerning the Onion blight we have a most interesting memoir by Mr. Arthur Shipley, published in the Kew Bulletin of October, 1887. Remedies are there recommended which would probably be equally efficacious for the Hellebore blight, and they certainly should be tried. The first is to spray the diseased plants with a weak solution of sulphate of iron, the proportions being three-twentieths per cent., or about 1 oz. to 5 gallons of water. The second remedy is to mix powdered quicklime with flowers of sulphur and to dust the diseased plants with it. Another expert in plant diseases advised me to try a solution of sulphate of copper in the proportion of about 3 ozs. to a gallon of water and to spray the plants with it. This solution seems very strong when compared with the small quantity recommended in the case of sulphate of iron, but I have tried repeated waterings with it without any bad effects. At the same time I shall proceed cautiously with it. The *Peronospora* is more difficult to deal with in the perennial Hellebore than in the annual Onion or Potato, as the spores no doubt fall in large numbers on to the herbaceous crown, and are carried up by the new leaves in spring to germinate and infect them, but the crown may be dressed with sulphur and quicklime, to which a little finely powdered sulphate of iron may be added, for Mr. Shipley informs us that sulphate of iron in the proportion of 56 lbs. to the acre makes an excellent top-dressing for a Potato crop, and may be expected to act as a preventive of the blight to which that crop is liable.

Edge Hall, Malpas.

C. WOLLEY DOD.

Heuchera ribifolia.—This Alum root has handsome foliage and is always attractive. In the growing season the darker shades of the velvety leaves are toned down into the rich green, giving a beautiful harmony of quiet colours. In autumn these colours change to red, and remain so through-

out the winter. A large group with the sun shining on it on a winter's day, seen with a side light and from a distance, looks very bright indeed, and rivals the brightest hues of the Mahonia. Such a group should not cover less than 2 yards of ground, or the effect is lost. Where room is plentiful, a large group should be grown in a raised position for winter effect, taking care to place it where it can be seen from east or west. This matter of position is important, as when seen from the south the effect is greatly lessened. It is a good thing when properly placed.—J. C. T.

A blue Primrose.—"A. D." at page 161 refers to the blue Primrose exhibited before the recent meeting of the floral committee of the Royal Horticultural Society, and seems to suggest that everybody else saw its great merits, as the very bluest of blue varieties, except the responsible body before whom it was placed. I pass no opinion on it, as my object in writing is merely to give my experience with blue varieties flowered so early in the year as January and February. I flower annually hundreds, perhaps thousands of these coloured Primroses, some of them from seeds I have saved, and some from seeds sent by Mr. Dean, and amongst them blue varieties, or at least what is termed blue, for they are all purplish blue. I have found that the cold atmosphere and dark days of January cause the flowers to be of a deeper blue than they would be if they opened in April. In fact, I had a blue one last year which I thought would come in at the Auricula exhibition in April, but the later flowers changed so much that they became more red than blue. I would like to hear from Mr. Dean whether there is any change in colour of the flowers that open in April. I lifted the plant that I allude to and the flowers opened in a frame, but the lights were often drawn off. The frame culture might, however, to some extent have influenced the colour.—J. DOUGLAS.

—Whilst I regret that my appellation of True Blue to the hardy Primrose I exhibited at the Westminster Drill Hall last week did not meet with your approval, I am consoled by the reflection that you thought so novel and striking a colour in the Primrose merited a certificate. But with respect to the real colour of the flowers, some considerable allowance must be made for the very bad light of the Drill Hall, which invariably kills blue and converts it into a purplish shade. Even in the middle of summer I have seen blue *Lobelia* flowers turned to violet when the plants were stood in a tent. But out in the clearer atmosphere of the country blue flowers (and some other coloured ones also) look very much brighter than they do in London at any time. For that reason I think the appellation of True Blue to the Primrose was not such a grave impropriety after all. The flowers of this plant are the very bluest we have ever seen in the hardy single Primrose. I have great hope that by eventually securing some seed, this Primrose, despised by the floral committee as it was, may none the less prove to be the progenitor of one of the loveliest, because bluest, races of the Primrose. I fear were we to invite in floral colours a discussion on the proper tints of a true blue, we should find it would be interminable. All the same, blue covers a very wide range of tints, just as green does. To remove criticism, however, I will find a less emphatic name for my blue Primrose.—A. D.

Delphinium Zalil.—I observe that this plant (seed of which is offered in the catalogues of most of the hardy plant nurserymen) is invariably spoken of and offered as a hardy perennial. Is there the smallest reason or evidence for supposing this to be the case? If I recollect right, there was a note about this plant in THE GARDEN some time last summer, in which its biennial character was spoken of as pretty well ascertained, and certainly from the growth and habit of the specimen that I saw last year flowering in the alpine house at Kew, I had and have no doubt myself that it is merely a biennial. A yellow perennial Larkspur with a good constitution would unquestionably be an acquisition to collectors of hardy plants in search of novelties. Even if the yellow, as is the case

here, were not particularly good, but yet another yellow biennial is, to say the least, quite another thing. There is no class of plants which have to "show cause" for their permanent admission into our already overcrowded gardens which have so much difficulty in getting the "rule made absolute" in their favour.—J. C. L.

FLOWER GARDEN NOTES.

FINE FOLIAGE & FLOWERS.—It has long been a question with me as to whether or not in ornamental gardening we do not over-rate the importance of flowers and not sufficiently value fine foliage, whether in tree or shrub form, or in that of a dwarfier description, such as *Phormiums*, *Yuccas*, *Grasses*, *Reeds*, *Bamboos*, *Funkias*, and the like. As a matter of course, in the summer flower garden one expects a preponderance of flowers, but, taking into account the long series of bad seasons, wet, cold, and sunless summers—weather in which the hardiest flowers cut a very sorry figure—I think that a reduction of numbers might be made with advantage, certainly with a greater prospect of more permanent beauty, because foliage better withstands both rain and wind storms, and there is no labour of picking over flower beds to keep them trim. Then, again, there is the additional advantage of all-the-year-round beauty that is obtainable from many plants, as, for instance, the *Yuccas*, *Phormiums*, Japanese *Honeysuckle*, *Bamboos*, *Arundos*, and suitable graceful evergreen shrubs, and for the summer season in particular there is an immense wealth of good hardy foliage plants, as, in addition to the above, there are the grand foliage forms of *Bocconia cordata*, *Melanthus major*, *Acanthus* (several varieties), *Ferula communis* and *F. gigantea*, and last, but not least, the many varieties of *Funkias*. Of the latter we have a large quantity of plants, some of which are being planted in the flower beds, and others in groups on the turf. Their only fault is that they begin to die away a little too early—a remark that applies to the *Ferula* also.

PERENNIALS.—I have just had a good look round the borders, and the one great regret is that they are so full of plants. The work of collection has occupied a long time, but in all my gardening experience nothing has given me so much pleasure. I have already visions of the grandeur of the flowers of, for instance, *Pæonies* that are now just throwing up their crimson shoots. The following are now to be planted: *Gladioli* in clumps of about seven corms each; *Hyacinthus candicans* in clumps of three bulbs each; *Lilium auratum* the same; giant French *Anemones* in groups of about nine corms; Spanish *Iris* in groups of five, and at the backs of borders as space admits *Sweet Peas* will be sown. Did labour admit of our doing it, we would carpet the whole of the borders as soon as planting was finished with *Sedums* and *Saxifrages* of various kinds. This, to my mind, completes the ideal of what a really beautiful herbaceous garden ought to be. As it is, we are compelled to be content with the planting of a few patches of these plants here and there near the front margins of borders.

PHLOXES AND PENTSTEMONS FROM CUTTINGS.—I am aware this is not a new departure, but as propagation by cuttings is not so general, I would like to say a word in favour of making it more so. First as to *Phloxes*. The raising of plants from seeds is an expeditious one, but as the strain cannot always be relied on, I prefer to propagate either by division or by cuttings. If the sorts be good, propagation by division of the roots gives, perhaps, the least labour, but the innumerable small shoots that spring from the base of the plants militate against the shoots that gain the mastery, producing such fine flowers as do shoots that are, so to speak, unweighted by them, and for this reason alone I prefer propagation by cuttings that are taken at the end of the summer, and inserted in handlights or cold frames, and there left to winter. We have numbers of such now ready to plant out, each of which during the coming summer will produce a fine head or two of flower, and next year will be in perfection and can be used to replace the positions vacated by the destruction of the old plants. In addition to

the reason given for preferring to increase *Phloxes* from cuttings, there is, as regards *Pentstemons*, another reason, namely, that of less hardiness of plants, it being no uncommon occurrence for old plants to die even though the winter is not severe. Hence propagation by cuttings taken at the end of the summer, inserted and wintered in frames, makes us indifferent as to the loss of the old plants. Seeds saved from a good strain come fairly true, and by sowing now in warmth and pricking off as soon as ready and growing them on in frames, good plants may be had that will flower well from next August onwards through the autumn. The time and bother of labelling have long since caused me to eschew the growing of named varieties of either *Phloxes* or *Pentstemons*. There is in fact nothing to be gained by the practice, seedlings being so invariably good.

PHLOX DRUMMONDI.—By selection these annual *Phloxes* have been so much improved of late years, that perhaps it is not too much to say that of the many good species of annuals there is not one that excels *Drummond's Phlox* either for massing for colour effect, or, as regards the compact section, for edgings to taller flowering plants. The colours are simply marvellous, there being almost every conceivable shade between pure white and deep maroon, and great as has been the improvement as to the colour, form and size of flowers, the habit of growth has been also improved. The compact section rarely exceeds 6 inches in height, and I have measured plants 10 inches across literally covered with flowers to the ground line. The larger-growing section are also much improved in habit of growth, and not being quite so free-flowering as the other section is, I think, an advantage, as the green of the foliage helps to show off the beauty of the flowers. The various colours may if desired be bought separate, and they come very true, but personally I prefer to see the colours intermixed, the separation as to colours partaking too much of the red, white and blue style of bedding out that was in vogue a few years since. Seeds sown at once in pans and placed in gentle warmth till germinated, then taken out and afforded space in a cool, airy pit till ready for pricking out in a cold frame, will make large plants for planting out about the middle of May. The soil for these annual *Phloxes* should be deep and highly manured; in poor soil they will exist all the season, but free growth and good and abundant flowering can only be had by high cultivation.

W. WILDSMITH.

TREE CARNATION MRS. LLEWELLYN.

I HAVE grown this variety since the year it was sent out from the Royal Nurseries, Slough. The flowers are clear deep rose colour, freely produced, exceedingly pretty, and very sweet. It is not of such a dwarf habit as some varieties, but much dwarfer than the usual run of English raised sorts. I have never managed to obtain the very best results from plants set out in the open ground. If they can be planted out in a favourable position, they are likely to grow freely enough, but however carefully they are lifted, the plants receive a considerable check, from which they do not speedily recover. The result is that the flowers do not develop perfectly; whereas if the plants are grown in pots all through the season, and placed under glass about the end of September or early in October, they are well established and ready to develop good flowers from the buds that have been formed out of doors. I find much depends upon the propagation and early culture of the plants whether they will be of great excellence or the reverse. If they are neglected or badly managed in the early stages of potting and inuring the plants to a cooler atmosphere at first, the results are seldom satisfactory. The small side growths are the best to select for cuttings, and they can readily be slipped out from the axils of the leaves with the fingers, and should be taken when quite full of sap. Some things, such as *Pelargoniums*, do best when the cuttings are taken from a plant that has been kept very dry at the roots for some days previously. *Carnation* cuttings do best when taken from a plant that has been kept fairly moist. A dozen may be inserted in a 5-inch pot in sandy soil, and if the pots are

plunged in bottom heat in the forcing house the cuttings soon form roots. They do better if covered with a handlight, but not kept too close. The important point is to get them rooted as soon as roots are well formed. Each little plant may be put into a small pot, and the plants will grow away freely at once if placed again over the hotbed, but they must not be left there long, because they are likely to be drawn up weakly. They would do better after the first week or ten days if placed on a shelf near the glass roof. The only object in taking so much care with them at first is to get them started into growth early and well, so that the whole season may be available to develop the plants into large flowering specimens by the time they have to be removed into the house in the autumn. They are really not kept under glass longer than merely to inure them to the open air, but it is not safe to place them out of doors before the month of May. Of course, it will be assumed that the plants are shifted into larger pots as they require it, using good loam, decayed manure in safe quantities, and some light peat or leaf-mould. It is also necessary to place sticks to the plants in the early stages of their growth, as only very dwarf varieties will stand upright without them, and green fly is a constant source of trouble. If it is not kept off the young shoots, they will not be able to develop healthy glaucous leaves, and the plants are sadly crippled by the pest. Dipping in soapy water, or fumigating if they are under glass, is about the best thing to do. The cut flowers of *Carnations* are more valued than those of *Orchids*.

J. DOUGLAS.

STOVE AND GREENHOUSE.

ERICAS OF THE VENTRICOSA SECTION.

ERICAS of the *ventricosa* section are a very beautiful class of the *Heath* family, and, like the majority of the genus, are quite destitute of fragrance. About a hundred years have elapsed since the first *ventricosa* was introduced to cultivation, and I am happy to say this section of the family still finds favour amongst gardeners, who have absolutely turned their backs upon this beautiful genus of greenhouse plants, under the plea that they are difficult to grow. The forms of *E. ventricosa*, however, are not difficult to grow, the majority of them being dwarf and bushy in habit, their foliage ample, and of a rich shining green colour, whilst our illustration gives a fair and by no means an exaggerated idea of their free-flowering character. Their flowers are all tubular, the length of tube varying in the different forms, and they are all destitute of the gumminess which is peculiar to many of the kinds of hard-wooded *Heaths*, so that the flowers of *E. ventricosa* are always clean, having a shining porcelain-like appearance. The plants of this section are free in growth, and will not require cutting back at any time, but the points of the shoots should be pinched out occasionally, or whenever it is thought necessary to increase the density of the specimen. The general treatment of these plants may be gathered from our details upon *Heaths* given in *THE GARDEN*, February 2 (p. 93). *Ericas* enjoy an abundance of light and air, and should not be subjected to fire-heat, saving in frosty weather, although I do think that the forms of *ventricosa* are a little more delicate than many other *Heaths*. The following are a few of the best kinds, beginning with the subject of our cut.

E. VENTRICOSA COCCINEA MINOR is at once one of the dwarfest growing and freest flowering kinds we have, and its leaves are of an intense deep green. As will be seen, the flowers are tubular, with a spreading reflexed limb. When the plant is grown indoors the tubes are of a delicate china-white and the limb is bright red, but if the plant

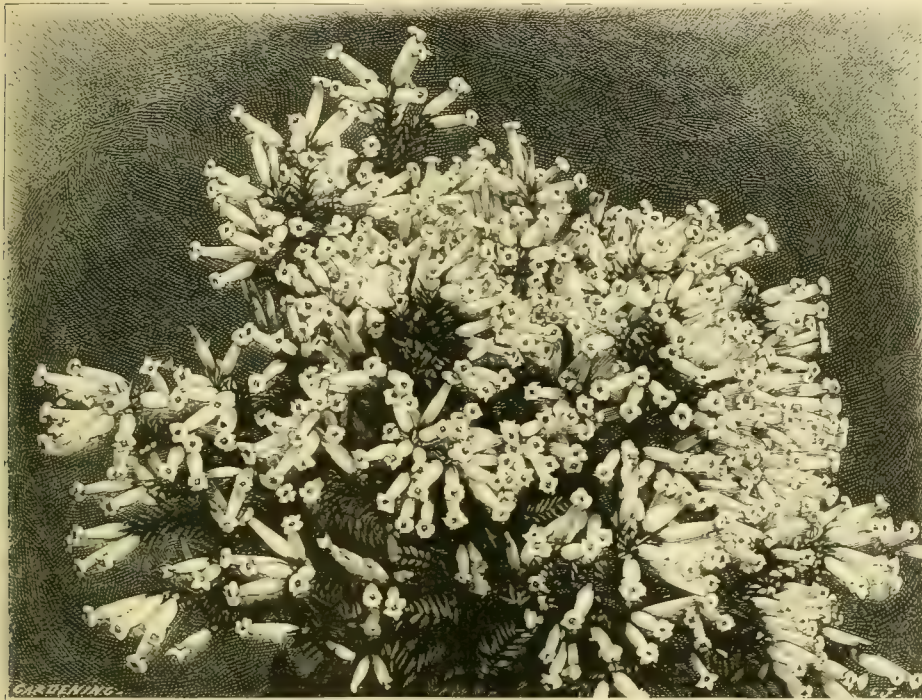
has been grown in the open air the tubes are tinged with red. It blooms during the months of May and June, and beautiful examples may be produced in $4\frac{1}{2}$ -inch or 6-inch pots.

E. VENTRICOSA CARNEA.—This form has longer tubes than the preceding and they are swollen at the base, whilst the colour is more delicate, being pale pink or flesh colour. June and July.

E. VENTRICOSA TRICOLOR is a later flowering variety, the end of July and August being the usual time for it to make a display. The flowers are similar to those of the last-named plant, but the limb is white, deep pink at the neck, and the tubes creamy white.

E. VENTRICOSA BREVIFLORA.—This is another spring-blooming kind, flowering through May and June; it is a somewhat taller and more robust plant. The flowers, which are disposed in large umbels on the points of all the shoots, are large, globose, and wholly deep rose.

E. VENTRICOSA SPLENDENS is also a strong-growing form with hairy foliage and large flowers,



A well-flowered *Erica* (*E. ventricosa coccinea minor*).

which are inflated in the middle, the tubes being china-white, the spreading limb rose and white. June and July.

E. VENTRICOSA GRANDIFLORA.—A strong grower, producing large flowers, which continue long in beauty; the colour deep rosy purple. June and July.

E. VENTRICOSA MAGNIFICA.—This is an erect-growing plant which requires more pains bestowed upon it to form a handsome specimen. No sticks are necessary for training the forms of *ventricosa*, and consequently they present a more natural appearance. The flowers are large and rosy red. June and July.

E. FASCICULATA ROSEA.—The flowers of this form are much inflated, the tubes being rose colour, and becoming deep purplish red at the neck. July and August.

E. VENTRICOSA ALBA.—A dwarf-growing, free-flowering plant, the tubes being slender and porcelain-white. May and June.

The above are a few of the most distinct forms; more might be added, but they differ only in colour.

W. H. G.

THE AMARYLLIS.

ALTHOUGH the cultivation of the Cape Lily, undoubtedly one of the most gorgeous flowers used for spring and early summer decoration, has made steady progress during the last few years, the plants belonging to that beautiful genus are not found in private collections nearly as plentifully as they deserve to be. They are of comparatively easy culture, in spite of all that is said to the contrary, and well repay the grower for his trouble. With the exception of *A. aulica* and *A. reticulata*, and of the hybrids raised from the latter species, such as *Autumn Beauty*, *Mrs. Lee*, &c., which flower naturally in the autumn, most of the other kinds are found to do best when managed with a view to their flowering at any time between April and June. As is the case with most, if not with all other bulbous plants, their flowering season depends not only on the treatment to which they are subjected, but also on the time of the year at which they are started, so that with a certain quantity of bulbs, flowers may be produced in succession from the beginning of March to the end of May, and even

done with them, the *Amaryllis*, on the contrary, may be grown under various conditions all equally satisfactory in their results. This was demonstrated beyond all doubt on the occasion of the Ghent Quinquennial Exhibition last April, when Messrs. J. Veitch and Sons showed a most remarkable group of these plants, which won the admiration of all who saw it, and which will long be remembered as the most magnificent floral display ever staged at a Continental flower show. The group on that occasion comprised over 1000 plants, each one a different variety. Among these all the sections were well represented, the colours varying from pure white to the brightest scarlet and the darkest crimson, with all intermediate tints possible, so that what are usually termed delicate kinds, which, according to some writers, "struggle for existence and require a different course of treatment," had been treated exactly like those with a vigorous constitution, and were in an equally satisfactory condition. Despite the exceptionally bad weather which we had to contend with from February to May last year, the flowering of all these bulbs was brought on in a singularly short space of time. They were only started in the middle of March, and kept under a specially high forcing temperature. Their flowers expanded in four weeks, which, considering the absence of light and the existence of cold winds, which totally prevented the ventilation of the house in which they were, may be considered a very short period. These flowers, though produced by treatment in which artificial heat and copious watering at the roots throughout formed the most prominent part, lasted, however, all through the show, and did not exhibit any signs of weakness, their petals being of good substance and their colours most brilliant. Now, the most remarkable point in connection with these flowers is the fact that all the bulbs then used were in their rough state; none of them had even been repotted; they were all started into growth in the pots and in the soil in which they all had grown, and some flowered the previous year. This is certainly contrary to the principles expounded by various authorities on the subject, yet the published results perfectly warrant the assumption that, though a great deal simpler, this mode of culture is as satisfactory as that which entails a greater amount of labour and which is in itself sufficient to deter any amateur with ordinary means only at his command from giving these worthy plants a fair trial. In the *Gardeners' Chronicle* of January 19, for instance, J. Douglas referring to these plants says:—

Repotting *Amaryllids* is rather a tedious work, as every bulb has to be examined in order to see that no decayed portion is left to spread and cause the death of the bulb at a time when life and beauty are expected, and to make sure that no insect pests have made for themselves a home under the scaly covering round the crowns. This is removed, and the part dusted with tobacco powder. We also require at hand a small portion of powdered lime, newly slaked, to dust on to the portion from which decay has been removed. I find all this makes potting rather tedious work, but it is best to do it thoroughly as you proceed, &c.

The foregoing quotation may possibly be considered good and sound advice to growers who have to deal with diseased bulbs, which I have never seen, but sound bulbs, such as are produced by a rational treatment, certainly do not require such tedious attention. If such were the case, it may safely be inferred that places like say Veitch's in England, De Graaff's in Holland, Van Houtte's in Belgium, in each of which establishments *Amaryllises* are grown by the thousand, would require more labour than is really bestowed upon them. The above remarks apply to one special case, a striking exception to the general rule in which, however, a treatment at high pressure has been applied with complete success; but though beneficial in that instance, it does not follow that such great heat or such amount of moisture is at all necessary under other circumstances. Far from it; for, besides several private places on the Continent, I well remember seeing *Amaryllises* largely and well grown in E. G. Henderson's nursery at St. John's Wood, in B. S. Williams' at Holloway, and at all these places the plants after the annual repotting were started into growth and allowed to develop their flowers much more slowly, yet the

results were identical. Nothing is so detrimental to the extension of the culture of certain plants, however beautiful or interesting they may be, as the belief that they require separate houses devoted exclusively to them, and a treatment which is not applicable to other plants among which one would like to grow them. In fact, the principle of mystifying the culture of a plant, or of a class of plants, or of applying to these a series of tedious operations, is radically wrong, and cannot be too strongly condemned. The culture of *Amaryllises* may be summed up thus: six months' active growth—two months' partial and four months' total rest. The six months of active vegetation may be said to last from February to July inclusively; during that time, if the plants have not been re-potted, they require abundance of water at the roots, and occasional applications of liquid manure are then beneficial to them. If, on the contrary, the plants have been subjected to an annual potting, which it has been conclusively proved is not strictly necessary, then the watering must be withheld until the root action is fairly started, which seldom takes place until a month, or even six weeks, after the operation has been performed. Until then they should be kept moist by occasional syringings, as well as through frequently damping down of the walks, side walls, &c.—a state in which they are all the more easily kept if the pots can be plunged in old tan or other suitable material. After the flowering is over, and when the roots have taken a good hold of the new soil, it is well, with a view to favouring the development of the bulbs, to water liberally, and there need be no fear of wetting the foliage, which by that time has attained its full size. The best material generally used for potting *Amaryllises* is a mixture of two parts good loam, one part fibrous peat, one part sand, and one part of partly decayed cow manure, the whole to be heaped up for about six months previous to its being required. In potting them it is also advisable to use a little silver sand, which is put at the base and round the bulb, with which it should be in immediate contact. As has been previously stated, the temperature to be given entirely depends upon the time allowed for the production of the flowers, and must be regulated accordingly. Daily ventilation, whenever practicable, strengthens the flower-spikes, as also does sunlight, which should not be kept from the plants until they are in flower, when to keep them longer it is found more expedient to shade during the hottest part of the day and dispense with moisture in the house. During the two months of partial rest, August and September, the grower's attention should be divided between gradually lessening the watering and fumigation, keeping the foliage free from thrips, which are likely to make their appearance as the atmosphere is kept drier. During the four months of total rest, from October to February, the bulbs require no attention. GANTOIS.

Crinum Hildebrandti.—A beautiful *Crinum* was recently flowering in Mr. White's establishment at Winchmore Hill. I am not sure that it was *C. Hildebrandti*, but it seemed very much like that kind; the flowers are produced in a dense umbel, the tubes being very long and slender and the segments of the perianth narrow, spreading, and creamy white, with long stamens. The flowers yield a delicate fragrance. It has been imported by Mr. White, and may probably prove to be new.—W. H. G.

Erythrotis Beddomei.—This is a pretty object in a stove planted in the natural manner, and also for growing in crevices in a stove fernery, as I recently observed it. I believe it was originally found by Colonel Beddome, whose name it bears, about fifteen years ago, somewhere in the Malabar Mountains. It is a trailing plant with closely set leaves, arranged in a two-ranked fashion, and imbricating at the base. The leaves are upwards of an inch in length, somewhat heart-shaped, green, very hairy above, tipped with reddish purple, the under side bright red. The brilliant colour of the reverse side of the leaf renders the plant a conspicuous ornament if planted above the eye or when

treated as a basket plant. I am told, however, that the colour of the under side of the leaves is more intense in the summer months than during winter and spring. The flowers are small, red, the stamens tipped with blue. It is an exceedingly interesting member of the Commelyneae, and should be more grown.—W. H. G.

WORK IN PLANT HOUSES.

STOVE.—ACHIMENES.—Where *Achimenes* are required to flower for a length of time during the summer, it is better not to start all the stock at once, for even when the plants are well managed they will only retain a presentable appearance for a certain time. There are few things that are so effective when grown in baskets. When hanging over the paths, alternately with Ferns, such as the freer growing species of *Adiantums*, *Davallias*, *Pterises*, and others of a like character also in baskets, the *Achimenes* have a very telling effect. Where the intention is to have a succession of bloom up to the end of summer in the way mentioned, a portion of the tubers should now be started. They will do either in large pans or shallow boxes; where the plants are grown in quantity boxes will be the most suitable. The tubers should have room enough, as if crowded, their delicate roots will suffer by removal when they have to be put in the baskets or pots in which they have to be grown. The soil in which they are started should be of a loose, open nature, such as a mixture of sifted loam, leaf-mould, and sand; the tubers ought to be put in about 2 inches apart, covered with an inch of the compost, and stood in a house or pit where a temperature of 60° in the night is kept up. The soil must not be too wet, neither should much water be given until the growth has begun to move. When a few inches of top growth have been made, the plants should be put in the baskets or pots they are to occupy; here, again, they should have plenty of room. If a second lot of tubers are put in about three weeks after these, and a third portion still a little later, a long season of bloom may be looked for.

GESNERAS.—The section of *Gesneras* that form solid tubers, of which the brilliant-coloured *G. Cooperi* and *G. Donckelaari* may be taken as examples, are not now so much in favour with plant growers as they used to be; and yet they are amongst the most beautiful of all stove-flowering subjects that are limited in size. These *Gesneras* are amongst the easiest of all plants to manage, so that with little attention the tubers will last for many years, increasing in size, and proportionately so in the quantities of flowers they are able to produce. Roots that were started a few weeks ago by subjecting them to an ordinary stove temperature, and moistening the soil in the pots in which they have been rested when 2 inches or 3 inches of top growth has been made, should be potted, giving larger pots if necessary according to the size the tubers have attained. Very large roots will do with pots 10 inches or 12 inches in diameter, for though much may be done to maintain the growth by the use of manure water, it is still a difficult matter to get a full head of bloom if the roots have not enough soil to support them. Good loam, moderately free in texture, with some leaf-mould, rotten manure, and sand, forms a suitable compost for these *Gesneras*. In all cases it is well, when potting plants of this description during the cold season, to warm the soil before using it, and to see that it is not too wet. Through inattention to this or allowing the tubers to remain for a day or so in a cold potting shed at the time of potting, many are lost. Drain the pots well, and do not put the tubers too deep, as the crowns should be just above the surface of the soil. When they are potted, stand them where they will be fully exposed to the light. If this is not attended to, the tops directly become drawn to an extent that is both detrimental to their flowering and general appearance. It is necessary to use the water-pot with care until the roots have begun to move in the new soil. Where an increase of stock is required, this can be had by striking the young shoots. They should be taken off when about 3 inches high; remove them by a clean cut at the base where they spring from the

tops of the tubers; put them singly into small pots filled with sand; cover with propagating glasses, but do not confine them more than is requisite to prevent their flagging, as if too close they will damp. If kept in a temperature of 70° by night the cuttings will soon strike; shade from the sun. When well rooted, move the plants into pots two sizes larger, and grow on through the summer in ordinary stove heat.

GLORIOSAS.—These very distinct flowering subjects are well worth a place in the stove. Their elegant flowers come in at a time, viz., during the latter part of the summer, when the bulk of the flowering plants are over. It is now time to pot the bulbs, which will have been kept through the winter in dry earth, sand, or other material. When the roots are strong they may be put at once into the pots they are to be grown and flowered in, or they can be started in smaller ones, and afterwards, when they have made some progress, be moved into large ones. Full-sized roots should have 15-inch pots. With sufficient room, these plants attain more size, and are proportionately more effective. In the case of roots that have not reached their full size, two or three may be put in a pot. Loam of good quality, with a little leaf-mould, rotten manure, and sand, is the right soil to grow *Gloriosas* in. Though the plants may be trained as roof climbers, they are better grown in pots than planted out, as, in common with most things of an herbaceous habit, they like the soil renewed every spring. When grown as pot specimens provision should be made for training them; this may consist of ordinary wire trellises, or several sticks inserted within the rims of the pots. Care must be taken that the shoots are kept regularly trained.

POINSETTIAS.—The plants that were grown for late blooming will now have done flowering, and should be dried off and stored away where there is a little more warmth kept up than in an ordinary greenhouse, otherwise there is danger of the roots perishing.

EUPHORBIA JACQUINLEFLORA.—When well grown this is one of the best of all winter-blooming subjects. The brilliancy of its flowers, combined with elegant foliage, make it suitable for arranging amongst other cut flowers, and as a decorative plant in the stove it has few equals. To grow this *Euphorbia* well it requires to have warm stove treatment, especially during the spring months, until the plants get well established. Whatever young stock is wanted should be struck early, so as to admit of a long season of growth. The plant often gets the character of being difficult to strike, which is the case if the cuttings are taken off in the ordinary way, as the soft sappy shoots are liable to decay. But if they are taken off with a heel when from 4 inches to 6 inches long, few will fail to make roots. Plants that flowered early, and that have been kept in stove heat, will now be furnished with plenty of serviceable young shoots. These should be severed with the base of firm wood attached. Lay them on the potting bench under a propagating glass for a few hours, so that the milky sap may dry up. Then strip off a few of the bottom leaves. Three or four cuttings may be put in each pot; 3-inch pots are a suitable size to use, and these should be half filled with sifted loam to which a little rotten manure and sand have been added; the remaining half ought to be all sand. Cover with propagating glasses or stand in a propagating frame, but if in the latter and it happens to be far from the light, as such contrivances often are, it must not be kept too close; yet the cuttings must not be allowed to flag in the least. Keep the sand quite moist. A temperature of 70° will answer, or if a little more no harm will follow. Shade from the sun when the weather is bright. Managed in this way, the cuttings will strike in about three weeks. When they are well rooted tilt the glasses, gradually giving more air until they may be dispensed with altogether. Encourage growth with more heat as the days get warmer. This *Euphorbia* is naturally a spare, erect grower, and, if required to be bushy, the plants will need stopping; but where there is enough head-room it is better to let them run up with single stems. The roots do not like

disturbing, and when the plants require shifting it is better to move them together just as they have been struck rather than separate them in the usual way. It forms fewer roots than many plants; 6-inch or 7-inch pots will be large enough. Later on, about the beginning of June will in most cases be the right time to repot. One shift is all that will be wanted. From the time that the little plants are well established they should be stood with their tops close to the glass, lowering them as they extend. When sufficient cuttings have been obtained, the old plants may be turned out of their pots, and have as much of the soil taken away as can be done without much disturbance of the roots. The plants should then be put in pots a size or two larger, giving them new soil, and afterwards treating them in a similar manner to that recommended for the young stock.

IXORAS.—Early in spring is a good time to strike *Ixoras*, as then the plants have the whole season before them to gain strength. To grow them well they should never be allowed to stop growing, for if this occurs they never move freely afterwards. Needless to say, they do not make so much progress in the winter as in summer, but they should always have enough heat to keep them moving; this is especially the case with *I. coccinea*, which for the size and colour of its flowers, their durability, and the general appearance of the plant when it is well managed, is still by far the best kind. None of the other species or the numerous varieties that have been raised are equal to it. The tops of the stout shoots that have sprung direct from the collars of the plants make the best cuttings. These should consist of about three joints; remove the bottom pair of leaves, and trim the base so as to leave the joint entire. Put each cutting in a small pot filled with sand. If a bottom-heat of 80° or 85° can be given, with top heat of about 70° in the night and a proportionate increase by day, the cuttings will root in three weeks. The bottom-heat can be dispensed with, provided the temperature of the house is kept at something like that named. When the cuttings are well rooted, move them into 4-inch pots, using good brown fibrous peat with enough sand added. Young plants struck last year should now be moved. If they are strong and have plenty of roots a large shift may be given. If now in 7-inch or 8-inch pots, they can be put into others 12 inches or 13 inches in diameter. Give them the best peat, using it in a lumpy state, with sand in proportion to the nature of the peat; drain well, and pot moderately firm. Keep the stock, both large and small, well up to the light. Syringe overhead each afternoon, and keep the plants free from insects. T. B.

Eupatorium atrorubens.—This plant is better known under the name of *Hebeclinium atrorubens* than that of *Eupatorium atrorubens*. The *Eupatoriums* and *Hebecliniams* are, from a garden point of view, quite distinct from each other. *H. atrorubens* bears large, widely-branched clusters of purplish-lilac flowers, the stalks and young shoots being also thickly covered with reddish hairs, that impart to them quite a velvety appearance. The other species, *H. ianthinum*, is in general appearance a good deal like the preceding, except that the shoots are wanting in the velvety character and the colour of the flowers is pale lavender. Both are easily grown, quickly attain a good size, and remain in flower a considerable time. Treatment such as that given to *Salvias* and other winter and spring-flowering subjects will suit them perfectly. They are easily propagated by cuttings at any time of the year that young growing shoots are to be procured.—H. P.

Stauntonia latifolia.—This Himalayan climber is fairly hardy in the more favoured parts of England, but it is most at home when treated as a cool house plant, and being of strong and vigorous growth it is suited for large structures. The dark green leathery foliage renders it a handsome plant at all seasons, while just now the flowers impart an additional feature. They are borne freely in loose clusters from the axils of the leaves, and though their colour (a kind of greenish-purple) does not

render them in any way conspicuous, their delicious fragrance will at once attract attention. There is another species, *S. hexaphylla*, which has ornamental foliage, and the flowers are borne as freely as in *S. latifolia*, but they are not so agreeably scented. The blooms of this last are whitish-green. *S. latifolia* is also known as *Holboellia latifolia*.—T.

Rhododendron multiflorum.—This is an extremely useful *Rhododendron* for flowering in a small state, as little bushes not more than 6 inches or 8 inches high are quite covered with blossoms, which are borne in comparatively large clusters. The colour of the flowers is a pleasing shade of blush and the edges of the petals being crisped give to it a somewhat uncommon appearance. There is another variety, *Pixie Queen*, which in appearance is very like *multiflorum*, except that the flowers are white. With very little forcing they may be had in bloom by February, and when subjected just to the ordinary temperature of the greenhouse, they will flower by the early part of March. *R. multiflorum* has been employed by the hybridist in conjunction with the large white-flowered *Edgeworthii*, the result being such valuable varieties as *Countess of Sefton*, *Duchess of Sutherland*, *Mrs. James Shawe*, and *Lady Skelmersdale*.—H. P.

Siberian Squill (*Scilla sibirica*).—Subjected to the treatment usually given to Tulips to induce them to bloom early in the season, the *Siberian Squill* may be had in flower by Christmas, but the blooms are not so fine as those borne by bulbs that have not been subjected to such severe forcing. To induce them to bloom, however, by the early part of February, little more than the protection of a frame is necessary, and at this season pots of the *Scilla* in full flower form a very conspicuous feature in the greenhouse, the colour of the blossoms being so generally admired. *Scillas* also remain in beauty a considerable time, and if planted after flowering in a sheltered spot, they will, unlike many bulbs, bloom again the following year. *Chionodoxa Lucilæ* will also flower under similar conditions; but though knowing that many readers of THE GARDEN are of a different opinion, I still prefer the *Scilla* to its newer rival.—H. P.

Cydonia Maulei forced.—When forced into bloom thus early in the season *Maule's Pyrus* is exceedingly pretty, and in colour very distinct from most shrubs employed for the purpose. When plants are required for forcing they should be grown in a light position and well exposed to the sun, in order that the shoots may be thoroughly ripened. The lifting and potting should be done in the autumn just before the leaves fall, as the plant gets somewhat established before winter sets in. In common with all other shrubs that are induced to bloom prematurely, the most satisfactory results are obtained when the forcing is carried on gently, as if the blooms open in a very high temperature they do not last nearly so long as when they expand under cooler treatment. A well-flowered specimen will have the slender shoots closely packed with its distinct orange-red blossoms, while the tender green of the unfolding leaves supplies another very pleasing feature.—T.

Asparagus tenuissimus.—This is a pretty kind, somewhat in the way of *A. plumosus*, but it is altogether lighter in texture—so light, indeed, that after syringing, when the moisture is hanging in countless little drops from all parts of the plant, it seems like a cloud of mist. It is an extremely pretty plant for furnishing the rafters of a small house, as it clothes them with its beautiful delicate masses of greenery, which from their slender character do not obstruct the light in any way. Like the other species, the sprays of this are very useful in a cut state, as they retain their freshness for a considerable time, and if a piece is cut off, other shoots are rapidly pushed forth, so that a few plants will furnish a great number of cut sprays. One point in favour of *A. tenuissimus* is that it is less heavy than *A. plumosus*, and can be readily increased by cuttings, which the beautiful *A. plumosus nanus* cannot be. Small plants of the first-mentioned *Asparagus*, which are very useful for many purposes, can be obtained by putting about half-a-dozen cuttings around the edge of a 3-inch

pot, when they soon root if kept close in a propagating case in the stove, and after being hardened off they may be shifted into pots a size larger, when they form globular-shaped masses of delicate bright green foliage. When growing strongly the plant will acquire a climbing character, but in small pots it retains the dwarf bushy habit for a very long time. It will grow very well in a greenhouse, but makes more rapid progress in a structure kept at an intermediate temperature.—T.

ORCHIDS.

W. H. GOWER.

DENDROBIUM LODDIGESI.

THIS is a lovely little plant, introduced to this country upwards of fifty years ago by the then famous nurserymen at Hackney whose name it bears, and to whom it was dedicated in 1887 by Rolfe, of Kew. This plant up to that time had been known in English gardens by the name of *D. pulchellum*, but now one seldom sees it at all. I was, therefore, pleased to find last week in my rambles a plant just coming into flower and bearing as many as fifty-four blooms, which will all be open in a few days. This plant well bears out the name of *D. pulchellum*, by which it is still generally known. Upwards of thirty years ago this plant was figured by Sir William Hooker under the name of *pulchellum*, but evidently under doubt, as he says: "This is the *Dendrobium pulchellum* of our gardens, and of Maund and Loddiges, there can be no manner of doubt, but I am by no means clear about it being the *D. pulchellum* of Roxburgh and Lindley." The plant has now been found not only to be distinct from Roxburgh's plant, but not even a native of India, as it has been gathered in the Chinese island of Hainan by Mr. Ford, of Hong-Kong. The history of this plant having been cleared up by Mr. Rolfe, we now must know it as *D. Loddigesii*, and still live in hopes of seeing the true *D. pulchellum* introduced by someone from Northern India. The particular plant in question filled a Teak-wood basket and has been grown in the Cattleya house for some years during the summer season, and rested in a cool house where zonal *Geraniums* were grown for winter blooming. There it ripens up its bulbs and sets its flowers, during which time it is kept without water at the roots, and the dry atmosphere of the *Geranium* house, which is kept at a temperature of from 45° to 50°, suits it admirably until its flowers begin to push up, when it is removed to a warmer house and water given carefully until the blooms are fully developed. This treatment appears to be quite congenial. This plant is, unfortunately, rare in collections, although some thirty years ago it was largely grown by several of the London nurserymen, the Messrs. Jackson and Sons, of Kingston, especially holding a large stock. It is a small plant, bearing slender bulbs, which seldom exceed 6 inches in length; these are clustered, nearly uniform throughout in size, striated, and leafy to the base; leaves small, fleshy, and deep bright green. The majority of these fall away during the resting season. The flowers, which are produced singly from the joints, are some 2 inches across; sepals and petals spreading, soft lilac, the petals being much broader than the sepals; lip large, deep orange-yellow in the centre, which is narrowly bordered with white, the margin being bordered with purplish lilac. The edge of the lip is also beautifully fringed with long fine hairs. The above is a description of the plant now flowering, but years ago I used to have a variety in which the sepals and petals and the marginal

border of the lip were of a rich deep rosy purple. Both forms, however, are very beautiful, and well deserve cultivation.

Phajus Wallichii.—A fine spike of this useful old Orchid comes from "Inquirer, Manchester," who says he bought it for grandifolius, and asks if it is true. It is not true, and you reap the advantage by its not being so, as Wallichii is a much finer species. Both these kinds are extremely useful for winter blooming, and being terrestrial plants they are easily accommodated in an ordinary stove with other plants.

Dendrobium Wardianum candidum.—A beautiful flower of this choice and rare variety comes from Mr. R. J. Measures, Ladymead, East Harting, Sussex. The flower measures 3 inches across, the sepals and petals being broad and flat and pure white; the lip is also white in front, the base stained with orange, and bearing the customary two deep crimson eye-like spots. It is a great beauty, and was, we believe, introduced from Burmah by the Messrs. Low, of Clapton.

Cattleya Trianae (Mr. Clarke's variety).—A flower of this grand form comes from Mr. Carr, the gardener at Croydon Lodge. It is a superb flower, the petals measuring upwards of 7 inches across, each petal being nearly 3 inches wide, and together with the sepals of a uniform rosy lilac; lip 3 inches long and 2 inches wide, rose colour, the anterior lobe bright crimson-magenta extending up to the throat, and there cut off in a straight line by bright orange, which extends to the base of the throat, the margin beautifully frilled all round. This grand form is one imported by the late Messrs. Rolliison and Sons, of Tooting, who in the year 1876 received a consignment of this species, said to have been selected in their native country with great care. This one certainly verifies the statement.

Cypripedium macranthum.—I am delighted to learn from "G. R." that this rare and lovely Slipper Orchid is readily managed out of doors, and that he has been so successful in its culture. Why it should not be so I cannot understand, but I much fear that my non-success as well as that of nearly a dozen other persons I could name, has been owing to miserable roots having been supplied. More than once I have purchased roots at a big figure, but they never did well, and I have this consolation at least that they were well and naturally planted. Some people confuse this Orchid with the commoner *C. spectabile*—it was shown as such at a meeting of the Royal Horticultural Society last year—but there are marked differences between the two.—A. D. WEBSTER.

—Mr. Webster is the very last man I should think of disputing with upon the management of hardy Orchids, but I cannot help thinking he has been somewhat strangely circumstanced with this fine species. I used to grow it with other hardy kinds at the Tooting nurseries of Messrs. Rolliison and Sons, and never experienced any trouble with it. I well recollect being astonished some years ago in Russia at seeing it forced and flowering in the month of May, which was just at the time of the break up of the winter, so that I would advise Mr. Webster to give it another trial.—W. H. G.

Miltonia Warszewiczii.—This plant was, I believe, first sent to this country by Mr. O'Reilly about the year 1868, and it obtained in gardens the names of *Oncidium fuscum* and *O. Weltoni*. Since that time various forms have appeared, but one which was recently sent me by Mr. Bonny, of the Hextable Nurseries, Swanley, is by far the finest form which I have yet seen. He says: "My plants were collected by Mr. Carder, and from time to time I have flowered some excellent forms, but this one is by far the largest and most beautiful which has yet opened." As in the typical plant, the sepals and petals are small and prettily undulated. They are in this form dull purple tipped with white, the lip large, considerably over an inch long and as much broad, fringed at the edges and bi-lobed in front. The base is bright velvety maroon. In front of this is the charac-

teristic broad, shining patch of brown, and in front of this is an irregular band of rosy purple, the outer edge white, whilst a small bright yellow spot appears on the disc. It comes from New Grenada, and thrives well in the cool house with the *Odontoglossums*.—W. H. G.

ORCHIDS AT KENWOOD, AMERICA.

THE Orchid houses at Kenwood are now very showy. Nearly 200 species and vars. are in flower, many of which are grown in large quantities for cut flowers. *Lælia anceps*, of which there were about 400 spikes of bloom, are now all over, excepting a few albino varieties, notably Hilli and Veitchi. These usually bloom much later than the type—of course, by keeping the plants very cool the flowering season may be prolonged to early spring, but we find them most useful early in the season—those that are in flower now being the commoner kinds of *Phalæopsis*, *Cœlogyne*, *Lycaste*, and *Calanthe*; the two latter are by far the most useful and best for general house decoration. *Phalæopsis* flowers do not last long when cut, unless allowed to float for a few hours in water, when they seem to absorb sufficient to preserve them for a long time. This should also be done to the large branching spikes of *O. Pescatorei* and the *Chimæra* section of *Masdevallia*. *Phalæopsis Schilleriana*, *Stuartiana*, *amabilis*, and about a score of other kinds, notably *Harriettæ*, the most remarkable hybrid yet produced; *intermedia*, and its two forms *Brymeriana* and *Portei*, the last much the strongest bloomer, also *P. casta* and *leuchorrhoda*, with the pale var. *alba*, which has large branching spikes of bloom, are carrying hundreds of flowers. *Denticulata* is one of the newer kinds, and is in the way of *sumatrana*, but is not nearly so good. *Gloriosa* is in fine form but one plant is enough. *Veitchi* is very attractive and strongly betrays its origin. Of *Sanderiana* there are several forms, one of them being as dark as *Schilleriana*, and another called *marmorata* is very near *casta*, but not nearly so striking as *Day's* variety of *amabilis*. In the same house with these there is a nice batch of *Odontoglossum Roezli* in full bloom and evidently at home. It is in company with *Phajus tuberculosis*, which will soon be in flower, having six flowers. This Orchid grows like a weed with us, the roots not only filling the pots, but rambling in the gravel of the shelf. The maximum of heat in summer is 110°, and the winter minimum about 65° with a syringe overhead at least three times a day. The *Bollea*, *Pescatorea*, &c., section (now classed with *Zygopetalum*) like this treatment; also *Dendrobium McCarthyi*. *Angræcum descendens* and *A. Chailluanum* are in flower on the posts. Among the *Vandas* the conspicuous kinds are *cærulea* (now on the wane); also the handsome *Sanderiana*, which has been in perfection about two months. *Gigantea* is bearing two immense racemes of its fleshy yellow and chocolate flowers. Several plants in bloom of *Saccolabium giganteum* give a pleasant fragrance to the house. In the same structure are large plants of *Angræcum sesquipedale* and *A. eburneum* finely in flower. These plants require more liberal treatment in respect to soil than is usually recommended. The craze for *Cypripediums* is becoming worse on this side of the Atlantic, and I am sorry to say, in some instances, to the neglect of other and far superior Orchids. There are over 200 kinds here, with about fifty in bloom; some of these are really excellent Orchids, and of which too many can scarcely be grown for cutting. *Leeanum superbum* is among the best, combining the merits of two grand kinds. *Microchilum* is a splendid hybrid, very free growing, and produces two flowers to a scape. *Orphanum* is very attractive. *Arthurianum* grows as freely as *insigne*, but is probably not so attractive as its near relative *veixillarium*. *Amandum* is a spotted form of *Crossianum*, and an improvement. Two large plants of *nitens* and *marmorophyllum* are blooming freely. Among those of the *Selenipedium* type, *cardinale* and *candidum*, which have large many-branched spikes, are prominent. In another house a large batch of *Phajus Wallichii* and *grandifolius* will soon be in flower; also plants of the superb hybrids *irroratus* and *i. purpureus*. *Maculatus* and

its green-leaved form *intermedius* are very showy in bloom. The *Cattleyas* are a little backward with us this year, the flowers of *C. Percivaliana* being almost over, and a few good varieties of *Trianae* may be noted, such as *alba nivea*, *Penelope*, very distinct both in flower and leaf; the large-flowered *Russelliana*; also the pretty and fragrant *bogotensis*. *Lælia Gouldiana* proves a free-growing kind and quite an acquisition. (I read lately that *Crawshayi* is not a hybrid, but only a highly coloured form of *albida*. I strongly doubt this.) A large plant of the useful *Epidendrum prismatocarpum* is blooming freely; this plant is in active growth all the year round. In the cool house several plants of *Cymbidium Lowianum*, also the rare and pretty *Hookerianum*, are in full bloom, and will probably last nearly four months. *Odontoglossum Inseayi* is a fine Orchid for this season of the year. Hundreds of *O. Pescatorei* and *crispum* are also in flower and in great variety. The large form of *pulchellum* is carrying a score of spikes, and we have several forms of *mulus* in bloom, that of *Bocket's* being probably the best. *O. baphicanthum* is a finely spotted form of *Andersonianum*, and *O. Coradinei*, though not showy, is quite attractive, and some forms are good. The unique plants of *Shuttleworthi* and *Shuttleworthæ* are both in bloom, the former with bold, handsome flowers of the *Wilckeanum* type, while the latter combines the best qualities of *Pescatorei* and *triumphans*. *O. luteo-purpureum* produces the strongest spikes with us, many of them 4 feet long and abundantly flowered. Several *Masdevallias* are in flower, notably a large plant of *Carderi*.

F. GOLDRING.

GARDEN FLORA.

PLATE 690.

GLADIOLUS-FLOWERED CANNAS.*

THIS name has been suggested for a remarkably beautiful class of *Cannas*, whose blossoms are almost as large and showy as those of the *Gladiolus*, while besides this many of them flower freely when quite dwarf, and are consequently well adapted for pot culture. These *Cannas* have within the last year or two become very popular in this country, and were exhibited several times last season by some of our leading nurserymen. Their merits also met with recognition at the hands of the floral committee of the Royal Horticultural Society, as no less than seven of them were awarded first-class certificates during the year 1888. The merit of the great improvement effected in *Cannas* as flowering plants within the last few years belongs to M. Crozy aîné, of Lyons, in France, who has devoted a considerable amount of time and attention to them, and indeed makes quite a speciality of their culture and distribution. In addition to the certificates bestowed upon these *Cannas* in this country, they have also gained a number of different awards from various horticultural societies in France. One great merit possessed by them is the length of time over which their flowering season extends, for though the individual blooms do not last very long in perfection, a succession is kept up for a considerable period from the same panicle, as the laterals develop after the expansion of the earlier blossoms, and in the case of a large established plant shoots sufficiently strong to flower are pushed up one after another throughout the growing season. All of this class of flowering *Cannas* will thrive in the open ground during the summer months, but it is when treated as greenhouse plants that they are especially valuable, as the blooms are soon injured by wet weather. Of course, they may be more effective during a warmer summer, but last year was very trying to plants of this

* Drawn for THE GARDEN by H. G. Moon, at Messrs. Veitch's nursery, October 27, 1888. Lithographed and printed by Guillaume Severeys.



INDIAN SHOT (1. CANNA. LOUIS THIBAUT. 2 C. VICTOR HUGO.)

character. The finest blooms are, as a rule, borne during the months of July, August, and September, but the plants will continue to flower long after that time; indeed, right on into the winter months. Where intended for very late blooming a temperature above that of an ordinary greenhouse is essential to success, but we subject ours to about the same treatment as a Fuchsia requires. No artificial heat is given them throughout the summer months, and they both grow and flower beautifully. When in bloom they are greatly admired, presenting as they do features totally distinct from those of the other plants employed for the embellishment of the greenhouse. Cannas are, as is well known, gross feeding subjects, and consequently when grown in pots they need very liberal treatment to secure the best results. They are all easily increased by division, while seed, from which

orange-red flowers. *Madame Just*, rich orange-yellow flowers. *Paul Bert*, very deep-coloured foliage, while the flowers are of a yellowish amber tint. *Ulrich Brunner*, deep red foliage and scarlet-crimson-coloured flowers. *Revol Massot*, the first of this class that I saw in flower; this has green foliage and very bright glowing crimson-coloured flowers. This variety, as well as *Geoffroy St. Hilaire* and *Capricieux*, was sent out as long ago as 1885. *Pictata* is an exceedingly pretty variety, the flowers being yellow, thickly spotted with light crimson. M. Crozy sent out twelve new sorts last spring, but they are not seen to the same advantage the first season after distribution as they are later on when stronger.

There is also another section of Cannas remarkable for their beautiful blossoms, one of which has been already illustrated by a coloured plate in *THE GARDEN*, Oct. 21, 1886. I allude to *C. iridiflora Ehemanni*, a bold, stately-growing



Canna iridiflora Ehemanni.

young plants can be quickly raised, ripens readily enough in this country. The seeds grow much more rapidly if soaked for twenty-four hours before they are sown, as the outer coating is so very hard. I find that seedlings raised from this large-flowered free-blooming class retain the peculiar characteristics of their parents. M. Crozy publishes a very long list of varieties, but it is certainly difficult to distinguish the points of difference between some of them; indeed, it is necessary to make a selection rather than grow a collection, though all are very beautiful. Some of the best varieties would include, besides those represented in the coloured plate, the following, viz. :—

Admiral Courbet, handsome deep green foliage and bright yellow flowers, spotted with red. *Capricieux*, flowers bright crimson, edged and flaked with yellow. *Francisque Morel*, rich green foliage, and flowers of a deep crimson hue. *Geoffroy St. Hilaire* has handsome dark foliage and very large

plant with drooping clusters of large deep carmine-coloured flowers. It forms, indeed, a splendid object in a warm structure, but requires more heat than the class of Cannas previously mentioned. I saw a splendid example of this at Pendell Court in the time of the late Mr. Green (see illustration). The plant there was growing on the margin of a large tank, planted on a mound of earth, in such a position that the roots had free access to the water, and these conditions seemed to suit this Canna.

H. P.

Road-scrappings.—In country districts these are generally obtained during the winter months, and for certain purposes are most valuable. In the case of old vegetable gardens and orchards a dressing of road-scrappings would very often do far more good than two or three applications of manure. For close moisture-holding soils, which are difficult to work after rain, road-scrappings are excellent, as

owing to their gritty character they render such soils more friable and porous. More valuable than the scrapings, however, are the parings, which consist of grassy particles, and therefore contain a considerable amount of organic matter. If these parings are liberally supplied to poor, light soils, they improve them in a wonderful manner. Generally the scrapings and the parings can be bought at a cheap rate, and I would recommend all who intend using the former to obtain the first lot collected, as this contains a large amount of manurial matter, which during the summer months has been ground down into powder.—J.

FRUIT GARDEN.

W. COLEMAN.

PROTECTING FRUIT TREES.

THE pruning and training of all fruits, the Peach and Fig excepted, having been brought to a close, the most pressing and important work in this department is the protection of the blossoms from spring frosts. Applied at the right time—that is, just before the flowers begin to unfold and light enough to admit fresh air, or upon a principle favourable to full exposure of the trees through the day—protection, no doubt, is of great use, especially in low, damp situations. Applied at the wrong time and heavy enough in bulk or texture to exclude light and air, protection not unfrequently does more harm than good, as keeping the young growths and flower buds close, warm, and in a state of semi-darkness renders the latter too weak and tender to set, no matter how mild and favourable the season. When to apply protection, then, is a question which each person must decide for himself; how to apply it or what to use will depend upon the facilities and materials at the fruit grower's command and disposal. If gardeners of the present day could select the site for the fruit garden, nine out of ten would pitch their tents where concrete and drainage might be dispensed with, and their fruit trees would rebel against protection. But it unfortunately happens that nearly all the best old gardens lie below the line of frost and fog where fruit growing is carried on under the greatest difficulties; hence the necessity for retarding the flowers in early spring and hastening the maturity of the wood in the autumn. The man whose lot it is to labour in these death traps, unlike his more fortunate brother perched on the hillside, soon becomes master of the art of retarding, of thin training, of performing every operation at the right time, and although no one outside the craft gives him credit, he frequently comes off victor in his many battles with the elements. One of his most important manoeuvres is keeping his trees not only late, but hardy by drawing the branches away from the walls, by deferring nailing in until the last moment, and last, but not least, by shading from bright sun until the flowers begin to open. When this stage is reached, as a matter of course they must have sun, light, and fresh air; consequently his tactics are changed, and he protects on bright frosty nights when frosts are pending. In many well-appointed gardens curtains formed of non-conducting materials working upon iron rods are drawn at night and thrown back in the morning, but in others the broad coping board checks radiation, and two or three thicknesses of fishing net permanently fixed during the flowering stage form the front covering. Tanned netting made on the square mesh now is cheap; it is easily and expeditiously fixed, and only half its utility is exhausted when the crop is safe, as it comes in later on for protecting ripe fruit from birds and other marauders. Where light poles of home growth are plentiful, these prepared in winter

can be fixed 6 feet apart at leisure, but the nets should not be suspended until they are actually wanted, for open as this labyrinth of twine may appear, one has only to get between it and the wall to realise its sheltering power in wet, windy, or frosty weather. If poles are scarce, double slating laths answer equally well, if not better, as they are free from knots and snags, and a single thread of stout twine running from end to end with one turn round each keeps them in position. But why not, some may say, drop the nets close to the walls? Well, nets in this position, whilst affording less protection to the flowers, prevent our getting to the trees when close examination or picking the first aphid-curved leaves become necessary. My poles are let into the border 3 feet from the foot of the wall, and they are kept a foot away at the top by short pieces of stout lath nailed to them and fitting tight under the stone coping. A single nail passed through the coping boards into the top of each pole keeps all safe from disturbance by wind, and we can pass along the enclosure at pleasure. When the time arrives for reducing this protection, like the Chinaman who wears half-a-dozen thin silk shirts, we throw off one thickness at a time, and in this way inure the foliage and fruit to the weather.

Where nets, in my opinion the best of all protectors, are considered too expensive, some gardeners resort to small twigs of Yew or Spruce which they stick neatly into the trees tips downwards, and crops of Peaches, Apricots, and Plums are often saved in this way. These, in due course, part with their leaves, and gradually the fruit becomes exposed, but the most skilful adepts often lose a great number of flowers by friction in windy weather. Pears, which throw their loose clusters of flowers further away from the wall, should not be protected with twigs; indeed, where the varieties are good and the walls are well furnished, they are well worth the protection we accord to Apricots and Peaches.

Nectarines on a Peach tree.—It would be interesting to learn something of the after conduct of Peach or Nectarine trees in which a change from one to the other has taken place, as such information would help to show whether the change is in consequence of failing health or not. At Highnam Court, Gloucester, a healthy out-door Peach tree bore in 1878 a good crop of fine Nectarines on two of its branches, the other portion of the tree bearing the usual crop of Peaches. These branches were watched, with the hope of a repetition of the freak, but a disappointment was in store, for during the following spring one branch died outright, and the other never grew satisfactorily, or bore fruit of any kind; in fact, it had, when I last saw it, every appearance of shortly following the other. This case was not, I think, recorded at the time.—J. C. T.

February Apples.—It was much to be deplored that the fine and interesting collections of Apples staged at the Westminster Drill Hall on the 12th could not have been seen by the ordinary consumers of American Apples. The varied and wonderfully kept samples, including all the best kinds grown, served to show fully that not only have we plenty of fine keeping or winter Apples, but also that we can produce them and keep them. Whilst with some the production is a matter of difficulty, their safe and sound keeping are not less so. What was so remarkable was the fact that of Messrs. Cheal's and Bunyard's collections, many dishes had travelled largely, and had been exhibited several times. Perhaps because they were not so much exposed, the extreme beauty and freshness of the samples from Mr. Smee's garden at Hackbridge were very apparent. Cox's Orange Pippin and Golden Noble, to name two well-known sorts only, were as fresh and juicy as usually they are in

November. Mr. Smee's Apple house is so placed as to enjoy a cool and very equable temperature. Amongst less known kinds in the various collections the following seemed to be fine keepers: Hormead's Pearmain, Grange's Winter Pearmain, Bismarck, Tyler's Kernel, New or Winter Hawthornden, Gascoyne's Scarlet Seedling, Gospatrick, &c. The severest test of our capacity to keep Apples well will be shown at the Temple exhibition in May next, but still it must be very difficult indeed to preserve the juicy freshness of the fruits for a period of eight months. We ought now to be well on the road towards combating the trade in foreign Apples.—A. D.

THE MADRESFIELD APPLES.

I CANNOT but admire "W. C.'s" (GARDEN, Feb. 16, p. 149) fair, honest criticisms upon Mr. Wildsmith's article (GARDEN, Jan. 26, p. 79) respecting the wholesale raising of Apples and other fruit trees at Madresfield, for such criticism is calculated to prove interesting and beneficial to the many concerned, and as I have the management of these trees, I am able and pleased to supply the explanation sought. My text should be, that an ounce of practice is worth a pound of theory, and I hold and have proved, to my own satisfaction at all events, that the stock does exercise certain influence over the scion, notwithstanding Mr. Sheppard's opposite views (GARDEN, Feb. 2, p. 102). I consider the proper preparation of the stocks to be an important factor, and I should prefer those that have been twice transplanted. It should be noted that nearly all Crab seedlings have each a long, straight tap root, varying from 12 inches to 18 inches in length, and if at the first and subsequent transplantings this tap root is replanted in a horizontal position, a better and preferable stock will result than if the tap root had either been replanted in a perpendicular manner or cut off. This applies more strongly to dwarf bush and cordon trees, although standards may be safely included. To plant these stocks two men are required—one man holds the stem in one hand, and with the other hand bends the tap root to the horizontal position, the other man covering with soil and treading.

The paragraph that perplexes "W. C." is how we manage to separate and distinguish Blenheim and other pips from those of the cider and coarser sorts. This is easy enough, simply because in our case they are never mixed together. A small quantity of best cider is specially required, and sorts of cider Apples that are most approved of and known to have great density are selected by hand, and afterwards allowed to become mellow and kept dry till the cider is made, all the other sorts, as also all decayed and very rubbishy, doubtful fruit, being discarded. It is the "must" from these that have proved the best stocks in our case; besides, the Blenheims are considered too valuable for other purposes, as well as otherwise objectionable to the manufacture of best cider. From a cartload of the above "must" a bushel of plump, healthy pips can be washed out—a process we follow for convenience more than necessity. I once held the opinion that Blenheim would possibly prove a good stock with necessary vigour; consequently I saved a goodly number of pips from the fruit room stores. These were sown under precisely the same conditions, but out of the whole that came up, less than half a dozen possessed the necessary healthy vigour, came up miffy, took mildew very early, and ultimately proved a failure.

What is wanted is a good, kind, vigorous stock, the said vigour to be properly developed into fruit-forming roots by these recommended transplantings, my idea being that a perfect wig of surface roots to a Crab stock is preferable to those of any Paradise or other foreign stock. My experience with such stocks, if the heads of the trees be kept open to sun and air, is that they will produce large, high-coloured fruit of the very best quality with as tolerable certainty as can be expected in so uncertain a climate; in fact, it was from these bush trees that the highly coloured fruit alluded to by "A. D." (p. 516, Vol. XXXIV.) were gathered and sent to the Chiswick conference. It is said colour

denotes ripeness, and if my experience is worth anything, who can gainsay or prove that this multiplicity of surface roots, in addition to something trifling perhaps from the high-coloured cider Crab stock, are not helps to high colour? and if not helps, how is it that none of our general pyramid or standard trees growing hard by did not develop this desirable high colour?

My faith is so strong in the system, that I am making provision to enlarge the operations, which will enable me ultimately to speak with still greater certainty in favour or the opposite if needs be. I admit Madresfield possesses a grateful and suitable soil, but I fail to see any assistance from the igneous rocks of the Malvern Hills, which we are told are an upheaval through the limestone, and from which we are some two or more miles distant. On the other hand, I quite agree that there are certain spots to be met with far more favourable in their character than others for the high cultivation and colouring of Apples.

WILLIAM CRUMP.

Madresfield Court.

PRUNING FRUIT TREES.

It may in a general way be stated that extremists are always wrong. The do-nothing system of the non-pruner is as much at variance with common sense as is the practice of the rule-of-thumb man, who slashes away right and left at everything. The Apple tree in the orchard, or the Gooseberry bush in the border, if left unpruned, will in course of time become too crowded with branches to bear a full crop of fruit. The air and sunshine are the chief factors of fertility, and if these agents are crowded out by dense growth, whether it arises from over-pruning or no pruning at all, the effect is pretty much the same. The orchard tree, after it has been headed back to get a sufficiency of branches to make a well-balanced head, only requires a little annual assistance to keep the branches thin enough to allow the sunbeams to glimmer through to ripen the wood and fill up the buds. If this is done annually, not much pruning will be required; only the branch which is robbing its neighbour either by crossing its legitimate course, or crowding it unduly, should be taken out. The longer such branches are left on the tree the more mischief they do and the larger the wound, and at last the conviction dawns upon the mind that thinning must be done, as sooner or later it will. If the pruning of orchard trees were done upon common-sense principles, there would never be any fagots to tie up from the prunings, and the trees would not suffer from the current of cold air which always happens when a severe thinning has taken place. I look upon it as absolute cruelty to thin severely any neglected fruit tree as is sometimes done. The cold wind rushes in and the tree is injured for years. The true remedy for neglect is to spread the work over several years, to minimise the check. Perhaps the best season for pruning orchard trees by those who are unskilled in the work is as soon as the fruit is gathered before the leaves fall, as the foliage-laden tree when examined closely is itself the guide as to where thinning is required. But there are drawbacks to doing the work at that season. The leaves are often an obstacle to the proper tracing out of the branches when the trees have been neglected, and on the whole I prefer to do what pruning is required in November as soon as the leaves fall, when every branch can be traced clearly from its source to its extremities. Those who are accustomed to look closely into the branches of all fruit trees and study the growth, do not require a canopy of leaves overhead to tell them how to prune. Every tree has its own individuality. I might perhaps say that no two trees are exactly alike, either in size, substance, or in the work which they are able to perform, and this being so, it will be readily granted that in the matter of pruning every tree should be regarded from a distinct standpoint without reference to its neighbours. The stumbling-block in the path of very many fruit growers is their inability to distinguish between the requirements of the different trees when pruning them. Assuming that the free-bearing tree requires but little pruning, the diffi-

culty is in some cases to get such a tree to make wood enough to carry out its destiny and grow into a full-sized specimen. I have a tree of Lord Suffield Apple which for the last twenty years has never missed a crop, and the fruits are always of large size, but the tree makes so little wood that there is no necessity to prune any of it away; in fact, I have been very often tempted to pull all the fruits off and give the tree a rest, so that it might make an effort at growth, but covetousness prevailed, and the usual load was left on, though compensation was offered to it in the shape of rich top-dressings.

There are several systems of pruning even so common a plant as a Gooseberry bush. One man takes the shears and just cuts off the ends of the shoots which usually carry the most fertile buds. This system generally ends in very small berries, which are exceedingly difficult to get at. The rule of thumb and the symmetrical person bares the branches and spurs in all the young shoots which grow inwards, and most of those which grow outwards also, so that the tree when the pruner has done with it is a mere skeleton, without leaves enough to shelter the young fruits from the frost and cold spring. The rational system of pruning a Gooseberry bush, if we want bushels of Gooseberries in a small space, is to thin out the wood sufficiently to let in the air, but to shorten but little. It is always advisable to open out the centre. This should be done first. At the same time, any dead branches should be cut out, and any branches which hang so near the ground as to touch the soil when the crop is on, or to be likely to get splashed when heavy rain comes in summer. When these preliminary matters are settled, go regularly round the bush, thinning out the shoots which cross, and where they are too numerous topping a shoot here and there for the sake of uniformity. This is mending Nature, for there is no reason why a bush capable of bearing a bushel of Gooseberries should not have a graceful outline. The Black Currant [should] be treated pretty much as the Gooseberry, but the Red and White Currants may, with advantage, have all their weakly shoots spurred pretty closely in. The leading branches should be allowed to make a reasonable annual extension, as no bush nor tree which is not allowed to do this can have a long life.

E. H.

EXTRAORDINARY GROWTH OF MUSCAT VINES.

IN compliance with Mr. Coleman's suggestion in *THE GARDEN*, Feb. 16 (p. 150), I will give a brief outline of the Vine border here and its constituents, with management of Vines. I did not prepare the border, as it was done in the spring of 1887, and I took charge the following August, but I have ascertained its constituents, which are two-thirds turf from old pasture and one of garden soil from site of vinery, with the addition of a quantity of bones. The border is 40 feet long, 15 feet wide and 3 feet deep, with about 9 inches of stone rubble for drainage. The front wall is arched to let the roots outside at some future time, if necessary, but the arches are built up for the present. The Vines were started on the 28th of January, with a night temperature of 50°, with 5° higher by day and rising as the growth advanced. The Vines are syringed twice a day till they come into flower, after which syringing will be discontinued, the walls being kept damp. I may add it is a mixed house, being planted with Black Hamburgh, Madresfield Court, and Muscat of Alexandria. Last year the Hamburghs did equally as well as the Muscats, but the Madresfield Court did not do so well. The lower parts of the Vines, from one of which the piece was taken, are all right, as the main buds did not start on any of the lower parts, but 8 feet or 9 feet up some of them did and were allowed to go their own way. At the present time, however, all the buds appear to be breaking satisfactorily.—WM. CHIPPE, *Avening Lodge, Stroud*.

* * The piece of wood forwarded for my examination and opinion was extra strong, short-jointed, and well ripened, but the two main buds having started, I was more anxious to ascertain the mode of manipu-

lation than the quality of the border. When very strong canes force their main buds, this mishap generally is due to the loss of the premier leaves or the destruction of the laterals, by pinching below instead of above the first leaf. How near the edge of a precipice the grower has been travelling may be gathered from his own statement to the effect that "the main buds did not start on any of the lower parts, but 8 feet or 9 feet up some of them did and were allowed to go their own way." This is rather close sailing, as many extension Grape growers would have left quite 12 feet of such strong wood for fruiting, but the grower having saved about 8 feet, upon which the buds "appear to be breaking satisfactorily," he may be congratulated upon his prospect of a crop of remarkably fine Grapes, provided he succeeds in setting them well.—W. C.

HARDY FRUIT NOTES.

THE PEACH.

WHERE Peaches are extensively and well grown upon open walls the training of the trees is one of the most important operations undertaken by the gardener, generally towards the end of March. Unlike other fruit trees, the Fig excepted, which may be taken in hand as soon as the leaves have fallen, the Peach must be kept away from the walls until the swelling flower-buds are considerably advanced and laying in can no longer be delayed. In very late seasons we sometimes manage to delay the work until April, but it is not wise to run too near the edge of a precipice, as the flower-buds, especially where the trees are very large, are apt to get bruised or knocked off during the arrangement of the main branches. These remarks, of course, apply to Peach trees which were detached in January, stripped of every shred and nail, washed and tied out a few inches, possibly 1 foot from the wall, to retard the opening of the flowers until a portion, if not all the danger from spring frosts has passed away. A great number of growers, I know, do not go this length, but my argument is this: if an operation or a system is worth anything at all, it is worth carrying out to the very letter. Therefore, knowing the precocity of the Peach and its liability to aphid and spider, I maintain that this battle with the elements and insects, from the labour point alone, is much the cheapest in the end. Assuming, then, that the trees were trimmed and dressed up with the knife before they were washed, and the wall has received its annual dressing of old brick red, two skilful persons on a fine, calm day should detach from the stakes and lay in all the main branches, tacking them very slightly at first, as some alterations may be necessary. When these, radiating in straight lines from the centre, are satisfactory they may be made secure by nailing or tying to wires. I prefer the old-fashioned method of nailing. The master of the art will see at a glance whether he has more small shoots than he can dispose of. If he has, he must cut them out, as those furnished with blossoms should be quite 6 inches apart, with space for going ahead without crossing or being crossed by those above or below them. The fan shape of training the Peach is best, as the loss of a large branch or limb can always be made good by a little alteration; whereas such loss from a tree trained to a straight leader means disfigurement for years afterwards. There is a system of training known as Seymour's, which, like many of the fantastic systems adopted in France, looks very pleasing upon paper, but whilst admiring good straight work, I have a great objection to geometrical precision, as it cannot be maintained in this country. I would, nevertheless, borrow from Seymour, first, in training all the main branches quite straight, or where the walls are low in regular curves; and second, in allowing, if possible, all the bearing wood to emanate from the upper sides. By adopting this plan, at least so far as practicable, all the foliage produced by the young shoots on each main branch are in the best possible position for creating shade in hot, dry seasons. Paralysis on open walls, especially under the modern system of mulching and flooding, is not

very prevalent; it does sometimes, nevertheless, produce large gaps in old, heavily cropped trees, and this leaf shelter is the best, as it is Nature's mode of preventing it. In forcing houses, on the contrary, not only branches, but the main stems get scorched; hence the wisdom of tying young shoots upon or quite close to them for leaf shade through July and August. A well-trained and perfectly manipulated tree under glass should not show a single foot of bare branch from the outside, and the same rule should pervade our management upon open walls. In laying in the shoots no more ties or shreds than are absolutely necessary should be used, and these in every instance, whilst loose enough to allow for expansion of the shoot, should be placed where they will be kept tight by its pulling away from the nail. This is a very important matter, as many a fine branch has been ruined in its youth by pressure in the first instance against a nail or stud; the injury at the end of the first summer may appear trifling, but the small black wound in the bark in due course develops into canker, when the work of several seasons is thrown away. Another bad practice in training cannot be too strongly deprecated, and that is tying a piece of matting to the point of a shoot and drawing it very tight before the intermediate shreds or ties are put in. This mechanical straining makes the shoot or branch appear as straight as an arrow, but the tight tension ruptures the cells, which soon become gorged, whilst the wood-bud at the point is ruined by strangulation.

FRUITS UNDER GLASS.

THE ORCHARD HOUSE.

Where Peaches, Nectarines, Figs, and Strawberries were started before the end of the past year, the two first will now be approaching, if they have not reached, the flowering stage, young figlets swelling, and the last throwing up their flower trusses. Daily details will include regular watering with tepid water, damping the walls and floors, and dewing overhead with the syringe when the weather is bright and fine. The temperature for the present should not exceed 50° through the night, 60° by day, and 65° to 70°, with plenty of air when the sun is shining brightly. If fermenting material has been introduced, this should be regularly turned and renovated to ensure a steady bottom-heat about the crock roots when the trees are in flower. This need not—nay, must not—be strong, as the most gentle warmth will keep the roots of these excitable trees active—the best of all aids to the securing of a good set of fruit. As the flowering stage approaches, the house must be moderately fumigated two or three times in the course of eight days, no matter whether green-fly is perceptible or not, as neglect of this simple operation is sure to end in trouble before the Strawberries and Peaches have set their fruit. Fire-heat, as a matter of course, will be necessary, but it must be very mild and steady, as Peaches and Strawberries are very impatient of this element from the time they are started until after the fruit is set. The best time to turn on fire-heat is early morning when the house is syringed and the ventilators are about to be opened, and this circulation, unless the weather is unusually bright and mild, may be kept on all day, especially when fresh air is passing freely through the house. Towards evening it may be reduced, but not entirely shut off, as the minimum temperature can always be regulated by increasing or reducing the night air. Figs occupying the warmest end will now stand good syringing with tepid water twice a day, and the same, tinged with liquid, must be given pretty freely to the roots, which, by the way, must never be allowed to become dry or anything approaching that condition. If fruit is abundant, it must be well thinned, whilst the shoots may be pinched at the fifth or sixth leaf, more or less according to the size of the trees and the space at command.

Fertilisation.—When the Peaches commence opening their flowers direct syringing must be discontinued, but atmospheric moisture, especially on bright days, may be maintained, and the temperature through this stage may range 50° to 55° at

night, 60° to 65° on dull days, and 70° when the sun favours liberal ventilation. In a house heated in this way, and with the most gentle warmth at the base of the pots, the pollen will ripen and perform its office freely enough, but for all this I would suggest daily cross-fertilisation with the brush when the temperature reaches the maximum. If Royal George Peach and Elrue Nectarine have been introduced, these cannot be beaten for serving as pollen parents, but lacking these, other small-flowered varieties, like Bellegarde or Violette Hative, will answer equally well. When Strawberries approach the flowering stage, profuse varieties like the Vicomtesse, which throw a quantity of medium-sized fruit, may have a number of the smallest buds pinched off, and possibly a few of the weak scapes also. Light and fresh air being the main factors in setting the fruit, the plants must be kept close to the glass, and the better to prevent condensation of moisture on the petals, it may be well to press down the foliage every day with the hand. This constant moving amongst the plants is a great aid to setting, but a gentle

previously advised, should be plied little and often, fresh supplies being given as often as the old is exhausted or washed away. From the setting of the fruit to its attainment of full size is the proper time to top-dress, also to feed with weak diluted liquid, the latter coming in most useful when the stoning process is reached.

THE GENERAL HOUSE.

containing a mixed selection, arranged in accordance with my remarks early in January, will now present an interesting appearance, especially where the flower-buds are plentiful and dropping has not marred the prospect of a good crop of fruit. Having Pears, Plums, and Cherries, three species which will not stand hard forcing, in this gathering, the house must be liberally ventilated every day, and night too for that matter, a good all round crop ripened under the influence of summer heat being the primary consideration. A temperature ranging from 40° to 45° at night and 50° to 60° by day with plenty of air will bring forward a bold, perfectly formed blossom, which should set freely



An early flowering Rhododendron (*R. Nobleanum*) at Dumbarton.

touch with the brush or rabbit's tail on fine days should not be neglected.

Thinning and disbudding.—When the Peaches have set and the remains of the flowers have been washed off by the syringe, which may be freely used, any shoots left too long may be shortened back to a good wood bud, as the best fruit is always obtained from the boldest flowers near the base. Thinning and disbudding may then be carried on conjointly, first by the reduction of triples and doubles, and the removal of gross foreright shoots, and so on, little and often, until two or three Peaches, point upwards, occupy each shoot, and two good growths, one from the base the other from the point, are left to draw the sap and furnish the bearing wood for another year. All intermediate shoots in due course may be rubbed off, but for some little time to come, close pinching, especially where there is a fruit, is the safest course to pursue.

Top-dressing, as a matter of course, is a very important matter, as it is simply impossible for trees growing in a cubic foot of soil to mature a crop of fruit without its aid. This, prepared as

enough without the aid of fire-heat, but mindful of the fact that a damp, stagnant atmosphere when Plums and Cherries are in flower is quite as injurious as dry frost, I may say, hot water should be at command for ensuring a brisk buoyant temperature. The trees must be regularly watered every morning for the present, but as the season advances and the sun gains power this operation may be performed after the house is closed for the day. At the same time the trees may have their stems and pots well moistened with the syringe, the overhead bath being reserved for fine mornings up to the time they come into flower. When this stage is reached, a dry atmosphere and a low temperature should be secured through the hours of darkness, but a somewhat brisk heat with a free circulation of air by day being favourable to fertilisation, the hot-water valves should be opened every morning. Daily attention with the brush will aid the process, and when the fruit is set safe progress may be made by good syringing and early closing. Having so often drawn attention to the ravages of green-fly, it is hardly necessary for me to say the house should be well fumigated before the trees come into flower.

Strawberries in pots.—Where a fair start with good plants was made about the 1st of January, the first batch will now be coming into flower, whilst possibly in a few places the fruit will be set. Taking the flowering stage first, I may say light fresh air and genial warmth are the main factors in securing a good set. The roots of the plants must never feel the want of water; at the same time it may be well to repeat precautions against saturation of the balls. A temperature ranging from 45° to 50° at night, and 50° to 60° by day, suits Strawberries when they are in flower, but a higher figure under bright sun will do no harm, provided they are ventilated accordingly. If trusses and flowers are very abundant, it is a good plan to pinch off a quantity of the weakest before they open; then, as they expand and pollen becomes plentiful, a light brush about noon will ensure perfect fruit. When eight or ten of the best berries begin to swell, the others, naturally the poorest, may be pinched off; the trusses, propped with forked sticks or bits of Birch, must then be well syringed with tepid water, and they will be ready for removal to a shelf in the hottest house at command to ripen. From this time forward they will stand good syringing and bountiful feeding with diluted liquid, but the moment the berries show signs of changing colour pure water must be substituted, and in due course this must be considerably reduced. Very early fruit is too often picked as soon as it is well coloured, but those who would have high flavour should remove the plants to a warm, dry house where they can be carefully ventilated until the delicious aroma of the berries pervades the compartment.

Successional plants of later varieties started with the earliest may be moved forward to the shelves lately cleared, where the same attention to watering, thinning, and fertilising must be followed up. Others will take their quarters, and so on until finally another batch, well cleansed and top-dressed, is brought in from the reserve. W. C.

TREES AND SHRUBS.

EARLY-FLOWERING RHODODENDRONS.

THERE is a small group of Rhododendrons represented by the natural species *R. dahuricum* and varieties raised between it and the Himalayan *R. ciliatum*, all of which are remarkable for their early flowering qualities, as if uninjured by frost they may be often seen in full bloom by the end of February, or, in the case of more adverse seasons, by the middle of March. The fully expanded flowers are, however, liable to be injured by late spring frosts, though the buds will pass unscathed through even a severe winter. *R. dahuricum* itself is a somewhat upright-growing shrub, a yard or more in height, with small deep green leaves, which are retained to some extent during mild winters, but should the weather be severe the plant becomes deciduous. These remarks apply to the ordinary form, for individuals vary considerably, especially in the size of the leaves, in the way they are retained throughout the winter and in the colour of the blossoms, which are usually of a bright rosy purple shade. The Himalayan *R. ciliatum*, so well known as the parent of many beautiful greenhouse varieties, when crossed with *R. dahuricum* produced the now well-known variety *R. praecox*, raised many years ago by Mr. Davies, of Ormskirk, who has since identified himself with many beautiful greenhouse varieties. *R. praecox*, which is also perfectly hardy, is of a free, much-branched habit, with clusters of rosy lilac-coloured flowers, borne in such profusion that the whole plant is quite a mass of bloom. The plant assumes the character of a roundish bush in shape, and is altogether more vigorous in habit than *R. dahuricum*. Besides these, there is another beautiful hybrid variety, viz., *Early Gem*, raised, I believe, in

Messrs. Veitch's nursery at Coombe Wood from intercrossing *R. præcox* and *R. dahuricum*. Early Gem is quite an Evergreen, and the large pinkish lilac-coloured blossoms are very showy. One of the best marked varieties of *R. dahuricum* is that known as *atrovirens*, the foliage of which is of a very deep green, and retained throughout the winter. The flowers, too, are much deeper in colour than are those of the ordinary form. Where shrubs are used for forcing, these Rhododendrons are especially valuable, as they flower naturally so early in the season that very little forcing is required to have them in bloom soon after Christmas. In the open ground they are all first-rate shrubs for the larger arrangements of rockwork, as if untouched by frost they furnish a bright and cheerful feature when flowers are none too plentiful. Planted in the open shrubbery border, it is an advantage if they are so situated that there are some Evergreens in proximity thereto, in order to shelter them somewhat from spring frosts, or at all events to prevent the early morning sun from reaching them. Like all the rest of their class, peat soil was at one time considered necessary for the cultivation of these Rhododendrons, but while they grow well in such a compost, they at the same time will flourish in other kinds of soils. A stiff clayey soil is, however, rendered more acceptable to them if some well-decayed leaf-mould is incorporated with it. The propagation of these dwarf-growing Rhododendrons is in a general way an easy matter, for where a plant has been buried rather deeply in the ground most of the branches will have formed roots of their own, and all that is then necessary is to split up the plant after the manner of a herbaceous subject. Should any of the young plants be insufficiently rooted, it is an advantage to give them a little protection till they become established. In addition to the Rhododendrons above enumerated, we have some of the large showy flowered kinds that bloom sometimes quite early in the year. The best known of this class is *Nobleanum* (see illustration), whose bright-coloured blossoms are often seen soon after Christmas. There are several forms of this differing from each other in the colour of the blossoms, but all valuable for their early flowering qualities. Besides these there are several others that bloom before the bulk of the Rhododendrons, among them being *altaclarensis*, *Broughtonianum*, *caucasicum*, *Russellianum*, and others. With regard to the situation best suited to protect these Rhododendrons from spring frosts, Messrs. Veitch in their catalogue say:—

The shelter of some trees and shrubs is generally enough for them; elevated sloping ground, with some tall deciduous trees to protect them from the north and east winds, and a good screen of Hollies between the deciduous trees and the Rhododendrons is an admirable situation for them. Indeed, in such a place in eight seasons out of ten they would not fail to open their magnificent flowers.

T.

Abies orientalis.—Among the Spruce Firs, of which the common Norway Spruce (*Abies excelsa*) may be taken as the type, there are a great number of different forms, but one of the most handsome of all is the Eastern Spruce (*A. orientalis*), which is a native of a considerable tract of country in the Caucasian region. The general appearance of the tree is that of a slender-branched, densely habited form of the Norway Spruce, for it usually assumes a pyramidal shape, but is neither stiff nor formal. The mature foliage is of a rich bright green colour, against which the soft tints of the young shoots stand out very conspicuously during the growing season. Though well suited for planting as a lawn tree, especially in places of limited extent, it is

rarely met with, this no doubt being principally owing to the fact that it is of very slow growth, more particularly during its earlier stages. On this account it is not a very profitable plant to the nurseryman. The Eastern Spruce grows well in a dry, sandy soil, where the common Norway Spruce will barely exist. It is also thoroughly hardy in this country, being proof not only against our most severe winters, but the spring frosts have no effect upon it, as it is rather late in starting into growth.—H. P.

PICEA LASIOCARPA.

Of all the thoroughly hardy North American Conifers now growing in this country, there is not one more charming or better adapted to our parks and lawns than the Silver Fir which produces the cones now before us. This *Picea* (*lasiocarpa* of gardens, I suppose I must say) was introduced by Messrs. Veitch in 1851, through their collector, Mr. W. Lobb, under the impression that it was *P. grandis*, but

which it has been involved by adopting the botanical name of *P. concolor*, given to it by the late Dr. Lindley. If it is harder to unlearn than to learn, plodding planters in this *Picea* have a stiff lesson, as we learned a week or two ago, from a very high living authority, that *P. lasiocarpa* henceforth should be called *P. Lowiana*. These corrections are quite right and proper, and horticulturists owe a debt to those gentlemen who devote their time to these matters, but what a comfort it would be if all these duplicates of good things could be thoroughly examined before they are named by private individuals.

Picea concolor, the self-coloured Silver Fir, or *P. Lowiana*, no doubt will be taken up by the rising generation of planters, but the old ones who planted some of the original seedlings will stick to their *P. lasiocarpa* of Veitch, the name by which all the finest trees in the country are known, precisely as they do to their *Thuja*



Picea lasiocarpa (seedling). Engraved for THE GARDEN from specimens sent from Eastw or Castle.

finding the young seedlings showed a marked difference from the *P. grandis* of Douglas, they sent it out under the above designation. Collectors about that time were scouring the forests of Colorado, California, New Mexico, and Oregon, in all of which they found this splendid tree growing at altitudes ranging from 3000 feet to 7000 feet, and under varying conditions as to soil and climate. As these enterprising men sent home specimens and seeds from such an extensive area, needless to say several of our nurseries soon became furnished with trees differing so slightly, that we now find we have a long list of synonyms. A great number of planters, myself included, secured these as they came out, and, finding the synonym varieties so good, no one grumbled.

In due course it became known that the species introduced by Messrs. Veitch was not the original *Picea lasiocarpa* of Sir W. Hooker, and now in the Kew herbarium; hence their determination to free this beautiful tree from the confusion in

Lobbi, now called *T. gigantea*, and their *Thuja gigantea* changed to *Libocedrus decurrens*.

The Silver Firs, as I have before stated, are more ornamental as lawn or park trees than useful for timber, and this *Picea lasiocarpa* of gardens, one of the hardiest, is especially beautiful, the double rows of stout broad leaves more than 2 inches long giving it a full, graceful appearance, whilst its conical habit as it towers upwards at the rate of 2 feet in a year renders it peculiarly applicable for lawn and park planting.

The soil which best suits the Silver Fir is a moist sustaining loam, free from stagnant water, not necessarily deep, as it roots near the surface, but deep enough to give good anchorage to the roots and heavy enough to retain moisture in hot, dry summers. On light sandy soils it grows equally well whilst in a young state, but in course of time as this light staple becomes dry and exhausted the leaves fall, the lower branches become thin and weak, and one feels

that he would like to give a thorough top-dressing of rotten manure by way of a reviver. As all the North American and Japanese species attain a large size, ranging from 80 feet to 150 feet in their native habitat, they should be placed from 40 feet to 50 feet apart in the pinetum, the early growers in the highest parts, but not where their slender leaders are likely to cut the sky line, whilst *P. nobilis*, *Nordmanniana*, *grandis*, and other well-tested species may occupy lower levels. Although most of them in a dormant state will stand very severe frost, I have found stagnant moisture injurious to the lower branches; hence the importance of draining thoroughly to free the subsoil from cold, stagnant water. Another point in the preparation of the ground for a pinetum, especially for the shallow-rooting Silver Firs, is regular trenching, double or single digging, according to the nature of the subsoil, as the roots then run and ramify a few inches below the surface, and the danger of losing fine specimens during gales of wind is considerably lessened in exposed situations.

W. C.

THE HOLLY-LEAVED MAHONIA.

(MAHONIA AQUIFOLIUM.)

THIS is so often regarded as a shrub that will hold its own under very adverse conditions, and is, therefore, planted in spots where few other shrubs would live, that its high ornamental value when so situated as to admit of its full development is frequently overlooked. One great merit possessed by this Mahonia is the fact that it will thrive in shady spots; indeed, it is one of the best of all Evergreens for the purpose. Perhaps it is seen to the greatest advantage when several plants are grouped together in a bed, taking care in planting that the specimens are not overcrowded, for this Mahonia is especially happy when so situated that it can push out its suckers in all directions till it forms a large mass. For this reason it should be planted in the shrubbery border; the best spot for it is just on the edge thereof, as then the suckers can progress in an outward direction, and thus form a prominent feature when jutting out from its fellows. Apart from the ornamental value of its bright shining leaves it also passes through several phases of beauty during the year, for in April or May the beautiful rich golden yellow blossoms are borne in great profusion, while the berries which succeed them are, when ripe, of a rich purple colour, and covered with a distinct glaucous bloom. Besides this, in autumn the leaves change to a beautiful bronzy hue, and are then largely employed for mixing with cut bloom; indeed, they are, during the winter, almost as invaluable as the blooms of the Chrysanthemums themselves. It is one of those plants that are hawked about in London during the winter, but its habit of growth is such that the roots are greatly mutilated to get them into pots, and, consequently, most of them soon die. This Mahonia is by no means particular as to soil, but it does best in rather good loam, and so situated that it is never parched up during summer. As above-mentioned, it is a good shrub for shady spots; indeed, it will thrive fairly well even under the drip of trees. Its value as a cover plant for game is well known and fully recognised. As such numbers are raised from seed every year, it follows, as a matter of course, that there are some distinct varieties to be found in cultivation. A few well-marked forms are *gracilis*, *rotundifolia*, *crassifolia*, and *erecta*, whose prominent characteristics are indicated by their respective names. It is, however, possible to pick out a few very distinct forms from almost any bed of seedlings, and the difference is in many cases more pronounced when they grow up. There are several others of these North American Mahonias, such as *M. repens*, *fascicularis*, and *nervosa*. The representatives of this section of Mahonias which are natives of the Himalayas are bold, stately-growing kinds, but all of them are more or less tender. The hardiest Asiatic species is *M. japonica*, whose long

pinnate leaves of a stout leathery texture render it a very imposing shrub, while the bright lemon-coloured blossoms are borne during the early months of the year; indeed, in a mild winter they may be often seen soon after Christmas. The large purple berries covered with bloom, like a black Grape, are also very ornamental.

H. P.

LAURELS AND THEIR USES.

THIS is a most useful class of Evergreens, which it would indeed be most difficult to plant in the wrong place, growing where many other plants will not thrive. A stock of plants can be quickly procured by almost anyone who has the smallest means. *L. caucasica* is fast taking the place of the common type. It is more handsome in appearance than any other sort that I am acquainted with in small or large plants, and the foliage is of the deepest green. The leaves are about 7 inches long, $2\frac{1}{2}$ inches wide, the habit of growth being dense. It flowers freely, plants 3 feet in diameter being smothered with flower-buds. By annual pruning, shortening the leading growths to a few inches where spreading bushes are required, large plants are quickly obtained. We have some from 4 feet to 5 feet high and as much as 10 feet across. These were planted in a small state half a dozen years since. Owing to the density of its growth and deep green colour of the foliage, this variety is the best for covering a large space quickly, such as a sloping bank. *Rotundifolia* is a splendid variety for almost any position, a single shapely bush in the shrubbery being not an unworthy subject to have, but it always does best when forming a hedge or covering sloping banks where not required to grow beyond 2 feet high. Its short-jointed habit of growth fits it well for the purposes named. It makes a particularly neat hedge, and does not require nearly so much pruning as other sorts, as it is naturally of a dwarf habit of growth. *Colchica* has a more noble appearance than any of the family when growing freely. It makes vigorous shoots, the leaves of which are 10 inches long, $3\frac{1}{2}$ inches wide in the centre, tapering towards each end. This plant forms an excellent screen where quick tall growth is needed. The common variety is still one of the best for some purposes—for growing under almost any kind of trees, or for forming a screen quickly to shelter Rose beds, for instance, it is capital, as it grows fast, and can be pruned to suit any position or style of hedge. The great point with this variety and all others where thick growth is required is to commence to prune when the plants are first struck from cuttings. If they are allowed to grow tall at first without any pruning, it is difficult to induce them afterwards to form a thick base. Fairly well-grown plants of this kind produce leaves 7 inches long by 3 inches wide; excepting where highly cultivated, the leaves during the winter assume a pale green colour, which detracts somewhat from their appearance. Laurels of the sorts named will grow well in almost any soil; the only exceptions that I know is where only a thin covering of soil overlies chalk. Under such conditions the leaves quickly turn yellow, and eventually the plants die. Stagnant moisture about the roots of Laurels during the winter is not a condition they enjoy. Where so planted and severe frosts occur the points of the leaves often die, which causes a disfigurement of the plants. Getting rid of the stagnant moisture by draining is the remedy in that case, or where this is not practicable, the ground can be thrown into ridges, planting the Laurels on the top of each. The furrows will serve to drain off the water. A deeply trenched strong-holding soil is best for Laurels of all sorts, but it must not, however, be forgotten that although they will grow and flourish in almost any ground, a little extra attention at planting time in the shape of manure mixed with the soil and a heavy mulching afterwards pays for the trouble where the best results are required. Under timber trees, such as Chestnut, Beech, Larch, or any other sort, it is difficult to get evergreen shrubs to grow. Planting may be done at any time from the beginning of September until the end of March under trees or other dry positions. If the first named date is selected,

the plants should at planting time be well watered in and the soil trodden firmly about the roots. I prefer the month of October to any other when choice can be taken of dates for planting. When late planting cannot be avoided, the plants often suffer from parching winds during April. All the varieties may be increased by cuttings inserted during the month of October under a north wall or hedge, choosing sturdy side shoots slipped out with a heel of old wood attached. The great point is to make the soil firm at the base of each cutting.

S.

Variegated Euonymus radicans.—This shrub is, as mentioned in THE GARDEN, Feb. 16 (p. 158), a very ornamental subject for clothing a wall, and when in this position it will often attach itself to the wall by roots from different parts of the stem after the manner of the Ivy. In this position the stem will sometimes thicken out after it has attained a height of 6 feet or 8 feet, and produce much larger leaves than are ever seen when the plant is in a dwarf state—in fact almost as large as those of the shrubby-growing variety *latifolius albus*. In addition to its value as an edging plant, the ordinary form of the variegated *Euonymus radicans* forms a pretty little bush, and is well suited as a rockwork shrub, while it is most useful for winter bedding. I have seen a very pretty effect produced by planting a bed entirely with this *Euonymus*, which soon formed a dense mass of bright and cheerful appearance, through which in the spring the flowers of *Scilla sibirica* pushed up in all directions. The *Scillas* were planted at the same time as the *Euonymus*, and especially towards the edge of the bed where the foliage is less dense they did well and increased quickly. This variegated form of *Euonymus radicans* is easily increased, for where there is an established bush or two they may be pulled up into as many pieces as there are roots attached to them, while cuttings put in a frame will root quickly at almost any season.—H. P.

The Spruce Fir as a hedge plant.—As an ornamental tree the common Spruce is hardly worth planting unless as a nurse to afford shelter for a time to more valuable species. On deep boggy soils or in damp hollow situations, good specimens of the Spruce Fir may, it is true, sometimes be seen of good colour and retaining their lower branches, but on light soils, or soils with a gravelly, or, what is worse, a chalky sub-soil, the Spruce generally becomes unhealthy, and anything but ornamental by the time it has attained to the age of ten or fifteen years. Its timber is thin, of little value, being much inferior to that of the Larch of a similar age, which also grows more rapidly. One thing may, however, be said in favour of the Spruce, and that is, that it can be made to form a very good evergreen hedge, and for this purpose it has been found to succeed on land where even the common White Thorn failed to grow, and where the Scotch Fir (*Pinus sylvestris*) had been extensively tried, but failed. The Spruce, on the contrary, submits to clipping or trimming much better than the Scotch Fir, this operation appearing to have the effect of assisting the plants to retain their foliage as well as their lower branches. If strong, healthy, well-rooted plants are carefully planted at about 2 feet apart in rich soil which has been prepared by deep digging or trenching, and properly attended to in the matter of trimming, an effective and even ornamental fence will in a few years be formed. This fence at a short distance has the appearance of a Yew hedge, and has the advantage of the Yew in being less likely to be eaten by game or stock. Spruce hedges may be made to assume any desired form. The clipping should be performed once or, what is better, twice during the season, and if this is attended to there will be little danger of the plants losing their lower branches.—P. G.

Seaside shrubs.—Among other shrubs I noted last summer as growing luxuriantly in more than one spot along our southern coast, and fully exposed to the spray from the sea, were the remarkably free-flowering *Olearia Haasti* and several different forms of the New Zealand *Veronicas*. All were flowering

profusely, and the appearance of the foliage showed that they were in as robust health as they would be far inland.—T.

THE HAZEL AND ITS USES.

THE wild form of the Hazel is indigenous to most parts of Southern and Middle Europe, and even extends along the Swedish shore of the Gulf of Bothnia to as far north as lat. 63°. It is also a native of the temperate regions of North-western and Central Asia. In our own islands it is found growing naturally from Land's End to John O'Groats, and from its abundance in some places has given its name to towns and villages, as Hazelmere or Haselmere in Surrey, Hazlebury in Wiltshire, Hazelfield in Cambridgeshire, &c. It is said to be not now found in Shetland, but that it once existed there abundantly would seem to be proved from the fact of the nut shells being found in bogs, as they are also in places throughout Scotland.

When left to itself the common Hazel forms a large straggling shrub or small very much branched tree, but it never attains a sufficient size to afford useful timber, though its wood, which is light both in colour and weight and of even grain, is used by turners and other manufacturers of small wares, toys, &c., and on account of its elasticity for the handles of blacksmiths' chisels. It is commonly grown in copses, and its young, extremely tough and flexible shoots are used for making crates, hurdles, hoops, whip-handles, and walking-sticks; for this latter purpose there is at the present time a very large demand, the bark of some varieties when polished having a peculiar silvery appearance, so that it is known in commerce as the silver barked Hazel. The trunk of the ordinary form is covered with a grey or ash-coloured bark, whilst that of the branches is reddish brown, more or less marked with white blotches.

The Hazel flowers in February and March before the appearance of its leaves, and the plant is rendered conspicuous by the numerous greenish yellow pendulous male catkins from 1½ inches to 3 inches in length, hanging in clusters of two, three or more from the points of short side shoots and scattering an abundance of sulphur-yellow pollen. The female flowers, on the contrary, are inconspicuous, the scaly buds in which they are situated being distinguishable at first sight from leaf buds only by the crimson stigmas which protrude from them. Each of these buds produces a cluster of two, three or more nuts of a form varying from roundish to egg-shaped, and each nut is enclosed in a bell-shaped, leafy, glandular husk about as long as itself, the upper part of which spreads out and is much jagged.

A considerable number of varieties of the Hazel, all differing more or less in the size and shape of their nuts and husks, have arisen in cultivation, and have been described from time to time under both Latin and English names.

The principal value of the Hazel is, of course, for the nuts which it produces. The sorts which appear in our markets are known chiefly as Filberts and Cob Nuts grown in this country, and Barcelona, Spanish, and Turkish Nuts imported from foreign countries.

The great Nut-producing county of England is Kent, the chief varieties being there carefully cultivated, particularly about Maidstone, where Nuts form an article of considerable trade.

Barcelona Nuts, though so-called in the English market, are neither grown near nor exported through Barcelona, but are brought from places in the interior of the province of Catalonia, and are exported through Tarragona, the chief port of that province. Very large quantities of Nuts are produced in Asiatic Turkey, and part of these are no doubt furnished by *Corylus Colurna*, but it is impossible to say what proportion. This species, which is a native of Turkey and Asia Minor, grows to a much greater size than the common Hazel, and when left undisturbed in favourable situations forms a tree 50 feet or more high. The nuts are rounder than our Hazel nuts, hard shelled, and have their husks deeply cut into narrow curved segments,

Though long since introduced into this country, the Turkey Hazel is not cultivated with us for its nuts. They are chiefly obtained in the vicinity of Trebizond and Kiervasond. They are exported via Trebizond, considerable quantities being sent to Russia, Great Britain, Constantinople, Smyrna, and Egypt, but from Smyrna they are re-exported to the United States and other countries. It will be seen that though the Hazel is a valuable plant for the sake of its strong elastic wood, by far its greatest importance is for the production of nuts, of which no accurate records can be obtained, but of which enormous quantities are both produced in this country and shipped from the Continent.

JOHN R. JACKSON.

Museum, Royal Gardens, Ken.

KITCHEN GARDEN.

SEED SOWING UNDER DIFFICULTIES.

LAST season was most unfavourable to the harvesting of vegetable seeds, and all that were grown in the open must necessarily be of a somewhat inferior quality. Even those saved on the Continent did not ripen so well as usual, and we may, therefore, safely conclude, without any disparagement to seedsmen generally, that the bulk of the seed distributed this year is either old, or not so sound as could be wished. In the former case, vitality is impaired in a more or less degree, as it is very certain old seed never germinates so quickly and strongly as that which is sound and new, while badly ripened seed is even worse to deal with. Warmth and a finely divided soil are most essential to the germination of seeds of doubtful quality, and these much-needed conditions are not generally met with this season. On the whole, the winter has not been severe, sharp frosts being few and far between and of short duration. Nor have we had many drying days, but, on the contrary, the weather has been dull and the atmosphere moist without much snow or rainfall to vary the monotony. Heavy or clayey land, as a consequence, is not sufficiently pulverised to be easily got into free working order, and it will be very difficult to prepare for the reception of fine seeds. To commit the seed of choice Peas, Onions, Carrots, and other vegetables to cold, wet, and badly prepared ground is simply so much labour and expense wasted. Better by far to delay seed-sowing in each instance at least a fortnight later than the orthodox date, and be a gainer thereby in the end. A few days may make a great difference in the state of the ground, especially in March. In that month wind and sunshine combined soon dry the surface of the ground, and the latter can then be trampled on and otherwise well worked without becoming pasty. Should it become too hard to cultivate, those in charge must either wait for rain, or small breadths may be watered, and then easily broken down with the aid of forks and rakes. There are some naturally heavy bad-working soils which by long cultivation have been changed for the better, and in this case it sometimes happens a delay of one day may render it necessary to wait a week or longer before they will again be fit to trample on. My advice to those responsible is to "strike while the iron is hot," or, in other words, to sow the seed directly the soil is found to be in a fit state to receive it. The lighter gravelly or chalky soils may be worked at almost any time, or a day after a heavy rainfall, and in such cases there ought to be no difficulty in securing good and even rows or beds of plants from seeds.

The foregoing are trifling difficulties compared with what some gardeners have to encounter. Some of the most fertile soils in the country are also the most difficult to cultivate, especially

during the first few years after they are broken up. Not unfrequently frosts fail to have much effect on these stiff clayey soils, and nothing but a free use of two-tined Canterbury hoes, or, failing these, heavy half mattocks will separate them sufficiently for either planting or seed-sowing. It is very certain that one-half of the gardeners in this country do not comprehend or make any allowance for the difficulties the other half have to contend with, nor do all employers fully realise the fact of some gardens requiring much more labour expended on them than do others of much the same extent. This season, in all probability, there are many instances where it will be impossible to break down the soil sufficiently to render it fit for the reception of seeds generally, and unless extra trouble is taken, gappy seed-beds will be the consequence. Where this state of affairs prevails, I would strongly advise, first, the use of either forks or hoes for breaking down all the lumps of soil both on the surface and to a good depth below, and also a free use of fine light soil for surrounding and covering the seeds. When rows of Peas, Beans, Onions, Parsnips, Carrots, and such like are to be sown, drills deeper than usual should be opened, in these being distributed a surfacing of sifted soil from the frame ground, more of this also being placed over the seeds. Lumpy ground for small beds of seeds ought also to be similarly coated over and the seed covered with fine soil, and other conditions being favourable, a good plant should result. It has fallen to my lot to cultivate land that was too lumpy for Potatoes even, but by stirring a quantity of fine light soil obtained from various sources into the drills, I was able to lift good crops of tubers, many of which were exhibited.

Inferior seeds and a bad seed-bed are not the only causes of failure, as there are numerous living enemies to contend with. Mice are especially destructive among Peas and Beans, while small birds have a liking for the seed of Radishes, Turnips, and the Brassica tribe generally. Neither chopped Gorse nor immersion in petroleum will prevent mice from spoiling the rows of Peas and Beans, but if the seed of these is, prior to being sown, first damped and then rolled in powdered red lead till well coated, the mice soon cease to burrow after it. The smaller seeds may be rendered distasteful to birds in exactly the same way, this being a far simpler plan than covering the beds with fish-nets. We prefer to moisten small seeds in a damp cloth, as should they be much wetted they are liable to stick together in the red lead, and cannot, therefore, be properly sown.

W. IGULDEN.

SHORT NOTES.—KITCHEN.

Preserved Peas.—Will any reader of THE GARDEN say what the variety of Peas is which is generally used by the French firms who preserve Peas, and sell them under the title of *Petits Pois*?—M.

Lettuce Paris Market.—This Lettuce is noteworthy on account of its being the earliest variety we have ever been able to secure. It is of the Cabbage type, remarkably quick in growth, forms fine heads, and is excellent in quality.—J. MUIR, *Marjann*.

The Milan Turnip.—For some time the Purple-top Munich was regarded as the earliest of all Turnips, but of late it has been quite eclipsed in this respect by the Early Milan Strap-leaved variety. This is undoubtedly the earliest of all Turnips by at least ten days.—CAMBRIAN.

Malformed Tomatoes.—I have noticed that the fruits of Tomatoes in a damp close atmosphere are much more liable to be wrinkled and ill-formed than those in a dry, airy position. Where a large majority of quite smooth round fruits are desired the atmosphere should be kept dry when the plants are in bloom.—J. MUIR, *Marjann*.

Covering for vegetable seeds.—As at present

indicated, the soil will be cold and wet for a considerable time, and where small seeds are being put in the kitchen garden they will be immensely benefited by being covered over with dry, rather light soil. The kind that is generally found in potting-sheds at this time of the year is most suitable.—J. M.

POTATOES.

EARLY in the planting season of 1888 a question was, I remember, raised in *THE GARDEN* as to the advisability of selecting a list of the best Potatoes for different soils. Nothing definite was done in the matter, and we are now again on the eve of another planting season. I venture to raise the question in the hope that it may be more fully discussed, especially as new varieties are yearly increasing in number and are annually catalogued, irrespective, in many cases, of the consideration as to whether they are superior to older sorts. I have been led more particularly to the consideration of this matter from the fact that last year nearly all the new, or comparatively new, varieties failed. They came out well in the dry summer of 1887, but failed in 1888, and, with the exception of Early Puritan and Sutton's Seedling, were not nearly so good as the older varieties. The best cropper in 1888, and the best in quality at the present time, is the old Red-skin Flourball. What we really want in the matter of Potatoes is the selection of a few first-class varieties adapted to different soils, and that will carry us well throughout the year. Naturally, if a new variety that is highly recommended appears, one likes to give it a trial, but when so many novelties are weighed in the balance and found wanting it seems about time to protest against their retention in catalogues. I shall confine myself this year to four varieties: Early Puritan, Beauty of Hebron, Sutton's Seedling, and Red-skin Flourball, and dispense with two of these another year, retaining the best early and the best late. Early Puritan is in our light sandy loam the best early Potato of modern introduction. Planted with the best types of Ashleaf, it comes in quite as early, skin and flesh quite white, of good flavour and a very heavy cropper. So far as late Potatoes are concerned, there are few better all-round sorts if you have them true and the soil is suitable than Magnum Bonum and Flourball, although the latter is the better of the two with us both in yield and cropping qualities. I have discarded the Magnum in its favour. Magnum Bonum deteriorates wonderfully in unsuitable soil, as I found to my cost two or three seasons ago, when I was relying on this Potato for the main crop and had to purchase some seed. They were an ugly-looking sample, coarse and misshapely, and had evidently come off stiff, heavy land, but we were almost obliged to put them in as time pressed. The result was not satisfactory—a crop of tubers in every respect like the seed, and as bad in quality as appearance, the majority only fit to be thrown to the pigs, and yet these Potatoes were sold as true. Unsuitable soil was thus answerable for this state of things. It would be interesting to know if a careful selection of the best of the tubers would have given us back say in a couple of seasons in our lighter soil the true form, or is the degeneracy perpetuated when once established? There can be no doubt that the Potato does not receive in the majority of cases one half the attention it deserves, and most gardeners can testify to this fact when they have to purchase for the supply of the kitchen. Given a light, fairly good soil and an open sub-soil that is never liable to be water-logged, the Potato is at home, and such ground requires nothing except a thin dressing of thoroughly well-rotted manure. The ground should, if possible, be deeply dug or ridged as early as possible in the autumn to allow for the decomposition of the manure before planting time, and also that by receiving all the frost it may break down when the planting season comes on. Perhaps about the best spot for late Potatoes is a quarter that has carried an early crop of Brussels Sprouts or autumn Broccoli, and which has been heavily manured for the latter; such ground requires only a deep working with the fork

before the Potatoes are planted. Where the planter has stiff heavy soil to contend with, he is handicapped in the production of good quality Potatoes, and I have found it advisable in this case to reserve a special piece for the principal planting and wheel on to this early in the autumn a sufficient quantity of leaf-soil, to represent when spread a depth of 3 inches. Add to this a thin coating of ashes and a few bushels of soot. Dig as soon as possible, taking deep thin spits, and leave the ground quite rough. The heaviest ground will partially succumb to this treatment and produce tubers of very good quality, for the Potato naturally makes its early start in the lighter material that has been incorporated with the natural soil. This applies to garden cultivation, as nothing but naturally light soil, manured and worked early and deeply, is to be recommended in field culture. Given this, we should hear less complaint than at present exists as to the general good quality of the Potato. One more word. What is the remedy in a season like that of 1888? I say a good cropper and keeper that may be planted early and lifted before the disease has time to make headway. Have we found the variety in Early Puritan? To advertise any Potato at present as disease-resisting (whatever we may hope for in the future) is evidently sheer nonsense; the so-called disease-resisters were last year more affected than the older varieties.

Claremont.

E. BURRELL.

KITCHEN GARDEN NOTES.

ASPARAGUS.—Judging from the state of the roots recently lifted, and which when gently forced produce good shoots, 6 inches long, in about ten days, it will not be long before active growth commences in the open ground. I have long held the opinion that it is unwise to heavily mulch the beds in the autumn, especially when the soil is of a heavy nature. Such coverings, if they do not actually destroy the majority of the roots, have a very weakening effect, as they keep the beds cold and wet, the produce, as a consequence, being both late and poor in quality. During the winter the roots best retain their vitality if kept somewhat dry, and in any case they are not in a position to derive any benefit from the rich soil in which they are located. It is after cutting has ceased, and the plants are laying the foundation of a future crop, that they stand most in need of manure and moisture, and it is then they are generally most neglected. I doubt if any manure that reaches the roots during the winter, or while the beds are being cut from, has the slightest effect upon the quality of the current crop of shoots. As manure is most easily applied now, or before any top growth hampers our movements, I advise its immediate application. Supposing the beds were not much disturbed last autumn, beyond perhaps a light cleaning, the surface would be unbroken, and not, therefore, unduly moist. This may now be carefully forked and manured. If the crowns and roots are very near the surface it is advisable to lightly fork in a dressing of partially rotten manure, but if this cannot be done without disturbing many roots, a top-dressing only should be given. The juices from good farmyard manure especially find their way down to the roots, while the less soluble parts act as a mulching when most wanted, viz., during the summer months. In no case would I rake down the beds that were manured or top-dressed in the autumn. If these are liable to do harm it is too late to prevent it, and to much bare the surface spoils the quality of the shoots and exposes the roots to sunshine and drought. Now is the time to mound over the crowns with fine soil if valuable, long, blanched shoots are required, and this is a comparatively simple matter where the plants are grown widely apart on the level.

SPECIAL MANURES FOR ASPARAGUS.—In many instances the Asparagus beds never receive a dressing of solid manure, nor any special manures other than salt. A liberal surfacing of the latter, say at the rate of a quarter of a hundredweight to every 15 square yards, acts beneficially where the soil is of a light sandy character, but it is by no means a

perfect manure, while if used on heavy clayey land it is ruinous. Were we to use it freely it would render our naturally heavy land still more pasty and cold, and in my opinion hundreds of Asparagus beds have been either much injured or destroyed by frequent applications of salt. If common salt is mixed with either native or imported guano at the rate of one part of the former to four of the latter, a capital manure is formed for Asparagus on almost any land. A light surfacing of this mixture may be given now and another when top growth is rapidly forming, the ground being lightly loosened with forks each time.

CAPSICUMS AND CHILLIES.—These are not so much grown for home use as they used to be, but home-grown pods are still preferred in many establishments. From these can be made cayenne pepper much superior to that usually sold, and both the green and ripe pods are useful for mixed pickles. The heaviest croppers are the common Chilli and Long Red, Long Yellow, and Red Cherry Capsicums, these also being the hottest in flavour; while the Red and Yellow Tomato-shaped, Golden Dawn, and Prince of Wales Capsicums are more showy and milder. The seed may be sown now thinly in 6-inch pots, and these being plunged in a gentle hot-bed, it will soon germinate. Before the seedlings become drawn they ought to be set on a shelf near the glass in a warm house, and when of good size may be potted off. A single plant may be dibbled into the centre of a lightly drained 5-inch pot, or three can be placed round the side of a 6-inch pot, any good loamy compost suiting them. The plants require to be kept in heat till well rooted, after which greenhouse shelves are suitable positions for them. During the summer they may be plunged in a sunny position, where they will form sturdy, fruitful growth, the crops ripening after the plants are housed. Capsicums and Chillies also succeed well when planted out in heated pits and frames in succession to Potatoes and other forced crops. Those kept in pots will require occasional supplies of liquid manure, but it is not advisable to stop any of the shoots, all the varieties branching naturally.

POTATOES FOR PLANTING.—The mildness of the winter has had the effect of starting the seed Potatoes into growth earlier than usual, even those left undug, and which are generally the latest to sprout, also being more forward than desirable. The loss of the first sprout is very detrimental to Potatoes of the Ashleaf section especially, but as it is yet too early to plant extensively, all with shoots upwards of 3 inches in length may well have these removed. If the tubers have not shrivelled badly, owing to having been stored in a warm, dry place, they will soon start afresh, and if the shoots are reduced to two or three in number, they will become fairly strong by planting time. We much prefer that each set should be furnished with one stout sprout only, but if this is lost, leave two to grow. Victor, Puritan, Beauty of Hebron, Sutton's Seedling, Early Border, Eclipse, Midsummer Kidney, and other early and second early varieties are liable to sprout long before planting time, and these, again, ought to be sorted over and cleared of any shoots too long to plant. Scotch Champion and Laxton's Reward also require to be retarded, or otherwise they much weaken themselves by premature sprouting. Many err in storing their crops without first sorting them over. Those intended for use ought to go in heaps together, all light being excluded from them, but the medium-sized or planting tubers should be stored more thinly, and, if possible, exposed during mild weather to light and air. The most even rows are obtained by planting sprouted sets, and for this reason, as well as the prevention of the weakening effects consequent upon premature growth, all should be sorted over at once. Those who recognise the advantage of a change of seed, or for other reasons intend purchasing Potatoes for planting, ought also to order early, so that the sets may be sprouted prior to being planted.

TWO METHODS OF HORSE RADISH CULTURE.—Nothing pays better than Horse Radish if well grown, yet few necessary garden products are so much neglected. It is quite unreasonable to expect

clean, thick, and straight roots from the same piece of uncultivated ground year after year, but in all probability many gardeners never think of paying any attention to the crop. It is possible to have clean, straight, and tender roots about the size of well-grown Salsafy in twelve months from the time of planting if only the necessary labour is expended in their culture. In the first place, a strip of good ground not recently cropped by Horse Radish is necessary, this being either trenched or deeply dug, solid manure being freely mixed with the soil, and not buried at the bottom of the trench. After the ground is ready, or, better still, in anticipation of this, an old bed of Horse Radish should be broken up, the ground being thoroughly trenched in order to find all the roots. All the thin roots about 12 inches long ought to be selected, these being cleared of all fibres to within 2 inches of their smallest end, and if not wanted for immediate planting these should be bunched up and stored in moist sand. The ground intended to be planted should now be measured out into beds 3 feet wide, with 1-foot alleys between them. A line may then be stretched lengthways of a bed, and about 6 inches from the edge. Then with the aid of a trowel or spade bury the selected roots across the bed and 12 inches apart, the smallest end in the centre and the thick end near the line, a covering of 3 inches of soil being ample. Two such rows for each bed, and facing outwards in each instance, are sufficient. Early in the summer examine the base of the leaf-stalks and remove any roots there forming, as these are apt to become stout and much weaken the main root. Amulching of manure ought to be given before dry, hot weather is experienced, and the beds may well be occasionally watered during the summer. The foregoing practice is mostly favoured by market growers, and having given it a good trial I can truthfully assert it is the best that can be tried. A commoner method of growing Horse Radish quickly and well may perhaps better meet the means of some gardeners as being the least expensive. In this instance the ground should be trenched deeply, manure being freely mixed with the bottom spit. For planting, select straight young roots with or without a crown, and after rubbing off fibres with a coarse cloth, dibble them in 12 inches apart each way. Short, thick lengths with crown attached may also be planted, but these should be dropped into holes made with a dibber and about 12 inches deep. The shoots will soon find their way to the surface, the underground portion developing into a stout clear stem such as cooks delight to handle. A bed will remain fairly profitable for two or three seasons, but the best results attend the practice of annually clearing and replanting.

W. I.

AMERICAN NOTES ON TOMATOES.

IN THE GARDEN for Feb. 2 I noticed an article by "W. I." on Tomatoes, and thinking you would like an American opinion on the subject, I submit the following: "W. I." is somewhat wrong in his descriptions of the Turner Hybrid and Mikado, which are one and the same thing, the difference being only in name, the Mikado and Turner Hybrid having been introduced simultaneously under the former name by Henderson and Co., of New York, and under the latter by Burpee and Co., of Philadelphia.

Last year we had quite a number of new Tomatoes introduced for the first time. Among them were some quite worthy of general culture. Among the new ones, I would mention the following: The Dwarf Champion, which is of very compact growth, and which on this account will, I think, make a good forcing variety. The fruit is of a dark red colour, quite smooth, and of good flavour. The Volunteer, which is highly commended for canning; fruit smooth, flavour fair, and of a bright red colour, and early for a smooth variety. King of the Earlies, a new early sort, but not very good, as its sole quality is in its earliness, the fruit being small, rough, and of poor flavour. Livingston's Potato Leaf, a fair-sized Tomato with foliage similar to that of the Turner Hybrid (Mikado), but fruit not so large.

There are quite a number of promising new varieties in the different catalogues for 1889, among them being Matchless. Having seen this new variety grown, I think it is well worthy of its name, and doubtless it will make a popular variety, as it has all the qualities of a good Tomato; fruit large, smooth, and of fine flavour. The Shah, a new large yellow Tomato, is said to be a sport from the Mikado (Turner Hybrid). An old variety called The Peach is well worthy of its name, both in form and flavour, and is very prolific. The Lorillard claims to be a superior variety for forcing, and from the numerous testimonials of well-known American gardeners who have grown it, it ought to prove a valuable acquisition for England.

As regards the yellow fruited varieties, they are not grown very much here, as the fruit is not equal to that of the red kinds.

It would probably surprise some of the English gardeners to see the way we cultivate Tomatoes here, especially in the State of New Jersey, where the crop is mainly grown for canning, tons of this vegetable having been grown on many farms. At the height of last season Tomatoes were sold as low as 3d. and 5d. per basket wholesale.

AN AMERICAN SUBSCRIBER.

EARLY TOMATOES.

TOMATOES in March and early April are always appreciated, and as a market crop they are more valuable than many things more difficult and expensive to cultivate. In this respect they will compare favourably with Cucumbers and Grapes, as they may be grown at less expense in the way of fire-heat and accommodation, and many whose skill and experience would not enable them to grow early Cucumbers and Grapes would find no difficulty in maturing Tomatoes abundantly. I am leaving professional market growers out of the question, and although in some private gardens many glasshouses are entirely devoted to Tomatoes, the majority of growers try to mix them up with other crops, or grow a few dozen plants in vineries and pits. It is in cases of this kind that I advocate low pits, slightly heated, as excellent places for early Tomato culture.

Where Tomatoes can be planted in pits, a narrow ridge of soil should be put on the stage or in the bed, and the plants should be set in this at a distance of 1 foot from each other. The nearer the glass and light they are the better. As soon as they begin to grow break off every side shoot that forms and confine the plant rigidly to one leading shoot. If this plan is carried out closely, the plants, although only 1 foot from each other, will develop in a most satisfactory manner. They will also begin to fruit very near the soil, and the fruit will come in clusters close together all up the stem. Some of our plants treated in this way last spring grew to a height of 12 feet. They began to bear ripe fruit in March, and had not ceased when thrown out in November. Where they cannot be planted out the pot plan of growing them should always be adopted. The plants need not all be grown together, but if one is placed here and another there in the houses, they will soon produce quantities of fruit. We sometimes place them at the ends of houses to keep them near the light, which is a great point, and we have stood the pots upon back shelves and trained the tops down under the rafters with good results. Those who have no plants from cuttings should sow seed at once. It will germinate in a week in a temperature of 65° or 70°. A pinch of seed may be sown in a 6-inch pot, and when the plants are about 3 inches high put them singly into 3-inch pots. Keep them in the same temperature after this, very near the light, and confine them to one stem from the first. As soon as they attain a height of 10 inches or so transfer them to their fruiting pots, which should not be more than 9 inches in diameter, as the plants fruit sooner and more profusely in a confined root space than otherwise. Indeed, if there is a secret in producing early Tomatoes it is in limiting their root room.

A very rich mixture for growing Tomatoes in

must be avoided. Three parts of loam or soil to one of half-decayed manure will make them short-jointed and fruitful. It is not necessary to fertilise the blossoms to make the fruits form, and if the soil is kept moderately moist the fruit will develop without further assistance. Surface dressings or liquid manure should only be given after the plants have produced a considerable quantity of ripe fruit.

CAMBRIAN.

MARKET GARDEN NOTES.

FORCING VEGETABLES, SALADS.—This is now occupying a good deal of attention, for during the spring months better prices are obtainable than during the depth of winter, and far better results can be had, now that the lengthening days and brighter skies make the work of forcing easier. The glass structures are filled to their utmost capacity, for although the demand at seaside towns may not yet require all the forced vegetables that are grown in the neighbourhood, choice products if sent to the London markets are sure to find a ready sale. It is the bulky crops of common vegetables that do not pay for transit. The following crops are at present finding most favour with growers, and we may therefore assume that they are still profitable.

ASPARAGUS is being forced in quantity. The roots are raised by sowing the seeds rather thickly in large beds in the open fields, on well cultivated and enriched soil. The plants are allowed to stand one year, lifted just as they start into growth, and then planted out in rows 1½ feet apart. After two years' growth they make fine clumps for forcing. Asparagus is generally forced in large frames, heated with hot-water pipes for both top and bottom heat, although some people still adhere to fermenting material for the bottom heat.

FRENCH BEANS are grown in low span-roofed houses or pits with sufficient heat from hot-water pipes to maintain a temperature of 65° at night and a good rise by sun heat by day. They do well either in pots about 8 inches in diameter or planted out in beds of rich soil. Pots are in most favour for the earliest crops, and planting out when solar heat gets stronger. Few crops suffer more quickly from dryness at the root or in the atmosphere than these, and plenty of atmospheric moisture is indispensable to keep down insect pests that soon destroy all hopes of a crop.

CUCUMBERS are being planted out in span-roofed houses, and successional plants brought on for pits and frames. Plenty of heat and moisture is indispensable for these. A good tank of tepid rain water and plenty of good top spit pasture soil appear to form the main items of successful Cucumber growing.

MINT is grown in quantity in frames, the roots being lifted in large masses and set on gentle bottom-heat, which induces rapid growth, and when about 6 inches high it is cut off, tied into bunches and sent to market.

MUSHROOMS, when well done, are amongst the best crops that can be grown. The Mushroom house is generally built on the north or shady side of the lean-to glass houses and close to the heating apparatus. Market growers favour large beds with a good depth of material. I lately saw a splendid lot of beds just coming into bearing, the atmosphere of the house being kept moist by means of an open tank of tepid water, with hot-water pipes running through it and giving off a fine vapour. The lowest tier of this house was filled with Seakale and Rhubarb; these are raised in large quantities in the open fields. The Rhubarb that is obtained in a totally dark Mushroom house is of very superior quality, and of far better colour than that obtained by placing the roots under stages in forcing houses.

POTATOES of the earliest Ashleaf Kidney type are grown in large heated frames or pits, with one flow and return pipe running along the front. The usual plan is to put enough stable manure in the bottom to give a nice bottom-heat to start the Potatoes well into growth. The sets are started in

boxes preparatory to being planted, and when put out in rows in light rich soil they are covered sufficiently deep to require no earthing up. A crop of Radishes is obtained before the Potatoes get much top growth by sowing the seed of the Scarlet Forcing Radish, which becomes fit for use in a very short time. As soon as the Potatoes are lifted, plants of ridge or frame Cucumbers are ready to put out, while sometimes the earliest crop of Vegetable Marrows follows the Potatoes. J. G.

Gosport.

PROPAGATING.

PALM SEEDS.—Palms of all sizes are among the most useful of foliage plants, and perhaps for no other purpose are they more serviceable than for table decoration. They must not exceed a certain size; therefore it is necessary to have young plants to succeed those that are growing too large. Where only a limited number of plants are required, it is hardly worth while to attempt raising them from seed, but where they are required in large quantities it becomes very expensive to purchase small plants annually. There is very little difficulty in raising seedling Palms. The most important point is to obtain good seed, and to sow it while it is fresh. Although to all outward appearances the seed may remain in good condition for a considerable time, that of many of the sorts loses its vitality very quickly, especially if kept in a dry place. The seeds of various sorts are imported at different times of the year. *Cocos Weddelliana*, *Geonoma gracilis*, and other sorts should now come to hand. If they cannot be sown as soon as received, care should be taken that they are not put in a dry place. The best way to store them is in some moist Cocoa-nut fibre refuse under a stage in a warm house. For most of the choicer sorts it is best to use small pots for the seed, and only put one seed in a pot. The pots should be filled with good mellow loam, to which a little sand should be added. The seed should hardly be covered with soil. The pots may be plunged where there is a good brisk bottom-heat and kept fairly moist, but not saturated with water. Palm seeds often germinate very irregularly. Some may start into growth in the course of a week or so, while others may remain dormant for months and then start; therefore it is necessary to keep them about for a considerable time. In no case should the seed pots be disturbed until it is evident that the seeds are decayed. In the treatment of young Palms it is essential that they should have a warm, humid atmosphere and plenty of shading, but not too much water at the roots. They should be potted firmly in good mellow loam and restricted to small pots. I believe that Palms are often ruined through over-potting them in light, spongy soil and giving them too much water.

PANDANUS VEITCHI.—This is a most useful plant for table decoration. To obtain good plants for the purpose they should be propagated from the small side shoots of slender growing plants. These have quite a different aspect to those taken from vigorous growing plants, which produce broad stiff leaves; while the small weakly shoots will form symmetrical little plants with narrow, recurved leaves, the variegation also being better. The cuttings may be taken off close to the old stem. They should be put in singly in small pots filled with light sandy soil, and placed in the warmest part of the propagating pit and kept rather dry. As soon as the plants are established they should be removed to a light open position, and as close to the glass as possible. If potted in light sandy soil and kept moderately dry, they will retain the light slender habit of growth, but when treated too liberally they soon grow out of character.

BEGONIA REX.—There are now a great number of varieties of this section, although the old form is not much grown at the present time. Some of the varieties are very desirable, especially those with red in the foliage, such as *Louise Chrétien*, *Zenobia*, *Mme. H. Gache*, &c. These, like the type, may be propagated from leaves, but a much

quicker method is from cuttings. Sufficient stock can generally be obtained, and if carefully treated, cuttings from the strongest shoots will root freely. The old plants should be kept rather dry previous to the cuttings being required. Dry sand should be used to absorb the moisture as soon as the cuttings are taken off. They should be put in singly into small pots filled with sandy soil, and very little water should be given for the first few days. The warmest part of the propagating case will suit them best, but they must not be kept too close or they will be liable to damp.

BEGONIA INCARNATA.—The dark-leaved variety of this species is another very useful foliage plant, and when grown in an exposed position the leaves have a bright bronzy red shade, which shows up well under artificial light. This may also be propagated from cuttings under similar treatment to the above. In the culture of these fine-foliaged Begonias a great point is to grow them on in a light sunny position. The colours will then be much brighter, in addition to which the plants will be more serviceable, for when grown in the shade they soon wither if in a dry atmosphere. A.

NOTES OF THE WEEK.

Mere de Menage Apple.—Mr. Barker sends fruits of this kind, which he considers one of the best late Apples.

Reinette Grise Apple.—Mr. Barker sends us fruits of the above. It has a distinct, pleasant flavour, and is very useful at this season when really first-class Apples are scarce.

Cyclamen coum and C. Atkinsi.—Good examples of these, which have been in flower since November, are still looking fresh and bright. They are grown in pans in a cold pit.

Narcissus cyclamineus.—A fine patch of this charming little Daffodil is now in full flower in Mr. T. S. Ware's nursery, Tottenham. It is growing in the open ground and protected from the rough weather by a hand-light.

Galanthus caucasicus.—The Rev. H. Ewbank, Ryde, Isle of Wight, writes us: "Another Snowdrop (*Galanthus caucasicus*) has come out this morning (Feb. 20) which is quite new and distinct. I got it from Mr. Ware."

Hyacinthus azureus.—This lovely Hyacinthus or Muscari is flowering freely under a hand-glass on the bulb border at Kew. It is known also as *Muscari lingulatum*. An interesting note appeared on it in *THE GARDEN*, Jan. 19, 1889, page 45. We hope to figure this winter gem.

Narcissus minimus.—The first to bloom in the open air. We saw a fine clump in full flower the other day close to a south wall, but the appearance of snow again will doubtless make the flowers hang their heads. It is quite hardy, and should be planted in quantity in every garden.

Rhododendron Countess of Haddington.—A specimen of this well-known *Rhododendron* is in full flower in the greenhouse at Kew. Its presence can be detected by the sweet fragrance of the large, bell-shaped, and pinkish white flowers. It is a charming variety for the greenhouse at this season of the year.

Epimediums placed in a gentle bottom heat make pretty plants for a cool house at this time of year, and when gradually hardened off it is surprising how much cold they will stand without being injured. Even without their flowers *Epimediums* are worth growing in pots for their variously tinted foliage, which in a young state is very beautiful.

Christmas Roses.—This has been a wonderful season for Christmas Roses with us. From the last week in November to now—last in February—they have never ceased. The individual flowers I have seen better, but never such a supply, or lasting so long. My form is a fairly good one, often nearly 4 inches across, nearly colourless outside, stems well dotted with red; foliage large, but dwarf in height.—GREENWOOD.

The Tenby Daffodil (*N. obvallaris*) is certainly among the very best for early forcing; it stands heat better than many of the larger trumpet-flowered forms. We find that it wants abundance of water after the roots are fairly started, gradually withholding it as the buds advance. *N. cynosuroides* is also good among the incomparabilis section, and if taken into a cool

house just as the flowers are opening, the colour of the orange cup is almost as intense as when grown in the open air.

Dendrobium Wardianum.—Enclosed are a few flowers of *Dendrobium Wardianum* from a small plant carrying eight flowers. I purchased it from the Liverpool Horticultural Company about eighteen months ago with several others. Is not this a very good variety, as none of the others I have can compare with it?—W. CLARK, *The Gardens, Eversley, Herne Hill*.

*** Certainly one of the best forms of this Orchid we have seen. The flowers are large, full, broad, and richly coloured. A plant in full bloom must be of unusual beauty.—Ed.

The Heavenly Bamboo (*Nandina domestica*).—I send you a sketch of a fruiting branch made from a fresh specimen Sir R. Shaw has just sent me from Pau. It is very lovely with its clusters of red berries, and its leaves take on all sorts of hues. We have two varieties of the plant here, this and a form with finer leafage, and their autumnal colouring is exquisite, but they have never fruited with us. It wants bright sun, no doubt.—F. W. BURIDGE.

*** A bold, and pretty drawing of a distinct and charming shrub, bearing a graceful, though massive bunch of red fruit.—Ed.

Hybrid Snowdrops.—I send you herewith some Snowdrops undoubtedly hybrids between *G. nivalis* and *G. plicatus*, and others which appear to have a slight cross of *plicatus*. I should be glad if you could inform me if these crosses are common. I cannot find any seedlings of *G. plicatus* pure. The original patches are quite defined, with no seedlings very near, the hybrids being all near clumps of *G. nivalis*; they are taller and handsomer than *G. plicatus*, with decidedly stronger and sweeter scent than either parent.—R. O. B.

*** An interesting series of crosses, the flowers very strongly and sweetly scented.—Ed.

The Hepaticas, very many of which have received garden names, are a very useful class of plants for flowering indoors during the early spring. Although perfectly hardy, they require to be grown in sheltered spots on account of their flowering so early. A few may also be grown in pots, and these placed in a corridor or cold house make a pretty display all through February. The double red is very sweet and amongst the hardiest; then there are the single blue of various shades, pink, white, and the form known as *variabilis*, which is very fine and free. The double blue, lilac, mauve, and other forms make a very useful group.—K.

Orchid notes.—I sent you this morning a few sprays of *Phalenopsis Schilleriana* cut from different plants and a spray of *P. grandiflora*. The latter is just going off, but not so much but that you may form an idea what it has been. The same spike would have produced a similar spray if allowed to remain, which we always do. Of *Schilleriana* we have quite 600 blooms open, one spike measuring 4 feet long. You will see from flowers sent how they vary in form and colour, making them still more interesting. All are lovely, and they make a showy mass of bloom. They make a beautiful display at this season, and remain in flower until quite the middle of April. Some plants are carrying leaves quite 18 inches long. Gardeners and all Orchid lovers within reach should not miss the opportunity of seeing them, and no doubt they would find other things quite as interesting at Henham.—G. W. EDEN, *Henham Park Gardens, Suffolk*.

*** We thank you for the beautiful gathering of *Phalenopsis Schilleriana* and *P. grandiflora*. The spike of *grandiflora* was the finest we have seen for some time. Of all the Orchids in flower at the present season *Phalenopsids* are the most lovely.—Ed.

The Vernal Snowflake (*Leucojum vernum*) is now in great beauty. I think it is even more beautiful than the Snowdrops, the common varieties of which look small beside such giants as *Melvillei*, *Imperati*, and others of the newer kinds. The Snowflake is just as easily dealt with as the Snowdrop, and rarely fails to produce an abundance of its snowy green-tipped flowers. The latter form is, to my mind, much better than the yellowish-tipped one, which only shows its distinctive cha-

racter at close quarters. We have planted the Snowflake in a bed of mossy Saxifrage, and the effect is quite beyond our expectations; the soft green carpet studded with drooping bells produces a very fine effect.

Narcissus in Co. Cork.—Mr. Hartland writes to tell us that he gathered 100 blooms of the white Narcissus (*N. cernuus*) on the 24th of February. Prunus Pissardi, he says, has been in flower for a fortnight—in the open air, of course. He claims merit for Ireland for her climate, allowing all these fair things to be seen in the winter in the open air.

Muscari botryoides and Lily of the Valley.—A group of these two beautiful flowers in the greenhouse at Kew is worthy of note. The rich blue of the Muscari and the tiny white bells of the Convallaria make a rich picture. It is astonishing how many effects of this kind can be produced with a little forethought and judgment.

Iris reticulata major.—When "T. S." sent to you bruised blooms of *Iris reticulata major* you were unable to judge them fairly. The name *major* is not only justified by the size of the flower, but principally by its different appearance, all parts of the flower being more spreading. In the type the falls are often pendent or recurved; in the variety they are even and flat, and its entire shape presents a considerably larger surface of colour to the eye. —MAX LEICHTLIN, *Baden-Baden*.

Streptocarpus Watsoni, a hybrid raised by Mr. Watson, of Kew, under whom it is named, is the brightest flower in the stove in the Royal Gardens at the present time. The plant is bearing a number of rich rosy blooms, that are almost white in the tube, except for a pencilling of chocolate-crimson. Such beautiful hybrids should be in every stove house in the country. The flowers are not only produced freely, but the colours are exceedingly bright and pleasing.

Hollies from Handsworth.—The birds have left a fair crop of Holly berries of the varieties sent. Some of the other kinds were cleared off during the storm. I wish to draw your attention to the Holly Marnocki. One peculiarity of it is that it bears freely on the old wood. I have seen branches 2 feet in length covered with berries, which remained in condition far longer than those of any other variety, and the trees of it when in full berry are a sight. The orange-berried Holly is one of our seedlings. —CHARLES FISHER, *Handsworth, Sheffield*.

*** We hope these fine forms may be increased by layering, so as to get rid in their case of the ill effects of grafting. The seedling forms raised at Handsworth are admirable; we mean those not named.—ED.

Confusion of names.—In your last week's issue appeared a note of mine, referring to a plant recently figured in Regel's *Gartenflora* under the name of *Convallaria majalis prolifans* (Wittmack). I stated that the name was incorrect, and that it should be *Spiranthes convallarioides*. I am sorry I made the assertion, as I have evidently made a mistake, the plant being correctly named, and the name I have it under in my catalogue is wrong. I think it better to at once make this admission, and thus prevent the public from becoming acquainted with the plant under a wrong name.—T. S. WARE, *Hale Farm Nurseries, Tottenham*.

*** As will be seen from the above note, Mr. T. S. Ware has corrected his mistake of last week in the "Notes of the Week" (p. 164). Our readers may be interested in what we give herewith: A coloured plate of *Convallaria majalis* var. *prolifans* (Wittmack) appeared in the *Gartenflora* for February, fig. 1292, and Mr. Ware appears to have taken it for granted that this was identical with *Spiranthes* (not *Spiranthes*) *convallarioides* (Baker, Linn. Soc. Journal, vol. xiv., tab. 17); whereas the two plants belong to entirely different divisions of this large Order. *Spiranthes* belongs to the Polyphyllous division, the flowers of which are somewhat like those of an Anthericum, the six oblong obtuse spreading petals being quite free to the base. It was introduced as early as 1854 by Capt. Garden, and is figured in the *Botanical Magazine*,

t. 4812, as *albuca? Gardeni* (Hook.). The *Convallaria* belongs to the Gamophyllous division, with a campanulate corolla, the small divisions at the mouth of the cup usually reflexed. The figure in the *Gartenflora* shows clearly enough that the plant intended to be represented is a *Convallaria*, although it may be a monster, and we are told by a correspondent that Mr. Ware a few years ago distributed a nearly allied plant under the name of *Convallaria ovata*. The above only shows how easily mistakes are multiplied and perpetuated.—ED.

The old Cloth of Gold Crocus (*C. susianus*).—This is perhaps one of the most charming spring Crocuses, because of its curiously reflexed flowers. It was in cultivation probably previous to 1613, at which date it was figured in the "Hortus Eystettensis" under the title of *Crocus vernus aureus variegatus*. It is also figured by Redouté in "Plantes Liliacées," plate 293, and is described in "Transactions of the Royal Horticultural Society," vol. i., p. 136, as *revolutus*, and again by Don in the fourth edition of "Hortus Cantabrigiensis" (1807) as *reflexus*. All the names are characteristic, unless the one we call it by now. We have found it to be a most suitable species for naturalising in the Grass. Corms were planted several years ago, and they increase, though not so rapidly as those of many of the other varieties. It is the only Crocus that reflexes in this peculiar way, and when the flowers are open the brownish purple outside harmonises well with the deep orange of the inside of the segments.

Passion Flowers, &c.—Some weeks ago—about Christmas, I think—a correspondent mentioned that *Passiflora princeps* had been in flower with him since July. I have a small plant in an intermediate house, and it commenced to bloom at the end of March, 1887, and never ceased till about October, 1888. During all that time it had either open flowers or large, fat buds, just as ornamental. I feared it would flower itself to death. It is, in my opinion, one of the best species we have in cultivation, as even when not in flower its foliage is most ornamental, while few things can surpass the beauty of a tiny raceme, of perhaps forty or fifty buds and blossoms, mingled with the rich polished green bracts and leaves. Its depth of colour varies with the amount of light. Racemes frequently start near the ground, and flower under the benches, when they are almost white, while those produced in dull autumn weather are so washy as to be nearly useless. In this neighbourhood (South Dublin) *P. cærulea* is thoroughly evergreen against south, east, or west walls, rivaling Ivy in its density and verdure, and continues to bloom till far into winter. About the middle of December last a plant against a house near here had numerous perfect flowers. I am now trying it on a shady wall, facing a little north of west, which Ivy refuses to cling to, and will report result, if any. The white form, *Constance Elliott*, though more free-flowering than the type, is not at all so deliciously evergreen, nor is it nearly so deep in colour of foliage. It seems to enjoy a warm, sunny year like 1887 much more than a dark, damp one like 1888. Even against a south wall its flowers did not expand so well, nor did it continue in bloom, like *P. cærulea*, to nearly Christmas.—GREENWOOD.

Orchids at Rosebank, Cincinnati.—I herewith send a list of Orchids in flower and bud in the collection of Mr. F. T. McFadden, Rosebank, Cincinnati, U.S.A., thinking perhaps the readers of THE GARDEN interested in Orchid growing would like to hear of the rapid growth of Orchid culture in the United States. We have a good collection of Cypripediums at Rosebank, including all the leading hybrids, and are still adding to our stock. We have four large houses devoted to the culture of Orchids, and are building more. We have a fine lot of plants of *Lycaste Skinneri* in flower at the present time, amongst them being some fine varieties. We have about 100 flowers open on specimens of *Cattleya Trianae*, scarcely two flowers being alike. Among them is the white form, *Trianae alba*. *Phajus grandiflorus* is represented here, one plant carrying five spikes, with as many as twenty-five flowers on a spike. A fine spike of *Oncidium ampliatum majus* is carrying over 100 of its large

yellow flowers, *Oncidium Cavendishi* having seventy flowers on a spike. We have also two fine spikes on a plant of *Catasetum Bungeorothi*.—JOHN ORMSBY, *Rosebank Gardens, Cincinnati, U.S.A.*

*** We thank you for your note, and are pleased to hear of the appreciation shown to Orchids in the United States. Such news is always welcome. In the list sent of species and varieties in flower we note such *Oncidium*s as *Cavendishi*, *ampliatum majus*, with other well-known kinds; also the beautiful *Phajus Wallichii*, *Phalenopsis amabilis* *Dayana*, *Angraecum Leoniae*, *A. Sanderianum*, *Calanthe veratrifolia*, *Turneri*, and *nivalis*; *Cattleya amethystoglossa*, *labiata* *Warneri*, *Trianae alba*, and *T. Atalanta*, *Cœlogyne flaccida*, and *Catasetum Bungeorothi*. There are many kinds of *Cypripedium*s and *Dendrobium*s mentioned as being in flower.—ED.

THE GARDENERS' ORPHAN FUND.

A MEETING of the committee took place at the Caledonian Hotel on the 22nd ult., Mr. George Deal in the chair, there being, as usual, a good attendance of members. The minutes of the last meeting having been read, the secretary reported a balance at the bank of £435 10s. 4d., also that the share of receipts from the benefit performance at the Princess's Theatre was £21 4s. 6d., less a sum of 20s. for printing, &c. A cordial vote of thanks was passed to Miss Grace Hawthorne, the lessee of the theatre, for her kind co-operation. Mr. Hodges, of Lindfield, Sussex, sent the sum of £5 10s., the proceeds of a concert held on behalf of the fund, and a donation of £5 5s. was announced from Mrs. Wills, Onslow Crescent. In reference to the Covent Garden Floral Fête, a letter was read from Mr. J. R. Bourne, informing the committee that his Grace the Duke of Bedford will feel much pleasure in granting the use of the flower market for a second fete, and the Duke suggested that a price should be put upon the tickets, but on the distinct understanding that the money so obtained would go to the Gardeners' Orphan Fund, and not to the market accounts. Mr. Bourne stated his willingness to afford every facility for successfully carrying out the scheme. It was therefore resolved that the committee should convene a meeting of the market growers at the Hummums Hotel, Covent Garden Market, on Friday, March 8, at 9 p.m., to request their co-operation in carrying out the fete, and for the appointment of a committee from their body to work in conjunction with the committee of the fund. The chairman laid upon the table a careful computation of the capacities of the income of the fund in relation to placing children upon it which had been prepared by Mr. A. H. Smee, and it appeared from the computation that the committee would not be justified in placing upon the fund more than five children at the coming election in July next. A hearty vote of thanks was passed to Mr. A. H. Smee for his valuable report. Authority was given for the insertion of advertisements announcing the intention to place six children upon the fund in July next and inviting applications from candidates, the annual meeting and election to take place at the Cannon Street Hotel on Friday, July 19, subject to the hotel being available. Several details of the Covent Garden Fête were considered, and it was unanimously resolved that the tickets of admission should be 5s. each. A hearty vote of thanks to the chairman concluded the business.

BOOKS RECEIVED.

"List of Seeds for Exchange, 1889." The Royal Botanic Gardens, Glasnevin.

"List of Seeds Available for Distribution, 1889." The Botanic Gardens, Cambridge.

"Cactus Culture for Amateurs." By W. Watson, Assistant Curator of the Royal Gardens, Kew. Upcott Gill, 170, Strand, W.C.

Names of plants.—*G. Baker*.—*Cattleya Trianae* *delicata*.—*T. B. Parker*.—*Dendrobium Wardianum* (poor variety).—*G. H.*.—*Azalea* is *narcissiflora*; the Orchid, *Zygopetalum Mackayi*; and the scarlet flower, *Eschschanthus speciosus*.—*T. Wood*.—*Cattleya Trianae*, the flower richer in the lip than usual. This species varies considerably.—*J. W. R. Buxendale*.—The Oak is *Quercus cæcis* *Lucombeana*; the Fern *Onoclea sensibilis*.

WOODS & FORESTS.

THE TIMBER TRADE AND ESTATE SUPPLIES.

IN a paper read by so many landed proprietors as *THE GARDEN*, the exaggerated statements of Mr. A. D. Webster regarding the present prices of timber and prospects of trade should not be allowed to pass. It is not the case that prices are either going back or at a standstill, as he seeks to make out, but quite the reverse. The same writer asserted the same thing not long since in a contemporary in the face of the most cheering accounts of actual timber sales (in the same paper) that have appeared for years. The timber trade has during the past two years shared fully in the improved state of business. Oak bark last year rose from 2s. 6d. to 3s. 6d. per ton, the first sensible move for a good while. We disposed of 150 tons at that rise, and this year I fully expect 4s. or 5s. more, while all sorts of timber, except Beech and Elm, have risen in price from 3d. to 6d. per foot according to quality, and in some cases more. At one representative sale near here lately, Oak—good sized trees—sold for 2s. 6d. per foot in the wood, standing, against 1s. 9d. and 2s. last year and 1s. 3d. and 1s. 6d. the year before, and a lot of it went south about 100 miles and had to be carted 4 miles to a station at this end. Both in the trade journals and in the trade better prices are admitted all round. I know we have, ourselves, sent out considerably less timber for the same money these last two years. Small Oak poles are the worst to dispose of, but they now realise more money, and when old stocks are worked off prices will still rise. For the first time for many years we have sold a whole fall of Oak of all sizes, perhaps 10,000 feet, to one coal and iron works. The great rise in freights for foreign timber and consequent rise in deliveries of timber here have brought this about more than anything else. As to estates improving the timber trade by seasoning and using their own timber, the idea is quite fallacious, principally for the reason that we have not the kind of timber mainly in use for estate purposes, and to substitute Oak or Ash in its place would be simply suicidal, as can easily be shown. First of all, on all properly conducted estates, and at present more so than has ever been the case perhaps, a strict separate debtor and creditor's account is kept of what is generally called the "estate" department, and of the farm, the woods, the stables, and the house. Those responsible for the expenses or income in any of these departments have naturally an interest in giving as good an account of their stewardship as possible at the end of the year, and this is how it works. If the woods and the estate or the farm can work advantageously together, well and good, but when every transaction between them is a question of £ s. d., this is out of the question. Take an actual example that I know of. An agent required fully 1000 feet of timber for scaffold poles, props, and fencing purposes, &c., and inquired of the forester at what price he could deliver the same at the saw-mill. Larch and small Oak were the only two kinds the forester could supply of the required dimensions, and these he offered to deliver at the lowest market price, viz., 1s. 2d. and 1s. 3d. per foot at the time. The agent declined the offer, stating that he could buy Norwegian poles, &c., cheaper, and these he got, had them delivered (about half a boat load) and sent inland seventy miles—saving about £20 by the transaction to his department while the forester delivered his Larch elsewhere for another purpose. Next, take a colliery. I know estates

where scores of thousands of cubic feet are used annually, and although the pits are in the proprietor's own hands, the whole of the pit props and much of the other timber are foreign, for the reason that he could not deliver his own Larch (of which he has plenty) at the same price as the foreign without loss. For finer joiner work, home carpenters assure me that they can neither, as a rule, deal so cheaply nor so conveniently with the home timber as with what they can get ready sawn and seasoned for their purpose at the timber yard; while, when any extensive alterations are going on about a mansion, the work is probably let to a London firm, who, having their own stock already prepared, will not even entertain a forester's offers.

And wherever care and economy are exercised on an estate from which an income has to be derived, the strictly commercial principle of conducting each department is by far the best and most reliable. The different heads of departments may fall out occasionally about overcharges, &c., but my experience is that the plan works well for both the proprietor and his agents. Sell in the dearest market and buy in the cheapest wherever these are.

I know some few estates where the proprietor, having a good income from some independent business source apart from his estate, can afford to make experiments such as Mr. A. D. Webster suggests, but they are extremely like the farming experiments of the rich London alderman who some years ago undertook to show how high farming would pay fabulous profits, but which were never realised.—*YORKSHIREMAN*.

— Mr. Webster's weighty and thoughtful article on the above (p. 184) deserves the most serious attention of the owners and managers of all landed property throughout Great Britain and Ireland. These, as Mr. Webster shows, have to a much greater extent than is generally supposed the control of prices in their own hands.

Within the memory of comparatively young men the practice now almost universal of using foreign deal for estate repairs has sprung up and over-run the greater part of the country. Cheap as foreign deal and other kinds of imported timber are, more is mostly paid for them than is received for the home-grown timber. A double loss is thus incurred, much to the impoverishment of landowners and to the unfair depreciation of a most important home industry.

Year by year the home-grown timber, unless of the largest size and of the finest quality, is becoming more and more unpopular in the building trade. No doubt its difficulty of transit and the cost of conversion into useful sizes has had much to do with the depreciation of home-grown timber. But in certain districts it almost seems that other and less legitimate causes were at work—something in the form of timber rings—to create and sustain a prejudice against it.

But were strict orders given to use home-grown timber for all estate and farm repairs and buildings, as far as practicable, the home consumption would speedily use up the major portion of the home produce as well as greatly raise its selling value. Considerable experience in the use of home-grown timber alike in Scotland and England enables me to agree with all that Mr. Webster so well says of its durability and value. After all, in the matter of timber buying or selling, as in so many other matters, a "penny saved is a penny gained," and it matters little at the end of the year whether £100 has been taken for timber sold, credited to timber used at home, or not paid to the timber merchant for foreign stuff probably inferior to the home-grown.

Mr. Webster scores another good point in regard to the use of home-grown timber, viz., its not being sawn and sorted into handy sizes and kept in stock in well-seasoned condition. On not a few estates

jobs might almost be done with foreign timber before the home-grown could be sawn and sorted for use; while the employment of unseasoned and unsuitable timber has ruined its character for durability. On other estates only the worst home-grown timber is retained for home consumption, all the best being sold. No policy could be more extravagant or unwise or certain to reduce the selling price of home-grown timber all round.

The country at large suffers almost as much as the home growers through the depreciation of home-grown timber by means of these and other preventable causes. Foreign competition will necessarily keep down prices; and this furnishes an additional reason why we should not voluntarily assist in beating down the prices of our home supplies beyond the limits of profitable production; for there are few home industries that employ more labour for the capital involved than the growth, preparation, and use of timber in the building trade and other manufacturing industries.—*QUEBCUS*.

CARLYLE ON TREE PLANTING.

THAT the late Thomas Carlyle had at least some interest in tree planting is quite evident, not only from the excellent and very truthful article that he contributed to the *Nation* exactly forty years ago on tree-planting in Ireland, but likewise from the number of thriving young Oaks that were "raised from seed and planted for Mary, Countess of Derby, by Thomas Carlyle," and now growing on various parts of the Holwood property. These Oaks, which now average about 7 feet in height, were planted by the great writer in October, 1875.

Pot culture, for the first half dozen years of their existence, sadly crippled the perfect development of root and branch, but now that they are planted out, a fairly good annual growth is produced, and the trees seem in a fair way of attaining to goodly proportions.

At the close of a tour in Ireland Carlyle wrote as follows:—

Many Irishmen talk of dying for Ireland, but before dying for your country think, my friends, in how many quiet strenuous ways you might beneficially live for it. Every patriotic Irishman (that is, by hypothesis almost every Irishman now alive) who would so fain make the old country a present of his whole life and self, why does he not, for example, directly after reading this and choosing a feasible spot, at least plant one tree? That were a small act of self-devotion—small, but feasible. Eight million trees before the present generation ran out, that were an indubitable acquisition for Ireland, for it is one of the barest, ruggedest countries now known—far too rugged a country, with patches of beautiful park and fine cultivation, like shreds of bright scarlet on a beggar's clouted coat—a country that stands decidedly in need of shelter, shade, and ornamental fringing, look at its landscape where you will. . . . Eight million trees, and I rather conjecture eight times eight million, would be very welcome in that part of the empire. . . . "Trees of liberty" have not succeeded well in these ages. Plant your eight million trees of shade, shelter, ornament, fruit; that is a symbol much more likely to be prophetic. Each man's tree of industry will be, of a surety, his tree of liberty, and the sum of them, never doubt it, will be Ireland's.

Holwood Park, Kent. A. D. WEBSTER.

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No. 903. SATURDAY, March 9, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

SNOWDROPS.

MR. EWANK'S interesting article on Snowdrops in your issue of February 23, and his inquiry about *Galanthus octobrensis*, brings back memories of a much valued correspondent, the late Rev. Harpur Crewe. It may be of interest to some of your readers to know the origin of the *Galanthus* named above. In a letter from Mr. Harpur Crewe of date September 16, 1878, I find the following reference to this Snowdrop: "Three years ago my friend Lord Walsingham collected at random for me some bulbs in Albania, Greece, and the Ionian Isles. Amongst them was a *Galanthus* bulb, which flowered last year for the first time in October, and it is now again pushing up the second time." It would be interesting to know if any more of this variety has been imported from the sources named, or if the bulbs in cultivation at the present time are the progeny of the bulb brought home by Lord Walsingham.

Mr. Ewbank refers to another *Galanthus* which does well with him, viz., *Galanthus lutescens*, which he says "is a great beauty and very singular." In *THE GARDEN* of March 13, 1880, Mr. H. H. Crewe in an interesting communication says: "This delicate little variety was found a few years ago in the ancient garden of an out-of-the-way farmhouse in Northumberland. It is very dwarf and delicate in all its parts, and has the ovary and markings on the inner petals yellow instead of green; it should, I think, be called *Galanthus lutescens*."

Another variety, viz., *Galanthus n. poculiformis*, mentioned by Mr. Ewbank, I believe originated here. I sent bulbs of this variety to Mr. Crewe and other friends in 1878, and in the communication to *THE GARDEN* of March 13, 1880, named above, he says: "One of them has the inner segments of the corolla elongated and closing inwards in a remarkable manner. I have named it *G. poculiformis*." Another variety I sent him he refers to as being "a tiny late-flowering variety, quite a little gem in its way," and which he calls *G. serotinus*. *Galanthus n. Melvillei* he describes as being at that time "in great beauty in his garden."

It is satisfactory to see by the note at p. 112 of your issue of February 9 of the current year that the latter variety of *Galanthus* maintains its good qualities. Here it always shows its superiority over the common form. It has with me only one fault: it is scarce, and is likely to remain so. The common form of *G. nivalis* is in great beauty here at the present time. We have about 2 acres of it in bloom under the old trees near the castle, making a fine bit of spring gardening, which renews itself every year without labour or trouble.

D. MELVILLE.

Dunrobin Castle Gardens.

Grafted Conifers.—Mr. Coleman (at p. 173) tells us of a few specimens of these which have done well at Castle Kennedy and at Madresfield Court, but he does not tell us of the thousands that have died out in the British Islands, nor of the thousands that are now dragging out a miserable existence in many gardens far and wide. I was looking at some grafted plants of *Picea nobilis* and its varieties to-day dwarfed and gouty, and which have branched out a little, but their leaders are

thick and carrot-like, and they have not grown 20 inches in ten years. No plants have suffered more from the grafting knife than have the Conifers, which in many, if not in most, cases are quite altered in habit and character by the operation. If we cannot obtain healthy Conifers and other ornamental trees naturally without grafting, depend upon it our gardens in the long run will be much better without them altogether.—OBSERVER.

THE COTTON WOOL NUISANCE.

"F. W. B." in *THE GARDEN* of last week, p. 185, has struck a right note in condemning the present loose way of packing flowers and fruit. Any material, whether it is cotton wool or dried Moss, is used indiscriminately for packing tender things as flowers and fruit, and sometimes the latter is packed in hay, one of the very worst materials that could be used. It gives the fruits, especially Pears, a distinct musty flavour that quite destroys their characteristic aroma and delicacy of flesh. Last year I received samples quite uneatable from this cause; but I scarcely know which is worse, cotton wool or dried Moss. Last spring a box of Strawberries came to hand, and the "careful" packers had swathed them up in cotton wool. The result can be better imagined than described. The fruits were a mass of pulp, stuck over with bits of cotton wool. It is almost the same with Peaches, though these have a thicker skin, and it is not only that the flavour of the fruit is spoilt by such apparently suitable packing, but it is utterly gone. The fruit tastes of cotton wool, and if packed in hay or dried Moss, distinctly of this material. In sending fruits, especially if they are soft kinds, as Peaches, Grapes, or Strawberries, very little packing is necessary. "F. W. B." is correct when he says that if the fruits are wrapped up separately in tissue paper, the wool may then be used with advantage as a soft padding. This is good advice. The fruits and flowers should not touch the material at all; the soft padding is only required to keep them in their place. Very frequently it is not necessary to use any cotton wool at all, simply a little tissue paper, especially when there is a large quantity to be packed into as small a space as possible. The Hypnum Moss of the woods is one of the very best things to use for packing flowers. It is fresh and damp, giving the flowers just that moisture they need to keep them from flagging. A good way, if it is a spike or raceme, as in the case of *Odonoglossums* or *Phalenopsis*, is to fasten it securely in the box by making two holes in the bottom and passing the twine through these, and thus tying the stem firmly down, so as to make its removal very unlikely. By this simple plan I have had the choicest racemes come to hand as fresh as when gathered. No cotton wool, Moss, nor any substance is required, except a little tissue paper placed between each flower to prevent injury by the jolting of the box. There is need for a little reform in the way flowers and fruits are packed; and it is hoped the readers of *THE GARDEN* who have much packing to do will give their experiences and the best ways of sending flowers and fruit. A little paper and careful arrangement of the several things in the box are all I have ever found needful. C.

The Starry Magnolia (*M. stellata*).—This when planted outside develops into a tree, but in a small state as a pot plant we have hardly ever seen anything to equal it. The flowers are produced without the leaves, and when well grown the starry white fragrant flowers make a charming and unique specimen. To get it into bloom towards the end of February, it only requires the shelter of a cool

Greenhouse, and although it stands a little forcing, Growers will do well to guard against overdoing it. In the open air it flowers from March to May. Native of Japan.—K.

ROSE GARDEN.

T. W. GIRDLESTONE.

MINIATURE ROSES.

AT one time the term "Miniature Rose" appears to have been employed as an equivalent for Miss Lawrence's Rose, *Rosa Lawrenceana*, the diminutive form of the China Rose which first came to this country nearly eighty years ago, but though the term has now been extended to include all Roses which are short of stature and tiny in flower, whatever may be their race or origin, it is rather a pity that the original miniatures should have been so generally neglected.

Formerly, in addition to the type, there were several varieties, of which Mr. Rivers describes *Gloire des Lawrenceana* as one of the prettiest, with flowers of a dark crimson colour; *La Desirée* and *Bijou* as two bright-coloured and pretty Roses; and *Pallida* as having flowers that on first opening are nearly pure white, but soon change to pale flesh colour. Where, however, these little Roses are now to be met with, it would probably not be easy to say, as in spite of the fact that their compact habit and freedom in blooming rendered them available for bordering groups or beds of larger Roses, and also made them singularly pretty subjects for growing in pots, they have somehow practically disappeared from gardens.

There are, however, other diminutive Roses easily obtainable, among the most generally popular being the pale pink *Spong*, the *Rose de Meaux*, and its mossy counterpart, *Moss de Meaux*. Mr. T. Smith in his note on p. 172 about the *Rose de Meaux* would appear to have just transposed the names of this and the *Burgundy Rose*. The *Rose de Meaux* has flowers of a tolerably full rose colour, deeper than those of *Spong*, but paler than those of *Burgundy*; they are also smaller and perhaps less flat and circular than the *Burgundy* flowers, which open quite flat, though very double, the outline then forming a perfect circle. Moreover, of the *Spong Rose* there is but one variety, while the *White Burgundy* is a very distinct and attractive little thing, though, unfortunately, of delicate habit.

The *Burgundy Rose* is, perhaps, the best of all the summer-flowering miniatures, the flowers being the richest in colour, well displayed, and freely produced, and the plant, although diminutive, being perfectly hardy and a free and sturdy grower. In addition to the *Moss de Meaux* there is one other little Moss Rose, which, though not quite so lowly in stature, has perfect miniature flowers. This is *Little Gem*, a variety that produces in abundance its rich crimson and well-mossed flowers, and is one of the prettiest of its race.

The Scotch Roses are sometimes included amongst miniatures, but some of the varieties have flowers of considerable size, and their habit of growth also lacks the compactness of the best of the little Roses. In the same way the flowers of the yellow *Banksian*, the Musk Roses, and many cluster Roses are often described as miniature, as indeed they are; but the climbing habit of growth of the plants precludes the addition of such varieties to the miniature Roses.

An entirely modern race of little Roses has, however, now sprung up, which bids fair to supersede altogether the old-fashioned summer-

blooming miniatures. No one, probably, would have prophesied that the offspring of one of the most rampant climbers would prove to be veritable pigmies of the Rose garden. It is one of the most curious facts in Rose raising that the crossing of *Rosa multiflora* and the Teas should have resulted in a tribe of Roses retaining the myriad-flowered inflorescence of the climbing species practically unchanged in form and dimensions, but produced on a plant rarely exceeding 1 foot or 18 inches in height.

The first of these diminutives was sent out in 1875 by Guillot, under the name of *Pâquerette*. *Pâquerette* is the French name for the white Easter Daisy, a point only worth mentioning in the hope of securing the right spelling of the word, generally much too varied and overdone in the matter of r's. Guillot has, so far, sent out the best of the Polyanthas, as these dwarf offspring of *Rosa multiflora* are called, *Pâquerette* being followed in 1881 by *Mignonette*, the best of all the pinks, until surpassed by its own seedling, *Gloire des Polyantha*, in 1887. All these varieties make the most beautiful masses of flower throughout the season, throwing up immense trusses of bloom literally "from June to November." They are not troubled by mildew or red rust, and for planting on the margins or foreground of Rose beds they are unsurpassed. When grown in pots, too, they are very charming, and may without difficulty be had in bloom comparatively early. *Perle d'Or* (Dubreuil, 1883) has very gracefully shaped, tawny orange buds, which are attaining great popularity for employment in bouquets, the freedom and facility with which they are produced under glass rendering the variety especially valuable. It is also the best of its colour for cultivation out of doors, unless *Golden Fairy* (Bennett, 1888), which much resembles it in flower, should surpass it in compactness of habit. Another very good white variety is *Anne-Marie de Montravail* (Rambaux, 1880), every blossom of which is a perfect rosette; and pretty coloured sorts are *Floribunda* (Dubreuil, 1885), of a pale rosy shade; *Georges Pernet* (Pernet fils, 1887), bright rose with yellow base, very fresh and distinct; and *Cecile Brunner* (Ducher, 1880), light pink, and, except in colour, very like *Anne-Marie de Montravail*.

In the current issue of the *Journal des Roses* a coloured plate is given of *Blanche Rebatel* (Bernaix, 1888), which appears likely to prove the deepest coloured variety of the kind yet raised, the flowers being described as "bright carmine shaded darker." Hitherto white and pink have predominated among these Polyantha Roses, and a brighter coloured variety will be a welcome addition.

There are two other Roses which must not be overlooked amongst miniature Roses, namely, the small-flowered *Chinas White Pet* and *Red Pet*. Both are vigorous of their stature, both bloom with amazing freedom and persistence, and both, like their cousins the Polyanthas, are most pretty and easily flowered in pots. The one, as its name implies, is white, but the other—its exact counterpart in everything but colour—is a good deal more than red, the petals being of a rich crimson, shaded, in autumn particularly, with velvety maroon.

Rose de Meaux.—I cannot attempt to authoritatively clear up the point in connection with this old Rose that Mr. T. Smith desires at p. 172 of *THE GARDEN*, Feb. 23, but I may say that I know two varieties of Roses under this name. The variety which I have under this name is unquestionably the same as that which Mr. Smith describes in his communication, as my plants have the dense

close habit of growth and the small double, rosy-pink flowers. Mr. Smith makes no mention of a Moss Rose of the same name, and which is a counterpart of the other, except its mossy flower-buds; this variety is sometimes sold as the *Pom-pone Moss*. The history of this Rose is given in a book which I have before me, and which states that it was found by Mr. Sweet, of the Bristol Nursery, in a garden at Taunton, Somersetshire. He obtained the stock and subsequently distributed plants at a guinea each. It is supposed that it originated by an accidental sport from the old *Rose de Meaux*. Mr. Smith refers to another Rose as sometimes doing duty for de Meaux, and which he says is also known as the *Burgundy Rose*. But the one he refers to cannot be the *Burgundy Rose*, which has larger leaves and also larger and darker flowers. The little beauty which Mr. Smith so correctly describes I also possess, having found a single plant of it in a cottage garden a few years ago, but I have never been able to ascertain its name. With reference to other old Roses, I hope that the beautiful, sweet-smelling, strong-growing *China* variety that is in Mr. Smith's possession will soon be distributed. It is undoubtedly the grandest of all the dark Roses of that section.—J. C. C.

Rose Madame Hoste.—In your issue of Jan. 26 (p. 65), Mr. Benjamin R. Cant takes issue with the statement relative to the size of the *Rose Mme. Hoste*. The writer of the note in *Garden and Forest* insists that he did not over-state the size of this magnificent Rose when he declared it equal in dimensions to *Maréchal Niel*. On receipt of *THE GARDEN* to-day, I with others went to a bench on which some plants of *Mme. Hoste* were finely in bloom in the forcing houses of Hill & Co., and by actual measurement many of the half-opened blooms were found $3\frac{1}{2}$ inches in diameter, and two flowers were respectively 4 inches and $4\frac{1}{2}$ inches in diameter, these two being slightly more than half open. If *Mme. Hoste* does not equal *Maréchal Niel* in size, then we are unacquainted with the *Maréchal* in his best state. The colour is quite different from that of *Maréchal Niel*, and the comparison made in *Garden and Forest* was only on the points of size and contour. The Roses measured were on plants propagated from green wood cuttings in June last, and are now strong bushy specimens about 2 feet high; there is no doubt but that the plants will produce still finer blooms two months hence. The writer realises the tendency to exaggerate and over-estimate the relative importance of new varieties, but it does seem as if *Mme. Hoste* is deserving of all that can be said in its favour as to size, form, finish, and freedom of bloom. We Americans are often justly accused of a lack of that carefulness which should characterise our descriptions, but in the note copied the writer was exact in his statements.—E. G. HILL, *Richmond, Indiana, U.S.A., Feb. 16, 1889.*

CHRYSANTHEMUMS.

E. MOLYNEUX.

CHRYSANTHEMUM NOTES.

CHRISTINE FAMILY.—This family is the most important in point of numbers of any in the incurved section. The varieties known by this name, to the number of four, are more generally cultivated than those of any other family in the section. From Mr. Davis we learn that the pink form was a sport from the variety *Peach*, and from *Pink Christine* he also tells us that the white form, so often called *Mrs. Forsyth*, was obtained as a sport, and from the original variety *Peach* the golden type was produced, which Mr. Davis prefers to call *Bronze Sport*. Certainly the colour is more bronze than yellow, especially when growth has taken place under favourable conditions. It is only badly grown flowers that show much yellow. All the varieties of this family, with the exception of the golden variety, are much used for growing into specimens. Perhaps the most useful of all,

especially for supplying cut blooms, is the white variety.

ANNIE SALTER FAMILY.—Annie Salter is a rich golden yellow, the flowers being small, compact, and freely produced, but owing to their small size this variety is not much in request. *Orange Annie Salter* is a sport from the original *Annie Salter*, and is the exact counterpart of its parent, except in colour; it is not in much request. The remainder of the varieties in this section cannot be classed in families by me, as I do not know their origin. The leading varieties besides those named are *Cullingfordi*, the brightest of all *Chrysanthemums*, and immensely appreciated by all either in a cut state or when growing on the plant. *Cloth of Gold* and *Chevalier Damage* are varieties having yellow flowers, the former pale and the latter a rich orange shade, a colour much appreciated in any section. *Julia Lagravère*, although it has small blooms, is considered by some people to possess qualities very desirable in a plant when cultivated with a view to conservatory decoration; the colour is dark crimson-red, the blooms freely produced and well formed, being full in the centre; the growth of the plant is all that can be desired. *Emperor of China* is a colour seldom seen, best described as a silvery pink on the surface, the reverse being a faint lilac or light pink. The reason it is not more freely grown is on account of the smallness of its blooms. *Phidias*, rose-blush, is not often met with, yet the flowers are of good quality, being full and of good form. *Temple of Solomon* is said to be an old variety re-introduced; the colour is a bright yellow, the flowers medium in size.

CHRYSANTHEMUMS IN SPRING.

"C. C.," on page 187 of last week's *GARDEN*, strikes a keynote as regards *Chrysanthemums* in spring. These flowers are certainly not wanted all the year round, neither are they in spring, when we turn our thoughts to the *Snowdrop*, the *Daffodil*, and other blossoms of the opening season. To have the *Chrysanthemum* always with us would be the best way of creating a certain distaste, if not contempt, for a flower that, though beautiful, would become tiresome. The *Hyacinth*, the *Crocus*, the gay succession of hardy flowers would lose half of their present charm to us if they could be seen every day in the whole year. It is the variety, not the abundance of one thing that makes our gardens a pleasure, and it is not helping forward this end by attempting to force a flower to appear in every season of the year when Nature allotted it the dark days of November. The exhibition of late varieties by the National *Chrysanthemum Society* was a display of very inferior flowers, ragged, colourless, and wanting in variety, save Mr. Kipling's. Why, then, extend the season still further, when it is evident that to get them even in January is a difficult task? If we had taken away *Gloriosum*, the rich yellow Japanese variety, there would have been very little worth seeing. "C. C." advocates dwarf plants, and he is certainly right. The *Chrysanthemum* is more distorted, for the sake of procuring a flower as large as a cricket ball and as inelegant, than the specimen *Azaleas* and hard-wooded plants of years gone by. But there is a crumb of comfort. The "cutting-down" system is on the increase, and by its aid we can have strong, well-foliaged plants of a medium height, say between 3 feet and 4 feet, that can be seen without the use of steps. Sufficient has been written respecting dwarf plants in *THE GARDEN* to warrant further comment unnecessary. It is to be hoped that the unfortunate predilection shown for big flowers will receive a check. It has its parallel in the once complete exclusion of hardy flowers by the bedding out, but things have changed in this respect, and so it will with the present methods of growing *Chrysanthemums*, if only the evils of monstrous flowers and lanky plants are pointed out. T. W.

STOVE AND GREENHOUSE.

THE SCARBOROUGH LILY.

(VALLOTA PURPUREA.)

IN how many gardens is the *Vallota* grown? To many horticulturists it is practically unknown, a good many more do not trouble to grow it, and others grow it, but do not have much success with it. Notwithstanding this, it is the queen of the African *Amaryllids*, one of the most beautiful of all bulbous plants, easily cultivated, needing only protection from frost, and, given certain simple requirements, as free-flowering as an *Agapanthus*. It has been in English gardens more than 100 years. The plate pub-

which is certainly the finest I have ever seen or heard of.

Vallotas should be in every greenhouse, and in large conservatories they should be in dozens. Even cottage windows afford suitable conditions for their successful management. It may be a vulgar taste, but I confess to a love for these large scarlet trumpets, produced in clusters on the ends of erect, stout stalks, and I have the same feeling for another glorious child of Africa, the *Belladonna Lily*. What the latter is to the sunny border in November the *Scarborough Lily* is to the greenhouse in autumn. They are everybody's plants, and everybody should have them.

There is only one species of *Vallota*, but there

enaving was made, sends the following notes concerning it:—

The *Vallota* figured is the plant which caused such a sensation at the flower show at Brighton on September 14 and 15, 1887, when shown by Messrs. Knight, of Hastings. It is considered far superior to any other variety. The plant when photographed had fifty-three spikes of bloom, with from five to seven blooms on each.

What have these plants to do with *Scarborough*? They certainly would not grow out of doors there. Whatever the origin of the name, however, it is a safe anchor for horticulturists, *Vallota* being, according to some authorities, only a substitute for *Cyrtanthus*; others say the plant is a *Gastronema*, and once it was called an *Amaryllis*. But no one says it is not the *Scarborough Lily*. W.



A fine *Scarborough Lily* (*Vallota purpurea magnifica*). Engraved for THE GARDEN from a photograph sent by Mr. G. Humphrey, Nash Court, Faversham.

lished in THE GARDEN, September, 1886 (p. 244), should be turned to before one attempts to form an idea of the magnificence of such a specimen of *Vallota* as that represented in the annexed engraving. The treatment of *Vallotas* is very simple; keep them fairly root-bound, use good loam when you repot them, and do not break up the mass of bulbs and roots if you want a large specimen. They should be grown in an ordinary greenhouse in full sunlight, giving them plenty of water in summer, and keeping the soil just moist in winter. A little assistance to fresh growth should be afforded by giving manure water now and then. Such treatment will in time produce really good examples, perhaps not quite so good as that figured,

are also several varieties, not very different from the type, though just sufficiently so to be worth naming. *V. purpurea* has a flower-stalk $1\frac{1}{2}$ feet long, bearing from three to six flowers, each 3 inches across, trumpet-shaped, and of a bright red in colour. The variety *major* is taller and the variety *minor* shorter in the flower-stalk. *Eximia* is a handsome variety, with flowers 4 inches across, almost scarlet, with a pale feathered eye. *Magnifica*, which form the plant figured is supposed to be, is larger in the flowers, which are 5 inches across and brighter and more uniform in colour than any at present known. Mr. Humphrey, gardener at Nash Court, to whom we are indebted for the photograph from which the

Azalea calyciflora.—This is a remarkably curious, yet beautiful little *Azalea* with small blossoms (somewhat larger than those of *A. amœna*) of a bright salmon-red colour with an orange shade. Their principal peculiarity consists in the calyx segments being greatly enlarged and coloured like the corolla, so that the flower has the appearance of being what is familiarly called "hose-in-hose." This character is also present in *A. amœna*, but not to the same extent as in the other. *A. calyciflora* was introduced from Japan by Messrs. Veitch, and no doubt will in time become a general favourite. While on the subject of *Azaleas* a word may well be said for the small, but brilliant red-flowered *A. obtusa* and its variety, in which the blooms are white. These three *Azaleas* just mentioned, with the double-flowered *A. rosæflora*, form four of the most attractive subjects for the greenhouse it is possible to have at the present time, as they are all different from the ordinary type of Indian *Azaleas*.—H. P.

Platylobium formosum.—Ten years ago, when the late Messrs. Rolleston's plants were dispersed, this beautiful New Holland plant was amongst the number, many of the beautiful Pea flowers of the Antipodes having there found a home, waiting for their popularity to return, which, alas! has not come round yet. I fear that should it do so, many handsome kinds which were common in our gardens years ago could not be found. The above species, however, still exists in our gardens, for I recently noted one of the Tooting plants of fair size and showing a mass of flower. It is very early in the season for it to bloom, I think, as if I remember rightly, it used to flower

during late spring and summer. The leaves are rich green, the young stems slightly hairy, the flowers in the bud being rich purplish crimson, but somewhat duller when they expand. The interior of the large flowers is rich orange, with a crimson rayed, horseshoe-shaped mark at the base of the standard. It is one of the most beautiful of all the New Holland Pea flowers, and should be carefully protected from extermination.—W. H. G.

Hardenbergia Comptoniana.—This extremely pretty greenhouse climbing plant is now in flower. It is one of the New Holland plants once so popular, but now almost gone out of cultivation. It is a slender climber with the leaves divided into leaflets three or five in number, while the small Pea-shaped flowers are borne in crowded racemes. They are of a rich purple colour. This *Harden-*

bergia is by no means difficult to increase, for cuttings of the small short-jointed shoots strike fairly well, while under favourable conditions seeds are often produced, which germinate readily and grow away quickly afterwards.—T.

*** This pretty climber is flowering freely in the greenhouse at Kew. Its Pea-like flowers are rich violet-purple. It is far more suitable for a greenhouse than the strong-growing Passion flowers, *Habrothamnus*, &c., that frequently crowd the roof to the injury of the plants beneath.—Ed.

NOTES ON CROTONS.

WHEN well grown and highly coloured, Crotons are undoubtedly the most beautiful of all fine-foliaged plants, but when in a semi-starved insect-infested plight, they are far from being worthy of the room they occupy and the heat wasted on them. In many instances plants are kept year after year that ought long since to have found their way to the rubbish-heap and their places taken by plants of greater value. Sometimes varieties are cultivated that ought now to be obsolete, especially as there are so many beautiful, though not necessarily new or expensive forms that really pay for good culture. I cannot claim to be well acquainted with the various novelties of recent introduction, and must, therefore, content myself with the remark that all I have seen are very beautiful, and apparently might well supersede many of the older varieties.

Strong young growth invariably produces the most handsome foliage, and the earlier in the season this is made, the better prospect there is of its maturing and colouring properly. After the plants have done good service either at shows or for house decoration, for which they are available up to mid-winter or later, if need be, they ought to have a short rest. During January and the whole or greater part of February, or while they are resting, a high temperature ought not to be kept up, from 55° to 65° being quite hot enough, while enough water should be given to prevent the plants from flagging. Those who require their specimens for exhibition in August, and are in a position to maintain high temperatures during the coldest part of the year, rest their plants earlier and prune soon after mid-winter. In any case, it is advisable to use the knife freely, cutting back the growths formed in the season previous to a third of their length, more or less, according to the shape, or required shape, of the plants. With or without the aid of a brisk bottom heat and plenty of atmospheric moisture, a strong break is certain to result, and before the buds or shoots begin to run out repotting ought to be completed. This should be done thoroughly, as in the case of large plants especially a second potting or shift will be unwise. All should have their balls reduced to about one-half their original size, and be then returned to the same sized pot in which they were previously growing. A suitable compost consists of three parts of good fibrous loam, roughly broken up, to one of brown fibrous peat, freely adding sharp sand and charcoal. If the loam available is of a heavy or clayey nature, a much smaller proportion of it ought to be used, but more peat and a part of good leaf soil substituted. Add no manure to the compost, as this can be more safely and effectively applied in a liquid state. It is almost needless to add that the compost should be warmed through with the aid of heated bricks buried in it, that clean, well-drained pots are necessary, and the work of repotting be carried out in the house where the plants are grown. Repot firmly, being especially careful not to damage the young shoots. If thrips, red spider, or mealy bug abound, carefully sponge the old leaves left on the plant with soapy water, and hunt out any solitary bugs hiding on the old stems. A good start will be made if the pots can be plunged in a moderately warm hotbed of leaves, or leaves and manure, and whether plunged or not, a brisk top-heat, or say from 65° to 70° by night to 80° and upwards in the daytime, is necessary. Very little water should be given at the outset, but frequent overhead syringings are advisable.

Many of the cleanest and best of the tops re-

moved from the old plants, if they have not commenced active growth, may be quickly rooted, and will form very serviceable plants by the autumn. Cut to a length of 4 inches or thereabouts, trim off the lower leaves, and place each separately in the centre of quite small pots. Plunge in a brisk bottom-heat and cover closely either with bell-glasses or hand-lights. In some instances it will be necessary to support the leaves with the aid of a short stake and matting, and if there is much steam in the heating material the glasses covering the cuttings ought to be wiped dry every morning, otherwise they may be kept quite close, shading from bright sunshine being needed in every case. These and any other plants in small pots may during the summer be given one or more shifts, according to the habit and vigour of the varieties. As a rule, unstopped young Crotons are the most ornamental, those with one strong single stem forming fine bold foliage, the narrow-leaved varieties also branching freely. It is no uncommon thing to meet with in 6-inch pots unstopped plants from 2 feet and upwards in height in perfect health and colour, and such are invaluable for grouping and house decoration.

Crotons, whether large or small, ought never to be crowded, nor be kept far away from the glass. They should be shaded from bright sunshine, but cannot well have too much light and heat. Ours are grown in a house that is rarely opened, a little air only being given during the very hottest days of summer. When thus treated, frequent overhead syringings must be given, the walls and floor of the house being moistened at the same time. After the pots are well filled with roots, plenty of water should be given, varied with supplies of soot water or other liquid manure, or light surfacings of some artificial manure may be substituted for the latter. Over-potting and consequent sourness of soil are the most frequent causes of failure with Crotons, low temperatures also being most injurious.

W. I. M.

BEGONIA OCTOPETALA.

IN THE GARDEN for Feb. 9 I see you have given an illustration from a photograph of Lemoine's new hybrid form of *Begonia octopetala*, and from having made the same cross myself and grown the plant for several years, I feel much interested in it. I am glad it has now been tried again by such an experienced hybridist and raiser of many sterling novelties as M. Lemoine, who possesses a special advantage over any grower of this variety in England, inasmuch as at Nancy he will have the opportunity of getting it to produce its seeds and ripen them in the open air. Our liability to frosts early in October has hitherto baffled me and caused me to lose all the plants I had successfully cultivated for several years with the object of getting a bedding *Begonia* hardier in constitution than the ordinary tuberous one, and with larger flowers also well thrown above the foliage, and no inclination to form stems. About ten or twelve years ago I crossed *B. octopetala* with the best tuberous varieties then grown. I used the pollen both ways, but when *octopetala* was not the seed-bearer, the plants seemed to have no strength of constitution and never grew kindly, so I soon discarded them. The others were exactly identical with the form you illustrated, and with the very minute and most accurate description you give, in Mons. Lemoine's words, of the shape of the blooms, foliage and tubers. I hope that he may be able to still further improve this variety, and that when it becomes better known both in England and France it may prove a first-class ornament to our gardens in autumn, and be all but hardy.

I will now mention the difficulties I experienced with it, and why at Nancy it is likely to succeed, whilst I failed with it in Kent. *Octopetala*, being the seed or female parent,

gives its character to the foliage as well as to the tuber, though both are modified by the pollen of the male parent used. I found that the plants from the first cross were too coarse in the foliage, as the leaves, like those of *octopetala*, were big, and inclined to resemble those of *Rhubarb*, while at the same time the spikes were few. I tried a second cross, which produced better shaped foliage with more substance in it, and at the same time a freer flowering habit, and the colours more decided. If, then, I had had the brighter colours and the better shaped flowers of the tuberous forms of the present day, I should, no doubt, have had deeper shades. After a couple were crossed with the tuberous section, I should have tried these with the pollen of *octopetala* again to have secured some of its hardness, which might have worn out after four crosses. Further experience might have modified these ideas had I managed to retain my plants, but they inherited this peculiarity, that they were impatient of pot cultivation, and only grew strongly when bedded out. They also could not be made to start till they chose to grow themselves. Treated like other tuberous *Begonias*, the tuberous forms would be in bloom before the crossed plants appeared above ground. They certainly did then grow most rapidly, but if things only come up in the middle or end of July—it may be even in August—it is far on in September before you have the chance of bloom, and so it was that mine got cut down early in October before they could possibly make an effective show, and once touched with frost there was no use in lifting them to try them in the greenhouse. After surviving two winters out of doors the plants became so weak, with having no time to renew their tubers, that I lost them. At Nancy, however, they should get no check till the end of October, and perhaps if kept rather dry in a cool frame they might be induced to start sooner, but this late habit is their drawback here, for they ought to bloom in August to show their true character and give them time to seed.

Tunbridge Wells.

C. B. POWELL.

WORK IN PLANT HOUSES.

HARD-WOODED GREENHOUSE PLANTS. — Young plants may now be potted, and it is better to defer the work until later in spring, when the weather is hotter and the air proportionately drier, as the disturbance of the roots that takes place then is more trying in its effects. With plants that have more or less delicate roots repotting is an operation that is always attended with some danger, and when the work is put off till the weather is hot the danger is increased. In the case of healthy vigorous plants that require more room the roots are invariably found in the greatest numbers down in the drainage, amongst which they are so closely packed that it is impossible to remove the crocks without breaking many. It is safer to repot whilst the weather is cool with a view to giving no more water than necessary, as the damaged roots are always liable to decay if much water is applied until they have time to recover. With plants that have attained a size that makes their flowering during the present spring a matter of the first consideration, it will be best to defer the potting until they have bloomed. In all cases see that the roots are sufficiently moist before the plants are potted, so as to admit of their remaining as long as possible without water. With strong, vigorous-rooted plants like *Chrysanthemums*, *Veronicas*, *Salvias*, and others of a similar nature, watering immediately after they are repotted will do no harm, but with delicately rooted subjects it is a dangerous operation. In the case of all plants that require peat it should be of good quality. The brown-coloured peat that is full of the roots of the Grasses and Ferns that have been growing in it is the right material. The best peat for the plants in question is of medium texture, neither too heavy nor too light; if such as answers

this description is not obtainable, a mixture of a portion that is light and some that is a little close may be used. The brown peat in question has not usually much sand in it, but enough should always be added to keep the soil sufficiently porous, for with the species and varieties under notice there should be no attempt to shake them out with the object of repotting them in new material. In repotting plants of all sizes it is necessary to make the new soil as solid in the pots as that of which the balls are composed. After potting, a little side air should be given for several weeks, except in very mild weather when there is not too much wind. The roof ventilators must be opened when the weather is bright to keep down the temperature. Plenty of water should be thrown about the house, on the floor as well as under and upon the stages. All this tends to prevent the soil drying up, and correspondingly delays the necessity for giving water until, as already said, the broken roots have had time to heal.

HEATHS.—What has been said respecting hard-wooded New Holland plants applies to Heath. Where small stock, or medium-sized specimens require more room they should be moved at once, even in the case of those that are likely to flower. The advantage of the roots having new soil and more space early in the season will be apparent in the extra growth that will be made before the end of summer. The best peat for Heaths is of medium texture, neither too hard nor too spongy. The slowest growing varieties like it a little harder than the sorts that annually make more growth and that attain a larger size. In the matter of admitting air and of keeping the atmosphere of the house a little moist when the sun is bright, it is quite as necessary to be careful with newly potted Heaths as with other greenhouse plants. The sun is at times very powerful in the present month, when a thin shade will be of use for any hard-wooded stock, including Heaths, that have had a shift.

AIR-GIVING.—Mistakes are often made in March, and also during the March-like weather that we usually get more or less of in April, by opening the side lights too wide, through which a rush of cold cutting wind comes directly in contact with the plants. There are few plants that can bear cold currents at any time, and the harsh winds that so often occur in spring are much worse in their effects than those at any other time of the year. Even Heaths, that are rightly supposed to require more air than other things, cannot stand these cold blasts. When exposed in this way, whether the plants have been newly potted or not, the older leaves, which should still retain their vitality for years, turn brown and fall off during the summer. It is much better to allow the temperature to rise higher than one likes during the sunny days when there is a cutting wind than to open the side lights at all.

WINTER-FLOWERING HEATHS.—*E. hyemalis* and other autumn and winter-blooming Heaths should now have their branches shortened well back. Most of the varieties that flower during the winter are erect growers, that if not cut in freely each year, soon get tall and naked at the bottom. *E. hyemalis* should have from one-half to two-thirds of the tops of the strong branches made last year removed, the smaller shoots being left untouched. Before the cutting in, the soil should be allowed to get a little dry, and care must be taken not to over-water for five or six weeks subsequently so as to allow time for the new growth to begin moving. The freest-growing varieties of winter-flowering Heaths when procured from the usual source—those who cultivate them for sale—are difficult subjects to deal with. In most cases their growth has been developed as far as the plants would bear by the use of artificial stimulants, from the effects of which many are not able to recover in a way that admits of their surviving through the spring following. But it is worth while to try them; if they go on, a more satisfactory course of treatment will enable them to do service for years to come.

CAMELLIAS.—Plants that flowered in the latter months of the past year will now be pushing their young growth. They should be encouraged by a

moderate amount of fire-heat. It is best to give them a house to themselves where this can be done, failing which the plants may be stood in a vinery that is at work. Syringe overhead two or three times a day and see that the soil is kept sufficiently moist. To make sure of this they should be closely examined from time to time, as the repeated syringing makes the surface of the balls moist, which is so far deceptive that lower down the soil is often too dry. No plants can long remain healthy that are in this state, especially Camellias, which, when growing, like their roots kept more moist than many things will bear. From the time growth begins to move well until the buds set is the time to give manure water or to apply surface dressings of concentrated manure that will be washed down to the roots in the ordinary course of watering. In all cases it is well to see that whatever is used is not given in a stronger state than the plants are able to bear. Except in the case of any plants that are so much under-potted, that it is evident the season's growth will be seriously affected unless more room is at once given, it is well to defer the potting until the buds are just beginning to form. In this Camellias differ from most things. It is almost impossible to pot them without injuring their roots. The young fibres are in a fully active state some time before the top-growth begins to move, and they are so exceedingly brittle, that it is not possible to remove the old drainage without breaking quantities of them. This naturally interferes with the current season's top-growth; whereas if the potting is not done until the buds are just beginning to form, little harm will follow. Where, as already said, it is absolutely necessary to repot, no time should be lost in getting the work completed, as when the shoot buds are bursting any interference with the roots will cause more injury. Previous to the plants beginning to grow the whole stock should have an extra cleaning from scale. White scale is much more difficult to contend with than the brown species; the former establishes itself in every crack, and clusters thickly about the buds when these are set, and sticks so closely that it cannot be moved so easily as the brown insect. A tooth-brush is the best implement to remove white scale with, being careful that if applied to the leaves it is used with caution, or they may be injured. After going over the plants with the brush, both wood and leaves should be well sponged with soapy water.

T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Oxera pulchella.—An excellent coloured plate of this climber is given in *L'Illustration Horticole* of Feb. 15, 1889. A coloured plate of it was also given in *THE GARDEN*, June 2, 1888, from specimens sent from Pendell Court.

Reesting Bouvardias.—Bouvardias are much benefited by being rested for six weeks or two months every winter. They may be dried off like Fuchsias, kept in a cool house or shed in that condition for a time, and re-started in a gentle heat and moist atmosphere. They should be allowed to make growths 1 inch or 2 inches in length before repotting.—J. Muir.

Isoloma hirsuta.—The subject of this note appears to be but little known or cultivated. I have never seen it cultivated with such success as at Bourne-mouth. It was growing well in the gardens at Lindisfarne. It was in a narrow house in 6-inch and 8½-inch pots, and had spikes of flowers from 2 feet to 3 feet long. A good grower, which cannot be said of all gesneraceous plants.—J. C. F.

Allium neapolitanum.—This is one of the best of the Alliums, as the flowers are devoid of the disagreeable smell common to many of the Onions. Grown in pots it is well adapted for greenhouse decoration at this season of the year, and is also very useful in a cut state, the flowers lasting a long time in water. Large quantities of the blossoms are sold in Covent Garden Market during the spring months.—H. P.

Boronia megastigma.—This fragrant shrub is now in its flowering season, when a good, healthy specimen will have its slender branches thickly wreathed with blooms. These are by no means particularly showy, being small, bell-shaped, and of a dull bronzy exterior, while the inside is yellowish. Still, they are

borne in such profusion, that a plant in full flower is very pretty. This *Boronia* is a native of Australia, and, consequently, requires ordinary greenhouse treatment. It is one of the few hard-wooded plants that are still grown in considerable numbers.—H. P.

Climbing Tropæolums.—These present a very bright and cheerful appearance during the winter and spring months. Some years ago they were largely grown for Covent Garden Market, but the improvement effected in winter-flowering zonal Pelargoniums has caused the *Tropæolum* blooms to be in less demand than formerly. They are good rafter plants for the greenhouse, one of the best for the purpose being *Fire-ball*, a brilliantly-coloured variety.—H. P.

Petræa volubilis.—This fine climbing plant was introduced to our gardens upwards of 150 years ago, having been found wild in Vera Cruz. There are, however, few gardens at the present time in which it can be found. In my early days it occupied a prominent position amongst other climbers, but for the last ten years I have not seen it in any garden. It is a most desirable and beautiful climbing plant, with opposite oblong-ovate leaves, which are deep green, and very dry and harsh to the touch. The raceme is long, dense, and particularly showy. The deep lavender calyx, which is considerably enlarged, five-cleft, and very conspicuous, is persistent, and stands out much beyond the corolla, which is deep violet-purple and somewhat fugacious, whilst the calyx remains, forming a beautiful effect for a long time. Independently of this, however, the plant will continue blooming for fully three months during the summer. It appears to have first flowered in this country some eighty-six years ago. It is well deserving the attention of those having bare rafters or pillars in the stove and who delight in beautiful blue-coloured flowers, a colour which, by the way, is less frequently to be seen than many other shades. The plant is easily managed, and is one of the few climbers which thrives well under pot cultivation. The pot should be well drained, as during the summer this plant requires a liberal supply of water to its roots, as well as overhead from the syringe. Loam and peat in about equal parts, with a fair proportion of sand added, suit its requirements.—W. H. G.

WREATH-MAKING.

AN inquiry into the various methods of getting a livelihood in association with flowers found amongst the poorer classes in our large towns would doubtless reveal much that is interesting, and perhaps a good deal that is unexpected. I met with a phase of this matter the other day when on seeing a decently clothed man carrying on his back a large basket filled with hardy green foliage, I inquired of him the purpose to which he was about to apply his load. He had, it seemed, purchased the right to cut the leafage from a considerable breadth of *Mahonia aquifolia* growing near here, and complained somewhat that because the shrubs were old, very foul, and, of course, also very much starved, the foliage lacked the breadth, brightness, and value found in the foliage of younger and more robust bushes. Then, he said, "I am a wreath maker, though not a finisher. Really I make the bases of the wreaths, chiefly used for funerals, at so much per dozen, and sell them to the florists, who complete them by dressing with flowers as ordered. We employ various things for frames, but the cheapest and best are the small wooden hoops from butter tubs. The price now paid for these wreaths is comparatively small, and it is useful to purchase all the material as cheaply as possible. The hoop frames are coated with Moss, which is secured with twine; then follows a dressing of foliage, and none suits better, because of its stout glossiness and hardness of texture, than that of the *Mahonia*. Sometimes a good-natured gardener will give me a barrow-load of trimmings of Laurel, Box, or other suitable evergreen shrubs, but generally I have to get my foliage where I can. You would be surprised to see what broad wreaths we can make from a small hoop by setting the foliage outside. Still, the width or otherwise of a wreath is very much a question of price. Now I do not know what the florists get as a rule when the wreaths leave their hands, but, of course, the quality of the flowers has

much to do with the price. Some years ago I could get from 12s. to 18s. for a dozen of dressed frames. Now 4s. a dozen is thought to be a good price. We have got to sweating even in our trade. Why, I met a man just now going up to London with a load of dressed frames in his baskets, which he makes by the woodside down in the country. He gets only 2s. 6d. per dozen for his, but he cuts lissom sticks from the woods, makes his own hoops, then covers them with Moss, Ivy leaves, Ferns, or anything which looks a bit fresh and green. You would be surprised to know how fashion changes in some things. Grasses are an instance; why two or three years ago you could sell any green or dried Grasses, no matter how common, but now people will not look at them. I bought a lot of choice Grasses in the hope of making a good thing out of them; but I lost by it, for hardly any of them sell now. I get a little work in the churches sometimes, and that helps a bit." This is almost a verbatim report of my informant's story. If we could get at the experiences of those who trade in Violets, Wall-flowers, Daffodils, in fact, in the myriads of cut flowers which get into our markets or of those traders who dabble in roots of the cheaper kind or deal in greenhouse plants, some very curious tales might be heard. It is well to remember that gardening can carry food as well as joy into millions of small homes.

A. D.

FLOWER GARDEN.

CHRISTMAS ROSES.

"F. W. B.'s" article in *THE GARDEN*, Feb. 16 (p. 141), on the causes of the general scarcity of blossoms this season of this very popular winter flower, has a serious import for those who grow it in quantity, and who mainly depend on it to furnish white flowers during the dull months of the year.

The Hellebore disease appears to have been more than usually rampant during the past year, and in some measure is the cause of the scarcity of bloom. The summer of 1888 was a very cold, wet, and sunless one, which may have in some degree helped the spreading of the disease among the plants, in the same way that a wet summer favours the Potato fungus; but the latter disease is mostly rife among Potato crops when the weather is close and muggy, and not so much when it is cold and wet.

From what I can gather from several of the gardeners in this neighbourhood, the Hellebore disease has not been generally prevalent in this district, and some of them assure me that they have never had such a crop of Christmas Rose flowers as they have this season. This agrees with my own experience, for rarely have I seen plants so full of robust and healthy leafage; and for quantity of fine flowers, I cannot call to mind a season during the last twenty years in which the Christmas Rose flowers were so numerous. I commenced to gather them a fortnight before Christmas, and have gathered them in more or less quantities up to the present date, February 27. We grow only the two varieties, *H. niger* and *H. niger major*. *Maximus* we have given up growing, as it was not appreciated on account of the petals being tinged with purple.

Experienced cultivators of Christmas Roses will, no doubt, differ in their opinions as to the most suitable position in which to grow the plants, some preferring a shaded position, and others will aver, like "F. W. B.," that an open and sunny position agrees with them the best. My own experience and success in the growth of these Hellebores lead me to prefer a shaded position for them; but not a position where the plants would be shaded and overhung by trees or shrubs, and subjected to constant drip, and the ground below impoverished by the roots of

the trees, but simply a position where the plants would be shaded from the sun's rays for the greater part of the day. Such a position is to be found at the foot of a north or north-west wall. It is by growing the plants in the shaded position indicated, and by the rich treatment, that I attribute their almost entire immunity from the Hellebore disease and the plentiful gatherings of flowers for the past ten years.

At one time I grew the greater part of my plants in open borders fully exposed to the sun's rays throughout the day, and they rarely proved satisfactory, especially after very hot and dry summers, when they had been subjected day after day and week after week to the drying influence of the sun's powerful rays, every leaf lying limp and flat on the ground. From a close and constant observation of the growth of the plants, I noticed that they invariably made a weaker leafage growth the season following a hot and dry one than they did following a wet one. I have, therefore, come to look upon strong sunshine as one of the banes to the welfare of the Christmas Rose, and I should in a great measure rather attribute this season's failure of the plants in many places to the hot and dry summer of 1887 than to the cold and wet one of 1888. The hot and dry season of 1887 left the crown buds of the plants enfeebled, and as a consequence the leaf growth of 1888 was much less vigorous, rendering the plants an easy prey to the disease.

Another fertile cause of the failure to grow Hellebores satisfactorily is the too frequent disturbance of the plants. If a suitable position is chosen for them and the site properly prepared and enriched, the plants—for be it understood that though the Christmas Rose will do fairly well in almost any kind of soil, it, like every other plant, responds most quickly to and gives the best returns by generous treatment—should be left undisturbed, and they will give good and constant gatherings of flowers from the same position for at least eight to ten years if occasional doses of liquid manure are given the plants every season during their growth.

For the purpose of keeping up a supply of flowers over as long a period as possible we grow our plants in beds of a size to suit some rough frames and spare lights, and in three different positions. Those that are to furnish the earliest flowers are planted in a position with a southern exposure, but shaded from the afternoon sun. This set of plants always gives us the least satisfactory returns, and this we put down to too much exposure to sun. The other two sets of plants occupy positions at the foot of a north wall; one lot in the north-west angle gets not a blink of sunshine on them, and the other lot in the north-east angle gets a little of the afternoon sun, but if it is very hot we shade the plants with mats. The plants from these two positions always give us the best returns, and are most satisfactory in every way. We have this season cut from them over 2000 flowers, as many as 500 blooms at one cutting. There are twenty-four stools in all, each averaging about 18 inches in diameter, and they have been established from four to six years. Hellebores are deep-rooting plants; in some cases we have found roots 18 inches long, so that we take care in preparing new sites to give the plants a deep and rich root run, trenching the ground 2½ feet deep. We use spent Mushroom bed manure and plenty of charred refuse from a smother with a little fresh loam added to enrich the soil. The charred refuse apparently suits the plants better than anything we use, helps to keep the soil porous and sweet, and

prevents stagnation—an evil to be avoided in growing the Hellebores. We have tried planting at various seasons, but on the whole prefer to make new plantations in the spring, when the plants are making new roots. We have also had success in planting when the Hellebores have completed their growth in the early autumn.

J. KIPLING.

Knebworth.

DAFFODILS FOR FORCING.

PEOPLE may go to the Continent or to Holland for Daffodil bulbs as long as it pleases them (see p. 168), but their doing so is not a proof that Daffodil bulbs are better grown there than they are in England and Ireland. Habits are contracted by the trade, as by other people, and it has so long been considered the correct thing to go to Holland for Dutch flower roots, that the fashion may exist for some time longer. But the fact most apparent to all who know anything of Daffodils to-day is that they grow in Scilly, in the south of Ireland, and even in some parts of Surrey and Middlesex far better than anywhere else in the world.

I am glad Mr. Douglas is to visit Mr. Walker's grounds this spring, and he should have done so before telling us of the Dutch grown Daffodils, as his judgment would have had more weight; but when he does go there I think he will see more Daffodils and quite as well grown as any he saw in Holland or anywhere else. I have tested a great many Narcissus bulbs as grown in Holland, and have always found them liable to fail more or less after the first year. I fancy the cow manure so freely used in the bulb fields there is the cause. Last year I had some of the finest bulbs of Narcissus I ever saw from near Hampton Court, in Middlesex, and I take it to be a significant fact as to the suitable soil thereabouts that Mr. Peter Barr has recently taken a new nursery ground in that locality. We want a little of the Continental confidence and enterprise, and I do not think, but am quite convinced, that sound healthy Daffodil roots can be grown as successfully in the British Islands as in any other country. At any rate, the Scilly cultivators have shown that they can more than equal the Dutch growers in Daffodil and Narcissus culture.

Until within the last few years no seedling Daffodils were reared in Holland, and Messrs. De Graaff are the only Dutch growers in the field with seedlings, their *Glory of Leyden*, *Madame De Graaff*, and a few others being certainly of the very finest quality. But it is to English cultivators that all our finest seedlings are due, to the work of Herbert, Leeds, Backhouse and Horsfield, and not to the Continental growers. The one bulbous garden flower of which English and Irish growers alike may feel legitimately proud to-day is the Narcissus, and that it is one of the most popular of all flowers is entirely due to the cultural powers of the Saxon and to the soil and climate of "Merry England," from the days of Elizabeth until the reign of Victoria.

Is it not a fact that more Daffodils have been cultivated in England and Ireland for the past two or three centuries than anywhere else in Europe? The Dutch growers never grew many Narcissus, other than *N. tazetta*, until within the past twenty years, and most of their stock went over from England.

F. W. B.

Flowering of white Daffodils. With regard to the discussion between Messrs. Jas. Douglas and F. W. Burbridge, it may be worth noting that I had half-a-dozen fair-sized bulbs of *N. cernuus* grown in Holland, each of which was put into a 6-inch pot on the 3rd of October last. At the same time I potted up from the open ground, a sunny south border, another half-dozen of *N. cernuus*. At all events they were grown and ripened the two previous years from where they were lifted. The latter commenced blooming four days since (Feb. 18) and the former cannot, to all appearance, bloom for a fortnight. I may say that they got no

forcing, being simply brought into a cool conservatory attached to my house. The soil was loam without manure.—W. J. MURPHY, *Clonmel*.

THE GREATER BINDWEEDS.

THE introduction of either of the greater Bindweeds (*Calystegia sepium* and *C. sylvatica*) to the well-kept garden is always fraught with danger, but, on the other hand, they are both far too beautiful to be discarded altogether. There is a place for everything, and when the Bindweeds have plenty of room in a semi-neglected spot where they can clamber over

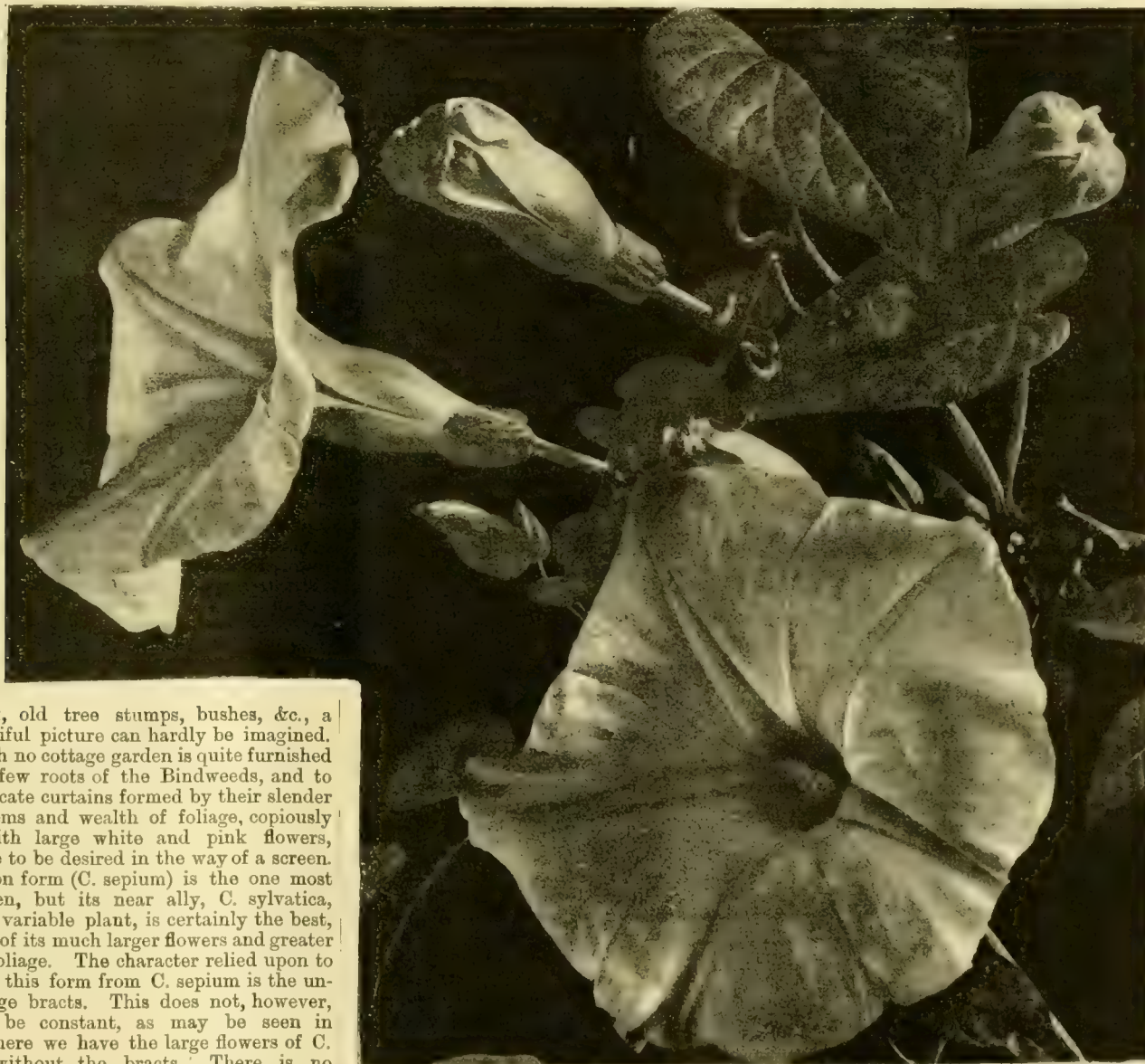
gardens when fairly established, so it is with the above varieties; they are a nuisance if ever introduced to the mixed border or the rockery where they cannot be kept within bounds. When supported, however, and allowed to ramble at will, they are not surpassed for grace and beauty by any other climbing plants we know. The plant figured is often called *C. grandiflora* in gardens.

D. K.

THE CARNATION DISEASE.

THE past summer was peculiarly favourable to the spread of the Carnation disease or spot, as it is sometimes called, and I often hear complaints of

one of the finest stocks of it I ever saw, has not a plant left. He told me that they went off in a week. My stock was affected at the close of the autumn, but I thought the season being so far advanced I should not suffer much. I find, however, that the disease continued to spread all through the winter, favoured in an exceptional manner probably by the long spell of stagnant, misty weather. I now see that nearly every plant has the plague spot on it more or less. Had I thought that the disease was going to spread during the winter I should have grappled with it by laying the plants in in frames, keeping off wet, and well dusting them with sulphur. I have no doubt but that I should have thus stayed its



Calystegia sylvatica (syn., *C. grandiflora*).

trellis-work, old tree stumps, bushes, &c., a more beautiful picture can hardly be imagined. In the north no cottage garden is quite furnished without a few roots of the Bindweeds, and to see the delicate curtains formed by their slender twining stems and wealth of foliage, copiously studded with large white and pink flowers, leaves little to be desired in the way of a screen. The common form (*C. sepium*) is the one most usually seen, but its near ally, *C. sylvatica*, which is a variable plant, is certainly the best, on account of its much larger flowers and greater wealth of foliage. The character relied upon to distinguish this form from *C. sepium* is the unusually large bracts. This does not, however, appear to be constant, as may be seen in the cut, where we have the large flowers of *C. sylvatica* without the bracts. There is no hard-and-fast line between the two plants, which may also include *C. americana* and *repens*, of the North American floras. The *Calystegias* are widely distributed through Europe, Siberia, North Africa, North and South America, and in Australia and New Zealand, the leaves varying from hastate to sagittate, blunt or sharp-pointed, the base cordate, and the lobes rounded or angled. The flowers are from 2 inches to 4 inches in diameter, white or pale pink, and usually produced in the greatest profusion from June until the end of August. Just as it is with the double form called *pubescens* fl.-pl. in

the damage it has done. The old Crimson Clove is one of the first to suffer, and this is, I suppose, one reason why such an old favourite, and endowed as it is with such exceptional fragrance, should be less frequently met with than a few years ago. I seldom see it now in gardens in large clumps, although it was often to be found a score of years ago, and I expect that virulent attacks of the disease are the cause of its comparative scarcity. A friend who has grown this old Clove for upwards of twenty years, and who up to this last season had

ravages. I do not know what the experience of your readers may be, but I have never yet known the disease to be formidable except in prolonged damp weather. It appears to be brought on by conditions identical with those that favour the spread of the Christmas Rose disease. The finer and drier the summer, the stronger is the growth and the more capable it is of resisting the attacks of this terrible foe to good Carnation culture. Good culture may help to render its attacks less deadly, but given the right atmo-

spheric conditions, it will be sure to spread. When I say good culture, I do not mean that which induces a very rank growth. The more succulent the foliage, the more liable is it to suffer when attacked. The plants that suffered most with me were on ground that was well manured a year ago and had lain fallow. A fairly good loam requires no manure, and in it the plants make a stout growth that matures early, and which better resists the attacks of the fungus. Very light, poor soils, of course, require a little enriching, but, contrary to the general rule in flower culture, in the case of the Carnation I would rather err on the side of poverty. Position has much to do with the disease-resisting power of the Carnation, and this is undoubtedly one reason why this fine flower can in some places be scarcely kept alive, whilst in others it will with perhaps less care thrive remarkably well. In low-lying situations, where in a damp time the moisture hangs round the plants for days together, disease is certain at times to work much mischief, whilst others growing on a breezy slope will quite escape. For this reason, the sunniest and most airy place in the garden should be selected for Carnations, for they cannot get too much sun when growing. I do not doubt that the application of black sulphur would check the disease if applied in time. I do not know any fungoid growth that it will not destroy, but the difficulty is to keep it on the foliage long enough in rainy weather to do good. When growth is completed the affected plants may be put under cover and dressed. For the future I shall make a point of doing this.

J. C. B.

THE DAHLIA.

WE had a very fair display of Dahlias in our garden last year, notwithstanding a most excessive rainfall at the time they were coming into bloom; however, the rainfall and the rather low temperature together must have had an injurious effect upon the tubers, for they were very small when taken up and shrunk considerably afterwards, and when examined about half of them appeared to be dead. We shall lose some varieties altogether, and those that are alive will not be likely to produce many cuttings. Those who have not examined their tubers ought to see to them at once. They ought to be carefully examined and all decayed portions removed, the tubers either being placed in boxes of fine soil, a number of them in one box, or planted singly in pots, according to the size of the tubers. The roots must be planted in moderately moist soil, and water applied rather sparingly at first. Under such conditions as we have to deal with this year, it is of some importance that a goodly number of pot plants should have been propagated the previous season. These are obtained by merely planting the side shoots thinned out during the summer months. These shoots strike freely enough in ordinary garden frames, and may be kept until the spring in 3-inch or 4½-inch pots. They may also be started in the spring, but they do not usually produce more than two or three growths, and propagation of these is usually effected by dividing the plants, leaving one growth attached to each portion. Of course they may be propagated by cuttings in the same way as the ground root growths are treated. Cuttings continue to be produced freely and rapidly from a large, healthy ground root, and the produce of one root would be sufficient to give ample stock for any private garden, but the object of having pot roots to fall back upon is easily seen to be necessary when the ground roots of some varieties are totally lost. The cuttings produce roots very freely either in a propagating house with bottom-heat or in an ordinary hotbed, and as fast as they are rooted they must be removed to a more airy place. The cuttings having been struck singly in small pots may be left in them until they have well filled them with roots, when the best plan is to repot them into 5-inch or 6-inch pots, and in these they must remain until it is time to plant them out in the open ground. Preparation of the soil in which to plant the Dahlias about the end of May is of more importance than some cultivators imagine. The nature of the soil and the quantity of manure necessary to produce certain results are different.

For instance, all the varieties that are likely to produce large and coarse flowers, if such a term may be used, require a moderately rich soil only, while the varieties with medium-sized flowers require it richer, and the smallest-flowered varieties can scarcely have too rich a soil to grow in. I am alluding now to the show and fancy section, and especially so in the case of those who compete for prizes at the exhibitions.

One leading point in judging a stand of Dahlia blooms is "evenness," to use a term sometimes applied by the judges; that is, the flowers in the different rows should be all as nearly as possible of one size. It is evident that they cannot be arranged in that way unless they are managed well during the growing and flowering seasons. Something may be done by the application of surface-dressing and of liquid manure during the summer and up to the time of flowering in the autumn. Even in the thinning out of the shoots a point or two may be gained, as some varieties require to be thinned out much more than others; and here, again, varieties that have a tendency to produce large and coarse flowers must not be over-thinned, and ought also to carry a larger number of flowers. The minor details of the cultivation of the Dahlia, as well as those of any other plant, cannot be learned all at once, or, indeed, at all, from merely reading an article upon the subject. We may fairly assume that the greater part of cultivators even of the Dahlia are not growers of it merely for the sake of taking prizes at a flower show.

I can well remember the excitement caused when the late Dr. Lindley, some thirty years ago, said that hardy flowers such as the Phlox were more charming in the garden than the lumpish Dahlia. The word lumpish was like a bombshell thrown into the midst of the group of exhibitors. At that time there were practically no other forms grown but the large-flowered show and fancy varieties. We have broken away from these now, and the Dahlia exhibitions are becoming yearly more popular, doubtless because this uniform sameness has been broken up, and a greater variety of form and colour has been placed before the flower-loving public. I called in at a large public garden the other day and was told that great losses had occurred amongst the Dahlias, but I found the gardener pricking out seedlings, of which he had a very large number. A packet or two of seeds had been sown early in February, and the result will be hundreds of fine plants which will flower this autumn. When Loudon published his "Encyclopædia of Gardening" some forty years ago, single Dahlias were grown to a certain extent as well as double-flowered varieties.

It will thus be seen that if we compare the work of the floriculturists of half a century or more ago with that of the present time, we have not much to boast of. We have grown the exhibition varieties to a higher state of perfection than they ever were. I allude to the double forms of *D. variabilis*; the flowers approach more nearly to a perfect ball, the petals being better formed and more regularly arranged. We have also a very handsome Dahlia grown under the name of *D. Juarezi*, but it is not an English raised plant, having been introduced from Mexico. There is a sport from it with flowers more of a crimson tint, but all the seedlings supposed to be raised from *Juarezi* and differing in colour are not exactly like it in form of petal. The single Dahlias are now very numerous and of the most diverse colours, but the best way to obtain a good stock of plants is to raise seedlings.

J. DOUGLAS.

SHORT NOTES.—FLOWER.

Winter Windflower (*Anemone blanda*) was in bloom on the Kew rockery the other day. At the time of our visit it was almost the only plant in flower.

Narcissus minimus.—This small-flowered *Daffodil* was in full flower a few days ago on the rockery at Kew in a sheltered recess away from cutting winds and other harmful influences. It is the first *Daffodil* of the year, and enjoys shelter from cold winds, which cripple the beautifully shaped and rich self-coloured flowers.

EDGED AURICULAS.

As every piece of evidence as to the date at which the edged forms of show Auriculas first appeared has its value to those who are interested in the question of their origin, I would mention, at the risk of re-stating a well-known authority, a work on botany in Latin and German, containing a series of copper-plate illustrations of sixty-two pips of garden Auriculas, hand-coloured, besides two pages of illustrations of trusses and leaves of Auriculas, published in the year 1737.

The title runs: "Phytanthoza Iconographia, sive Conspectus aliquot millium plantarum a Joanne Guilielmo Weinmanno Dicasterii Ratisbonensis Assessore collectarum, quorum denominationes explicantur a D. Joanne Georgio Nicolao Dieterico. —Ratisbonæ, MDCCXXXVII."

The Auriculas illustrated show selfs of yellow, crimson, and brown colours with well-defined circular white paste. Several of the pips are most irregular in outline and have angular pastes. A large number are brindled, that is to say, the body colour is variegated in a radial direction, in lines, spots and dashes, the colours being mixed of red, yellow, green, and white. Among these there is but one edged flower. This is a green-edged flower of large size. The edge is wide and clean, the body colour being crimson. There is no grey or white-edged flower among the whole sixty-two, although many of the selfs are shown to have the body colour thinly sprinkled with meal, chiefly about the inner edge.

Apparently the white and grey-edged Auriculas were not known at this date in Bavaria, although so near to the probable original source of the garden Auricula. The book above mentioned is in four large folio volumes. The arrangement of the plants is alphabetical. There is also an interesting series of Pinks, wild and uncultivated.

PHILIP J. WORSLEY.

Engadine, February 19.

The Caucasian Scabious.—In common with J. H. W. Thomas, I should also like to ask "D. K." how to grow it so as to make it flower freely. In fact, my difficulty is greater than Mr. Thomas's, for I can hardly keep my plants alive at all. I have had plants, two or three at a time, from different sources, and I have planted them in various aspects and in almost every conceivable variety of soil, but I can do no good with them. We are told it is a true perennial and grows into strong tufts. I doubt both of these statements. I have two friends, both above the average in their love for, and skill in growing, herbaceous plants. Neither of them can grow this Scabious with any success, though one of them is more fortunate than the other, treating it as a biennial. I have several other sorts of Scabious and they all do well with me, so I am inclined to think that neither I nor my soil is at fault. While writing about *S. caucasica*, may I ask why a yellow Scabious—which you in your book on hardy flowers call *ochroleuca*—is so little grown? I can find it in no trade lists, and yet, to my mind, it is a lovely thing. The colour (very light sulphur) is unusual, though beautiful. The flowers are nearly as large as those of *caucasica*. The habit is good and robust. Is it uncommon? With me it does well and is always admired.—WALTER BUTT, *Minety Vicarage*.

Columbines.—Many of the hybrid *Aquilegias* are very beautiful, and all seed freely. *Aquilegia chrysantha* and *A. cærulea* are the best, and both may be obtained from seeds. They are well adapted for the rockery, or to grow on the slopes of any alpine mount where the soil is deep, and soon create a specially interesting feature. They are also good border plants under like conditions as to soil. The seeds may either be sown as soon as ripe or in the spring. In the latter case, sow in pans and place in a gentle heat. If sown in autumn, place the pans in a cool frame kept close. They make beautiful pot plants for a cool house, and they will even bear a little forcing, but the night temperature should not exceed 50°. The flowers are nice for cutting, especially when produced under glass early in

the season. I was once asked by a gentleman, who saw a group in the conservatory early in the season, what new plants I had there, and he was surprised when told they were only hybrid forms of Columbines. The seeds may be sown in the open air, but it will be as well to place a handlight over the choice varieties. The hardier, commoner forms, such as *glandulosa* and the varieties of vulgaris, will seed as they stand, and grow in due time into sturdy tufts of elegant leafage and blossom. The common forms of the Columbine are very desirable for naturalising with Foxgloves and the common Evening Primrose (*Oenothera biennis*), &c., on banks, in the wilderness, or with Ferns in the dells. —Field.

FLOWER GARDEN NOTES.

HARDY HEATHS.—There are so few hardy winter-flowering plants, that it is right we should value very highly any species that do flower at this season, and amongst such that deserve a foremost place are the varieties of hardy Heaths, or, to be more exact, Ericas. We have a border of such now in full bloom, the varieties being *Erica herbacea* (light pink) and *E. herbacea carnea*, a darker shade of the same; and, apart from their beauty as border flowers, there are at this season no flowers more appreciated for the furnishing of small vases and shallow dishes for room decoration. We sometimes lift the plants and put them in small vases for use in the same way, and also in the centre of a large shallow vase. The outer margin is furnished with Snowdrops lifted from the border. This being a district for Heaths, all the varieties do exceedingly well without any artificial preparation of soil. Though the soil in which ours are growing is loam, it is so light and free from chalk that the plants do perfectly without peat, the special soil universally supposed to be requisite, but which is really not the case, provided the loam is of light texture. For furnishing with flowers the front margin of Rhododendron beds there are no plants better suited, and, of course, soil in which Rhododendrons do well is in every way suited to these Heaths. Besides the two varieties named and that are now in full flower, there are two or three other kinds that will soon be in bloom and that are of such a beautiful green, that, apart from the production of flowers, they are worthy of cultivation. These are the varieties *mediterranea* and *mediterranea alba*. The flowering season of the varieties of Irish Heath—*Menziesia polifolia*, *polifolia alba* and *polifolia atro-purpurea*—is supposed to be July and August, yet I have known them to be in bloom almost all the year round. There are no flowers just now, but their foliage is so beautiful as to justify their being classed amongst the best of hardy plants for winter. The position in which they flourish best is on a peaty bank facing east. As rockwork plants for shady nooks they are extremely effective.

ROSES AND BULBS.—The Rose beds being the only place we have for a display of spring-flowering bulbous plants—at least, in quantity—we have to study how best to combine the two without injury to either, and think we have managed this moderately well for some years past. I note the manner of our procedure, and first, I may say that no pains is spared to have the soil of the very best description. The Roses are lifted each alternate year, for the double purpose of trenching and enriching the soil, pruning roots, and of freeing the plants from suckers. This done, replanting takes place, and after this the bulbs are planted in the intermediate spaces, the beds being at once heavily mulched with Cocoa fibre—a protector at once of the roots of the newly-planted Roses as well as of the bulbs. These latter consist of beds of Hyacinths, Tulips, and Narcissi, and are now from 2 inches to 3 inches above the mulching, and, compared with the same kind of bulbs planted at the same time in groups on the borders, but not mulched, there is a marked difference in favour of the former both in strength and height of growth, positive proof of the value and importance of mulching. If it is of such benefit to the bulbs, it follows that it must be so to Roses, and though it has never occurred to me to make the comparison before,

the difference in the bulbs mulched and unmulched led to this being done in respect of Roses under the two different conditions with results just as marked as in the case of bulbs. The main bulk of Roses are now being pruned. A few on a north-east border, that we strive to flower at the end of July and August when Roses for cutting are somewhat scarce, will not be pruned for several weeks, because, as a rule, late pruning conduces to late flowering. At this season, Tea and Noisette Roses on walls and trellises are often injured by harsh easterly winds much more than by frost, and canvas coverings for keeping out the air are undesirable except at night. Close mesh netting is a good protector, and lacking this a loose threading of Bracken secured between the branches effectually protects the tender foliage from injury by cutting winds.

HARDY PLANTS FOR THE LAWN.—Flower gardening is gradually undergoing a change, or rather changes, because there are many branches of it. A very few years ago if one spoke of flower gardening, nearly everybody understood that “bedding out” was meant, to such an extent had that branch of flower gardening grown. Happily, however, we have now got beyond that, and the words flower gardening are now understood to be comprehensive of all and every description of flowering plants and shrubs that can be used for the embellishment of a pleasure garden. The one phase I now wish to notice is by no means the least of the many and various ways of arranging flowering and foliage plants with a view to ornamental effect. The grouping of hardy flowers and foliage plants in suitable positions on the lawn is, I think, one of the most natural, as it certainly is one of the most beautiful ways of growing many kinds of plants; that is to say, they look least out of place if grown in any other way than on turf. I have on several occasions made allusion to the grouping of handsome small-growing shrubs—New Zealand Flax (*Phormium tenax*), Pampas Grass, and Bamboos, all of which we have done here in a greater or lesser degree, and now, as opportunity offers, it is intended to do the same with suitable flowering plants, and more particularly such species of hardy perennials as resent frequent removal, the usual annual dressing of manure being given them. Amongst the best of these for planting in nooks and recesses on the lawn and in front of shrubberies to break the formality of angular lines are *Tritoma Uvaria*, in groups of about seven plants, and *Acanthus latifolius*, the best of all fine-foliaged perennials, and in rich deep soil it throws up immense spikes of flowers. Great depth and rich soil and a damp position are necessary to flower this plant well. *Bocconia cordata* is a tall, graceful-growing plant, requiring a sheltered position, both by reason of its height and soft foliage, which is liable to be torn by the wind. It is difficult to establish the roots, as they are so woody, but when once it has got a firm hold of the ground it makes up for loss of time by rapid growth. *Spiræa Aruncus* is a grand plant for a moist adhesive loam, the best bush I ever saw of this being grown in pure clay almost water-logged. I took the hint, and gave our plants free supplies of water whenever the weather was dry, and the flower-spikes were more than double the size of those of the previous year. The variegated *Arundo donax variegata* is another excellent lawn plant. It looks most at home when planted in close proximity to water, being in appearance closely allied to the Sedges, Water Reeds, and Pampas Grasses. As foliage plants, there are three varieties of *Yucca* that when in groups are as beautiful as it is possible for any plant to be. The best is the stout, upright-growing variety *gloriosa*, which not infrequently throws up the most gigantic flower-stems, and branches out freely. The variety *recurva* is of a drooping habit of foliage, not nearly so free-growing nor so tall, and on that account is better suited for grouping in more contracted recesses. Old plants flower rather frequently, and this flowering is desirable, because from the base of the flower-stems there invariably start numbers of new shoots, which give to the clump a more imposing appearance. The other variety (*filamentosa*) is a still smaller grower, but

spreads rapidly, and besides being a good lawn plant, it is useful for rockwork. We have it as such in conjunction with *Cotoneasters* and the variegated *Periwinkle*, and the combination is perfect. W. W.

BEAUTIFUL FLOWERS.

A GARDEN of annuals we never wish to see, but such fleeting, though beautiful flowers should be used liberally in the hardy garden, in the borders, the margins of shrubberies, and odd spots where they give pleasure either by the profusion of their flowers, their brilliant colours, or their fragrance, which in many cases is sweet and refreshing. In the reserve garden, that portion set aside purposely for the growth of hardy plants to give flowers for cutting, many annuals, as the common Cornflower (*Centaurea cyanus*), Mignonette, Sweet Pea, Sweet Sultan, and a few old-fashioned favourites of this character may have a good place with profit. Everyone appreciates a posy of these simple flowers, far more so, in many instances, than of the gaudier and often less beautiful indoor plants. Annuals have been slow in making way in our gardens, and their failure to give good effects was not hard to account for when the seed was sown so thickly that it was impossible for a healthy growth to result. How can plants, crowded together in the way annuals were and often are at the present day, flower freely, strongly, and continuously? No plant, more than a human being, can exist without proper air, and it is only by allowing annuals plenty of space, at least 6 inches apart for those of fairly strong growth, that a good effect can be obtained. Many are now ordering their seeds, so it will be opportune to bring to the notice of readers of THE GARDEN a few of the more useful and striking annuals or biennials. It is impossible to mention many in a short article as this.

FOXGLOVES need no describing to those who have seen an English wood in spring. A mass of *Digitalis purpurea* in a ferny brake is as beautiful as a bank of Primroses or Cowslips, and still the Foxglove is kept out of many gardens. There are several strains, that of Messrs. Vilmorin, of Paris, in particular giving flowers of all colours, some spotted, others quite self; but the most delicate are the whites, spotted with some rich hue within the bell. The Foxglove has been immensely improved in recent years, the spike being of great length, solid, and laden with large flowers. In THE GARDEN of Nov. 24, 1888 (p. 488), a coloured plate of a spotted Foxglove is given, and this is drawn in the Messrs. Vilmorin's grounds at Verrieres-le-Buisson, showing that in sunny France the Foxglove has been greatly improved in the fulness of spike, great variety of colouring, and strong habit of growth. Accompanying this plate an engraving is given of “Foxgloves in the wild garden,” and this will suggest a use for these simple, beautiful flowers to those who wish for interesting gardens. We are accustomed to see the glory of our native wilding in brakes and dells, and yet chary of bringing it into our own gardens, where it will grow as freely as in its native haunts. The seeds soon germinate if sown in a sheltered corner in the garden in June and kept free from weeds, slugs, and other small marauders. Plant out in the following autumn in bold groups where they are likely to look most natural, and never forget if there is a wild garden to plant a few there. Some, when the seedlings are fit to handle, prick them out in beds, transferring them to their permanent places in the autumn. This is certainly best where the seed has been sown thickly, as is generally the case with annuals or biennials.

SWEET PEAS are of greater use than even the Foxglove, as they are better suited for indoor decoration when cut. Sweet Pea flowers are always expected; they have the same pleasant associations as the Mignonette, the Cornflower, and the Sweet

Sultan, and their fragrance is deliciously sweet. Since also they have received the hybridist's attention we have a rich assortment of colours, larger flowers, and a stronger habit of growth. It is to Mr. Eckford that much of the credit is due, as by careful selection he has raised a strain of flowers that are of unusual beauty. Scarlet Invincible, Butterfly (white and lavender), Beatrice (carmine-rose), Princess of Wales (mauve), Imperial Blue, and a few of this type are the finest of the Sweet Peas. It is scarcely necessary to suggest a use for this fragrant flower in the garden. Its graceful habit and freedom of blooming point this out. If there is an unsightly spot to be hidden, a flowery screen can be made with it, and a row or two should certainly be allotted in the reserve garden, where we look for the flowers for cutting. A sowing may be made in March in the open ground. The staking of the plants and other matters of detail need no comment, except that the seed must not be sown so thickly that a severe thinning out has to take place. Sometimes in the press of work this is neglected; the plants grow weakly, and though given plenty of space afterwards never properly recover.

POPPIES during the past three or four years have been grown largely in gardens, and with good effect. The Papavers offer great variety from the gaudy, coarse growing *P. orientale* to the frail and beautiful Iceland Poppy, the former suitable for the border or to form clumps by itself, the other to margin flower beds or to make small groups on the rockery. *Papaver orientale* is a rich beauty, but it can be used too much. To have a surfeit of such a bold-growing perennial is a mistake. There are now several varieties, bracteatum, of course, being the best known, but Blush Queen, blush-pink, and some of the newer additions might have a trial, though it will be difficult to rival the richness in colour of the type. Nudicaule and its varieties album and miniatum are easily raised from seed sown in the spring, and such annual Poppies as Danebrog, Peacock, Pæony-flowered, Carnation-flowered, French, Shirley, and umbrosus are beautiful garden flowers. Of the Shirley Poppies sufficient has been said already in *THE GARDEN*; they are exceedingly beautiful, both in the shape and colours of the fragile flowers.

NICOTIANA AFFINIS (the Sweet-scented Tobacco) makes an excellent pot plant, and flowers freely in the border. It can be easily raised from seeds sown in March, and makes a quick growth.

SALPIGLOSSIS is an annual that bears a profusion of quaint, variously coloured flowers. It makes a handsome bed, and a mixed packet of seed will give great variation in colour of the flowers, which are beautifully pencilled, as in the *Alstroemeria*. The seed may be sown under glass in March or April, and placed in heat to induce quick germination if the seedlings are required for pots. While under glass keep them hardy and stocky by ventilating the frame whenever the weather will allow of it. This annual was usually grown remarkably well in the Chiswick Gardens of the Royal Horticultural Society. There were long lines of it and also beds, the seed being sown in the open.

LOVE-IN-A-MIST (*Nigella damascena*) should be sown in preference to *N. hispanica*. It is an annual easily raised from seed sown in the spring, and a short row might be sown in the kitchen or reserve garden to supply cut flowers. Though it is not fragrant nor showy like the Sweet Pea, it is a singularly beautiful annual, the bluish flowers nestling in a bed of mossy growth, and suggesting the common English name. It is one of those old favourites that with the increased attention given to hardy plants and annuals has not been overlooked.

NASTURTIUMS or *Tropæolums* are annuals that always have been grown largely, and are good substitutes for the zonal Pelargonium. Their great failing is that after July is over they quickly lose their beauty, a fortnight or three weeks turning a gay block of colour into a flowerless patch. This was evident in the year 1887, when the trial of

Nasturtiums took place in the Royal Horticultural Gardens at Chiswick. In that memorably hot and dry July the Nasturtiums were at their best, but after that month they quickly lost their former beauty. It is here that the zonal Pelargoniums have an advantage. They show no such ephemeral character as the annuals. A few years ago, when the gardens were worth seeing for the many interesting features of flower gardening, there used to be a long line of a Nasturtium named Bedfont Rival, a scarlet-flowered variety, and one of the freest we ever remember. The rich mass of flowers quite hid the abundant leafage. I cannot find its name in the one or two catalogues I have looked through, but it should not be dropped out. Unfortunately, it never came true from seed, and so cuttings were resorted to for perpetuating it. These struck very freely in a little warmth. Last year, of course, can be taken as no criterion of the value of the Nasturtiums. The plants made an extraordinary amount of leafage and produced very few flowers, thus showing what, of course, was well known before, that the Nasturtium revels in sun and a dry soil. As many are now purchasing seeds, it may be useful to give the names of those varieties that proved the best of those on trial in the Chiswick Gardens. Nine sorts were selected, and these were Empress of India, very compact in growth, the flowers rich scarlet; Tom Thumb Pearl, pale yellow; caruleum roseum, reddish purple; Tom Thumb Beauty, scarlet; Tom Thumb, crimson; Tom Thumb, yellow; and Crystal Palace Gem, yellow, blotched with crimson. To amateurs who have no glass, the Nasturtiums, both dwarf and climbing kinds, are of immense value. They are as showy as bedding plants, and easily raised from seed.

CORNFLOWER (*Centaurea cyanus*).—The Cornflower has been used in many beautiful arrangements in the flower garden. Its lovely blue flowers can be worked into the choicest wreaths, bouquets, or posies, and the plants can be easily raised from seed if this is sown in the open ground in April. If it is desired to have extra strong plants and early flowers, a sowing should be made at once under glass in heat and the seedlings potted on. Harden them well previous to planting out. The bright blue variety should be grown in preference to the rose, purple or striped kinds, but the white is indispensable. A sowing should be made in an odd spot for the supply of flowers for decoration to prevent the plants in the flower garden being spoilt by continual cutting. As we are mainly dealing with annual flowers, it is almost out of place to mention the perennial *C. montana*, but we do so to bring it into notice. It and its several varieties flowered magnificently last year.

MIGNONETTE should also be sown in quantity, as it is always in demand for the drawing-room. *Reseda odorata pyramidalis*, one of Messrs. Vilmorin's strains, is a splendid type, the spikes strong, bold, and the flowers very sweet. A bed of standard Roses, where there is unfortunately any of these in the garden, may be made less ugly by a carpet of Mignonette. Clumps in the border, by the margin of the shrubbery, or a bed wholly devoted to it will not be too much of a flower everybody loves.

Clarkias, Candytufts, Night-scented Stock, Godetias, and Viscarias are a few more annuals that are of unusual beauty when grown properly, which, unfortunately, in many gardens is not the case. A row of the Night-scented Stock near the windows of the principal rooms will exhale a pleasant fragrance in the evening when the flowers are fully open.

The blue Primrose.—Mr. Douglas exhibits his customary generosity of spirit and large-heartedness in his recent reference to my blue Primrose. Nothing can be more unfair on the part of members of the floral committee than to declare they have quite as good at home as the subject exhibited before them, and thus discount the greater honesty of other members who regard this, that, or the other as a distinct and beautiful novelty. As I shall exhibit the Primrose again at the meeting on the 12th inst., I invite Mr. Douglas or anyone else to bring

up those they have at home and let the committee accept no man's declaration, but judge for themselves.—A. D.

GARDEN FLORA.

PLATE 691.

THE SOCOTRAN BEGONIAS.

(WITH A COLOURED PLATE OF B. JOHN HEAL.*)

WHEN *Begonia socotrana* flowered for the first time in England in 1881, its probable usefulness as a garden plant was at once perceived. Botanically, this species is interesting from its occurring in such an out-of-the-way place as the island of Socotra, thousands of miles removed from the haunts of any other known *Begonia*. It also possesses characters of an exceptional kind in the form of its tubers, of its foliage, and the persistence of its flowers.

In *THE GARDEN*, 1882 (Vol. XXI., p. 162), a coloured plate of *B. socotrana* was published, and it was then stated that, from the wide difference between the characters of this and the Andean species of *Begonia*, a cross between the two, however desirable, seemed at least doubtful of achievement. No cross had been effected between the evergreen and tuberous kinds, nor yet between the latter and the South African tuberous species, of which *B. caffra* is an example. The distinct *B. Martiana* (*gracilis*) has since then been crossed with one of the



Begonia socotrana, showing habit of plant.

Andean seedlings, notably by Mr. Cooper, gardener to the Right Hon. Joseph Chamberlain, M.P., in whose garden some distinct and pretty hybrid *Begonias* have been raised. However, nothing is so likely to happen as the unexpected, and in the pretty *Begonia* figured in the accompanying plate we have the first undoubted hybrid raised from *B. socotrana* and one of the Andean seedlings.

B. socotrana, illustrations of which we here give, was discovered by Professor Bayley Balfour in the island of Socotra in 1860, and he sent a few bulbils of it to Kew, along with other plants collected in that island and at Aden. A batch of about twenty plants of the *Begonia* was raised. These flowered in the winter of 1881, when a figure was prepared for the *Botanical Magazine* and for *THE GARDEN*. The plants then passed into the hands of the Messrs. Veitch, who distributed them the year following. But *B. socotrana* has not become popular in gardens, notwithstanding its many excellent

* Drawn for *THE GARDEN* in Messrs. Veitch's nursery by H. G. Moon, November 20, 1888. Lithographed and printed by Guillaume Severeyns.



BEGONIA "JOHN HEAL."

qualities as a winter-flowering plant. At Kew it has continued to be grown in quantity, and during mid-winter its bright rosy flowers are very attractive. It is easily grown, is dwarf, the leaves are a healthy green, and it blossoms very freely, the flowers lasting several weeks. Cut and placed in water they have been known to keep fresh more than a fortnight. Unlike all other Begonias, this species retains its flowers even after they have withered, a character which cultivators of Begonias well know how to appreciate.

The success of the Messrs. Veitch in plant-breeding has been most marked, not only amongst Orchids, but in almost all horticultural departments in which hybridisation has been effected. Mr. John Heal, to whose skilful manipulation we owe many beautiful seedlings and hybrids, and to whom we are indebted for the following particulars, fertilised the flowers of *B. socotrana* with pollen from a tuberous variety called Viscountess Doneraile, and obtained as a result one seedling. This flowered in 1885, and was named John Heal. It was awarded a first-class certificate at South Kensington in the same year. All the plants distributed under this name have been raised from cuttings of this one plant, as, curiously enough, no female flowers have been produced by this hybrid, so that seedlings of it have been impossible. Mr. Heal suggests that no doubt the absence of female flowers accounts for the length of time the male flowers remain on the plants. He also states that after exhibiting the first plant at South Kensington he cut off all the flowers and kept them in water till the next fortnightly meeting, when they were again exhibited and were quite fresh. This suggests the usefulness of the flowers in bouquet-making and for vases, &c.

In habit *B. John Heal* is intermediate between its two parents, attaining a height of about 9 inches, branching naturally and freely, the leaves obliquely heart shaped (not peltate, as in *B. socotrana*), and bright green. The flowers are borne loosely on graceful peduncles well above the foliage, every stem developing flowers. Strong plants bear as many as twelve flowers on each peduncle; they are about 1½ inches in diameter, elegant in structure, their colour being bright rosy carmine. Each flower continues fresh about eighteen days and then shrivels. No stakes are required for the support of the plants, which is a relief to those who know what a disfigurement stakes often are in the summer-flowering Begonias. The plants commenced to bloom in the second week of last September, and were gay with flowers till the middle of January. In gardens away from London some plants bloomed up till the middle of February.

B. ADONIS was Mr. Heal's next success. This was the result of fertilising flowers of a large-flowered Andean variety with pollen from *B. John Heal*. *B.*

Adonis is more robust than *B. John Heal*, the foliage being larger, and the flowers, which are all male, are almost as large again, or 3 inches in diameter; they are of a pleasing soft rose colour, paler towards the centre, and arranged on graceful arching peduncles. This variety was certificated by the Royal Horticultural Society in 1887.

B. WINTER GEM is the best of the trio, and is a most beautiful flowering plant, possessing all the attractions of the best of the Andean race, with the useful habit of flowering in winter. It was obtained by hybridising the flowers of *B. socotrana* with pollen from a crimson-flowered Andean variety. In habit it is not unlike the first-named parent, but it is more compact; the peduncles are not so lax, and the flowers are large, of good substance, and of a deep carmine, almost crimson, colour.

No doubt these three hybrids will form the nucleus of a race of Begonias which is certain to prove of the greatest possible value. The accomplishment of this is now only a matter of time.



Begonia socotrana, showing flowers and leaf.

We have already several very distinct and useful races of Begonia, viz., the *Rex* section, a glorious race of ornamental-leaved plants now very much neglected; the tuberous or Andean section; the *semperflorens* section, a group which promises to soon become valuable for the stove in winter—indeed, we have already several first-rate flowering plants in this section; the *octopetala* section, the first of which was lately figured in *THE GARDEN* (see p. 125); and the *Socotran* section. We are gradually finding out the immense value of many of the Begonias as garden plants.

The culture of *B. John Heal* and its two allies is simple enough. The plants go to rest as soon as the flowers are over, and they remain dormant till July, when growth recommences. The tubers are then shaken out of the old soil

and repotted, 5-inch pots being used, and one tuber is placed in each pot. The soil should be the same as that used for ordinary Begonias. If a stock is wanted, the shoots, if removed and treated as cuttings as soon as they get long enough, will soon root, and make nice flowering plants the same season. Even the smallest plants bloom when the flowering time arrives. A warm greenhouse or intermediate house suits them, and they should have all the light possible.

W.

FRUIT GARDEN.

W. COLEMAN.

THINNING GRAPES.

RESUMING my remarks (p. 161) upon judicious thinning not only for quality of fruit, but also for the preservation of the health and vigour of the tree, I may say there is not under high cultivation a single genus which does not require this attention. It is not a little amusing, when turning over the pages of an illustrated catalogue, to find the chief recommendation of some particular fruit centred in its extreme fertility; in the tree's ability to set in one spring as much fruit as any sensible man would allow it to carry to maturity in twenty years. Without going out of my way, I will take the *Kelsey Plum*, figured the other day in *THE GARDEN*, as an example. It may be a very good variety and worthy of extensive cultivation in this country, but its great fertility does not enhance its value, as we frequently see the *Victoria*, the *Pershire*, and other Plums quite as thickly studded, whilst some of the *Damsons* completely break down with the weight of fruit clustering upon their twigs and branches. Peaches, again, sometimes set two or three dozens of fruit on shoots 2 feet in length, and half a dozen on a single spur, but no good gardener thinks of accepting Nature's lavish gift; therefore, he reduces the crop to an extent that will ensure quality and maintain the vigour of the tree. This wonderful fertility is met with every year both under glass and in the open air, and as many people take this great willingness as an extra quality, a few seasonable hints may not be lost upon those given to over-cropping. The thinning of bush fruits is hardly ever practised, and yet we know quite well that half the quantity would result in equal weight and finer quality, whilst over-cropping in old orchards has been of the greatest benefit to our colonial rivals.

Grapes, again, now grown by thousands of tons, must be up to the highest mark, otherwise they are quite unsaleable. Sound, healthy Vines which have not been over-cropped in preceding years frequently show about six times the number of bunches they should be allowed to carry to maturity, and set best when at least three-fourths of them are taken off before the most forward come into flower. Indeed, so fruitful is the Vine and so unwilling the hand of the *chef*, that in many instances the most careful over-crop and repent at leisure. It is impossible to say how many bunches a Vine should carry to keep it in healthy vigour, for we must not overlook the fact that under-cropping, next to over-cropping, if possible, should be avoided. Some Grape growers make a start by reducing the clusters to one on each spur, but this is a very heavy crop indeed, and out of all proportion to the foliage, no matter how good and plentiful it may be. Therefore, in the case of free setters, one-third of these at least should be removed, if not before, certainly so soon as they are out of flower and the best clusters can be decided upon. The great tendency on the part of young beginners and

amateurs, mistrustful of themselves, is the postponement of work which they know quite well must come, and this waste of strength tells upon the Vines throughout the season. Grapes, moreover, so treated often shank or fall short in bloom and colour, two points for which size cannot compensate, though they be larger than those of the islands of the Archipelago or Damascus. This, however, is not the only drawback, for, independently of the fact that a great number of bunches left on the Vine whilst reducing the quality to second-rate, do not in the aggregate weigh more than half the number swelled and finished to perfection. Light cropping, on the other hand, particularly in the case of vigorous young Vines, is not good practice, as they are liable to become gross, when the ripening of the wood and buds becomes difficult. I know a very clever grower who allows 1½ lbs. to each foot run of rod the first year and increases the weight as the Vines attain age—his guide, a very good one, being their ability to make plenty of laterals through the stoning period. The stoning stage is rather late for reducing the crop, but finding the laterals have come to a stand, better late than never, I would make the attempt, coupled with the resolve to crop lighter in future. When the bunches have been reduced to the proper number, there comes the process of

THINNING the berries, a tedious and delicate operation, or art, which can only be attained by great practice and a thorough acquaintance not only with the different sections, but also with certain Vines of the same variety. As no two sections require precisely the same style of thinning, whilst not unfrequently two Vines of some particular variety growing within a few feet of each other differ widely in structure of cluster and size of berry, the first qualification on the part of the operator is a thorough acquaintance with their capabilities. If we take the *Hamburg* as met with in three or four vineries, we find some producing loose bunches of medium-sized berries which require moderate thinning, others producing large shouldered bunches which set thickly and swell their flattened, hammered berries half as large again as their neighbours. As uniform manipulation in these two cases would result in the bunches on the first being made too thin, or those on the second too crowded, I need not repeat, the number of berries retained must be considerably greater in the first than in the second.

The proper time to thin is immediately after all free-setting varieties are out of flower and the berries are about the size of swan shot. Muscats and others which require artificial fertilisation should have a little more time, and when the perfect berries take the lead those left behind should, as far as practicable, be removed, as stoneless berries never take the second swelling. A few small berries, it may be urged, are better than a blank or gap, but I have found that a bold attack on these generally leads to a thinly set bunch of Muscats becoming quite full enough. Lady Downe's, Alicante, Gros Colman, and Gros Maroc should be thinned until there is no danger of binding, otherwise, the first three being essentially winter Grapes, their keeping through the dark, damp months will be extremely doubtful. Early and summer Grapes that are under-thinned do not suffer so much as the preceding, but these, when thoroughly acquainted with their peculiarities, a good practical hand will thin to a berry.

When well thinned a bunch of Grapes should contain as many perfectly fertilised berries as will form a compact cone, neither tight enough to bind, nor loose enough to spread and expose

the stalks when cut and placed upon the exhibition board or dessert table. If tying up the shoulders to increase the size of the bunch is in favour, this operation should precede thinning, at least this is my experience, and I have built up *Hamburgs* until they have weighed 4 to 6 lbs. a bunch when ripe, and I have been obliged to pass a piece of string round the buried stalks before I could venture to detach them from the Vines. As Grapes should never be touched by the flesh or hair, either of which may destroy the bloom and produce rust, the operator should use a short forked stick about 6 inches long for keeping the bunch steady and lifting the shoulders; then with his scissors, guided by a deft hand and a quick eye, he must trim and shape if necessary, sweep away all stoneless berries, and well open the centre. The outside berries, left until last, may then be regulated to a nicety, and the first thinning will be finished. Having shown that the bunches and berries vary, I cannot advise as to the number of the latter which should be taken or left, but from a well set cluster of the large-berried, short-stalked *Hamburg* containing say 100, I have taken sixty, and the forty left have formed a perfect bunch. These figures must not, however, be taken as a guide, as much depends upon the structure of the bunch, the mode of shouldering, and the high or ordinary degree of cultivation. The tyro, therefore, having his spurs to win should commence early, proceed with caution, and go over all good-sized bunches three times, the first, immediately after they are set; the second, after they are stoned; and finally when they commence the last swelling. Early in the morning and towards evening, when the body is cool and free from perspiration, are the best times for thinning. Morning, however, is to be preferred, as the house as well as the body at that time is cool and free from moisture.

Pears on the Quince stock.—I quite agree with the opinion quoted from Mr. Saunders's paper read at the Chiswick conference as to the desirability of growing Pears on the Quince stock, especially with a clay subsoil if early fruiting is expected. To enlarge the axiom, I add a couplet of my own which heads my *Pear* book:—

That those who plant Pears
Grow fruit for their heirs,
Is a maxim our grandfathers knew;
But folks have learnt since
If you graft on the Quince,
The fruit will develop for you.

—G. J. BLOMFIELD, *Norton Rectory, Stoke-under-Ham, Somerset.*

Cordon Pear trees.—The demand for these has been very good this year. That is good news, as it shows that not only are various Pear growers desirous of testing more varieties, and perhaps better ones than they can when only large trained trees are grown on walls, but they also wish to furnish a wall more quickly. The removal of some huge trained trees, perhaps forty years old and thoroughly worn out, leaves a big gap which it is desirable to fill speedily. A young trained tree will be long in doing it, and if a couple of riders be added, they prove rather costly without being permanent. But a dozen or so of good cordon trees almost furnish the wall at once, and give also, perhaps, three or four or even more varieties. No wonder cordon trees have become so popular.—A. D.

The fruit tree season.—Very good business seems to have been done by the nursery trade in trees this winter, favoured no doubt to some extent by the comparatively open nature of the season, and helped also by the encouragement given by the thorough soaking with moisture the ground has received. We need not fear drought again for a year or two at least, and newly-planted trees will almost certainly make good growth. It is interesting and pleasant also to learn that the chief trade

has been done with old customers. That shows that the old growers have still ample faith in fruit culture. If new growers are few, it is better that they should come in slowly than in a rush. Fruit growing is not learnt in a year or two, and behind fruit growing there lies the not less difficult rock of selling fruit profitably; hence, it is best that new growers for market should be both slow and sure.—A. D.

IS GRAFTING WRONG?

IN reply to this question, three correspondents (pp. 173, 174) are quite unanimous that it is at all events, if not always, at least very often wrong. This is after all a great gain. Mr. Coleman (p. 173) frankly acknowledges at the outset that grafting has "of late years been sadly abused." Again, Mr. Barker (p. 174) says "it is more often made use of than is needed, and frequently to the subsequent detriment of the plant;" while "H. P." (page 174) says "grafting is at the present day undoubtedly carried to a very great excess;" in a word, all condemn grafting to some extent, but we are not told how we are to improve. Let us frankly get rid of the notion that the magic of grafting has any ennobling or improving power, as the old authors pretended to believe. If this were really the case, as Mr. Barker states (p. 174), we, in order to be logical, should graft our Gooseberries and Currants just as we do our Plums and Pears. But there can be no proof of grafting adding to the flavour or abundance of fruits, unless own-root fruit trees are grown side by side with the engrafted ones for actual comparison. I have never said that grafting should be totally abolished, but I firmly believe that if it were abolished to-morrow, other and better methods of plant propagation and fruit tree culture would be the result. Of course I know that no custom, however bad it may be, can be suddenly done away with without serious inconvenience and loss at the time, and after all those changes are best which come slowly, but it is something to have our eyes opened to the fact that grafting, if not altogether bad, is neither the best nor the only way. One point in Mr. Coleman's defence of grafting is more eloquent than all else beside. Of course, if grafting is of any real "use to man" in the garden it is in fruit culture, and yet Mr. Coleman relies on its results as shown by a few merely ornamental coniferous trees—trees that are comparatively useless in our gardens. Looked at from the beautiful only point of view even, they are very poor beside our native Oaks or Scotch Firs, which really fit perfectly into our landscapes. After all, of what real "use to man" are a few ornamental Fir trees compared with the Apple crop of England or of America or Northern Europe? What a blessing it is that some at least of our best fruits, such as Grapes, Pine apples, Gooseberries, Currants, Raspberries, and Strawberries, are never, or need not ever be grafted; and when we consider tropical fruits, scarcely any (except the Mango) are grafted, and yet their luxuriance, profusion, and delicious flavour are all there. In Jamaica and in many other tropical lands eastward as well as westward, the Mango sows itself, and the result is an infinite variety. Is it not a blessing that such noble fruit trees as Date Palms, Cocoa-nuts, Pine-apples, and Bananas cannot be grafted?

Mr. Barker is evidently still a believer in the hardy or vigorous-rooted stock, forgetful of the fact that a headed-off stock, however naturally vigorous, is entirely over-ruled by the scion worked upon it (see p. 152), and that of the two evils the lesser one is produced by grafting a strong-growing scion on a stock more dwarf

growing or finer textured than itself in habit. When he asserts that "many fruits, too, by the operation of grafting are improved in flavour and rendered more prolific by reason of the extra strength which is infused into them," he forgets that the reverse of all this is far more often the rule (see conclusions Nos. 3 and 4). How "extra strength infused into them" can improve the flavour of any fruit it is difficult to see, if, as he says further on, "the smallest and weakest seedlings invariably produce the best varieties." The vigour of a headed-off stock is almost, if not entirely, regulated by the leafage of the scion, and the notion that excellence of any kind is the result of weakness is one I do not believe, my own idea being that all weakly-habited plants are better on the rubbish fire than causing trouble, expense, and ultimate loss in the garden.

But granted that grafting is not all bad, where are we to draw the line, as Mr. Coleman says, and how are we to get the attendant evils of "bad work" and "unsuitable stocks," &c., remedied? I say by employing grafting as little as possible, and ultimately I believe it will rarely be employed at all. Here is an example of the manner in which stocks and grafting are upheld by the best authorities. We are told that, "An important factor in the successful culture of the Pear, as gathered from the returns, is the use of the Quince stock, which from its surface-rooting character is more directly amenable to the attentions of the cultivator" (Pear Conference Report, p. 9). Of course it does not follow that the Quince stock is thus proved to be the best and only way to grow good Pears. Quite as good Pears are grown on free or Pear stocks as ever were grown on Quince stocks, and the weak logic in the above extract is in attributing to the stock that which ought, of course, to have been credited to the other "attentions of the cultivator." Reckless statements about stocks of this kind, or truisms like the following: "The best fruits are produced where the greatest care is bestowed" (Pear Conference Report, p. 9), are not calculated to advance or stimulate thought or inquiry. What can we expect if this is the best teaching as advanced by the Royal Horticultural Society of England? If ever we are to improve and advance the garden practices of to-day, we must at least be logical, and not attribute effects to the wrong cause.

When we come to Apple stocks, it is as yet quite an open question as to the best stock, i.e., whether "gribbles" (i.e., seedling Apples from pips), the Crab, or the Paradise or Doucin. And as in the case of both Apples and Pears, no one can say whether trees on their own roots would not be better than either. If, as Mr. Coleman says, we could deprive the nurserymen of their stocks for a few years they would soon give us trees on their own roots, which might or might not, in some instances, be better than grafted trees, but at any rate we should really know the facts of the case, which at present we do not know. By all means let us use grafting in the best known way until some better way is discovered, but do not let us sit down and placidly accept grafting in any of its phases as the best and only way.

I am inclined to think that of all the forms of grafting now practised in Europe and America, what is known as "root-grafting" will be ultimately recognised and found to be the best plan, as has been before suggested by M. Jean Sisley (p. 111), and corroborated by "H. P." (p. 174). It has many advantages, and the main one is that it allows the scion the option of rooting and shifting for itself. In America it is, I

believe, quite a common thing to splice-graft Apples on young and small seedling stocks cut off near the root. This is done at the fireside during winter, and after the grafts are tied on, they are buried in sand in a cellar until spring and then planted out, the top of the scion with a bud or two only appearing above the ground. Van Mons, who did so much for fruit culture on the Continent, long ago considered root-grafting the most complete of all methods, because (1) the smallest quantity of the stock is used, (2) because the lower part of the scion being planted in the ground throws out fibres from that portion, and so at last is actually growing on its own roots! As a rearer of seedling Pears, Van Mons was well known fifty years ago or more, and it is recorded that Pear trees reared on his plan fruited the third year from seeds. After this one need not heed the silly old proverb that "He who plants Pears, plants for his heirs." One of the good points of root-grafting is that, as a surgical operation, it seldom fails. This is partly due to the burial of the grafted portion in the soil, where it is kept in a moist and genial state, and not so subject to alternations of heat and cold, or of drought and wet, as are scions grafted in the ordinary manner.

Our position now is this:—

1. Grafting is very often badly done, unsuitable stocks are frequently employed, and so far, at all events, grafting is wrong.

2. Of all forms of grafting, root-grafting is most successful and the best, as it allows the scion ultimately to throw out roots of its own.

3. The old notion of grafting a weakly or delicate variety on to a more vigorous headed-off stock is wrong in principle, and very often leads to bad results in practice, for reasons above stated.

4. The least of two evils is to graft strong-growing scions on dwarf, closer grained, or surface-rooting stocks, as Pears on Quince stocks, Apple on Nonsuch, Paradise or Doucin, Cherry on Mahaleb, &c., such trees, however, requiring more constant cultural attention than the same varieties as worked on seedling Pears, Apples, or Gean stocks.

5. Granting that grafting is in some cases expedient, yet it remains an unnatural makeshift or sham, and has led, and still leads, to an enormous loss of growth force or energy in our gardens.

6. In a word, while grafting is, so far as mere stock raising is concerned, very convenient, it may also under its best conditions (viz., suitable stocks and root-grafting) be expedient and useful, yet at the present time it is by no means proven that in many cases own-root fruit trees would not equal or surpass grafted ones in fertility and durability. At any rate, is it not instructive to find that root-grafting is the best plan, assuming for the moment that grafted are better than own-rooted fruit trees?

For the present let us agree to limit the question to fruit trees, and it is yet open for anyone to prove that grafting fruit trees is the best, or the only perfect way.—SCION.

— A few pessimists have lately thought proper to condemn wholesale the principles of grafting upon grounds contrary to the true and lasting interests of the subjects operated upon, but until stronger evidence is published than that at present offered, and practical results can be pointed to from other superior methods of propagation, I for one decline to accept these unproven theories—that is, so far as hardy fruit trees are concerned. That there are abuses in grafting as in everything else human I freely admit, but this wholesale and sweeping condemnation is ridiculous, and, judging from gene-

ral and every-day results, it is safe to say that grafting will never be as defunct as these pessimists prognosticate. Take, for instance, standard Apple or other fruit trees as prepared by budding or grafting and sent out from any good nursery; follow these trees through the hands of skilful and experienced cultivators (the adjectives are important) for say twenty years or more, and compare the results with any other known or advised methods of raising (budding excepted, the same principles being followed), such as layers, cuttings, or seedlings. The latter are well known to generally produce 99 per cent. little superior to Crabs, besides taking many years to prove. Of course it is advisable to experiment to a moderate extent with the hope of raising superior varieties. The trees above recommended will be found to grow vigorously, to fruit fairly, climatic influences permitting, and to live to a good old age. In fact, I have found no plan superior to grafting in all my experience, the great desire being to work up by any and every best possible means for permanent planting a large stock of the most select kinds. Our American competitors having been alluded to, will some correspondent kindly give their methods of expeditious raising?—W. CRUMP, *Madresfield Court*.

— In THE GARDEN, Feb. 16 (p. 152), "F. W. B." says, "Grafting, apart from its direct and immediate evils, has actually been the means of suppressing attempts at creating or raising improved or more suitable varieties of fruit trees from seed. Stones of Peaches, Apricots and Plums, and seeds of all other fruit trees should be carefully selected and sown in every English garden worthy of the name." There can be no doubt as to the Peach and other fruit trees succeeding as well or possibly better upon their own roots than upon the roots of any other plant. Supposing the above advice was acted upon and new and improved varieties raised, the next question which presents itself is, which is the best and most expeditious method of increasing the same, in order that they may be sent out or distributed to the public? Should the usual mode of propagating such trees, that is, budding and grafting, be discontinued, the only other methods of increasing the same would be by means of layers or cuttings, and these modes of increase, it is to be feared, would be found somewhat slow, and one result would be that nurserymen would not be able to offer to the public fruit trees at anything like the present price.

I think that the entire discontinuance of the operations of budding and grafting would be an extreme measure, which is not likely to take place very soon. The discussion of the subject in the columns of THE GARDEN may tend, however, to desirable results, inasmuch as it may lead to more careful and judicious selection of stocks for the various kinds of fruit trees. Instead of, as at present, as stated at p. 149, using as seed for the purpose of raising Apple stocks the waste or refuse from the cider mills, &c., let the most suitable stock be used for each variety of fruit tree. Where this is strictly adhered to, we may see less of the unsightly bulged excrescences which indicate only too truly the ill-assorted union of the stock and the scion. The Peach (*Persica vulgaris*) came originally from Persia, while the Plum (*Prunus domestica*) is a native of Britain, so that it is not unreasonable to suppose that the robust and hardy Plum may not be well suited to unite with the more delicate and tender Peach or Apricot. As to the expectation of securing improved varieties of fruit from the promiscuous sowing of seed, this would most likely result in a considerable amount of disappointment, as after growing and training seedling plants for several years, before their merits (if any) could be ascertained, it would often be found that they are comparatively worthless, or, at all events, inferior to existing varieties.

In endeavouring to secure improved varieties, success would be more likely to attend the judicious fertilising of even a few blooms, and the careful sowing of the seeds produced by the same.—P. G.

— A wrong issue is raised by this question, which, if anything, should read, "Is standard grafting wrong?" It may be in some cases, but why

object to grafting *in toto* if it affords a ready means of getting desirable varieties of fruit trees on their own roots (if such are preferred) by collar-grafting the scion, as own-root Roses are obtained by budding low down on the stock? It seems rather late in the day to question the utility of a practice that has been universally adopted and approved of from the times of Pliny, Columella, Cicero, and Horace.—W. M.

STORING APPLES.

I WAS pleased to see a note on this subject in *THE GARDEN*, Feb. 23 (p. 164), advocating the packing of Apples in barrels direct from the tree. The old-fashioned way of storing is, doubtless, one of the worst that can be devised for keeping a supply for spring use. It answers very well up to Christmas or a month after, but when the most difficult time for gardeners to keep the supply up arrives, owing to the scarcity of all other home-grown fruits, the stock of Apples is either exhausted or so much dried up and shrivelled as to be worthless for either cooking or dessert. It is true that a few sorts like Northern Greening and Norfolk Beaufin are so hard that they defy the drying effects of the atmosphere, but the delicate skinned Apples cannot stand the single layer plan on airy shelves, which is certainly not the way to keep the juices of the fruit from wasting. If Apples are ever to be grown in sufficient quantity for home consumption, it is obvious that they must be carefully stored.

In Kent, where Apple and Hop growing are carried on by the same farmers, the usual plan is to dispense with Apple stores altogether and utilise the Hop-drying houses that are standing empty in winter, and on the floor of these the Apples are put in large heaps and covered with soft straw. The most beautiful Wellingtons I have ever seen have been stored in this way, and when taken out at this season invariably realised good prices, no matter how plentiful or cheap they had been in the preceding autumn.

In Hampshire there are large gardens attached to some of the old cottages in rural districts with fine old Apple trees of such kinds as the Deux Ans that has a local reputation, and in good Apple years the trees bear large crops, but owing to lack of accommodation for storing in the orthodox way, the owners usually sell the whole crop to dealers who buy them up at gathering time for half their value. A friend of mine residing in that locality advised his workmen to get barrels and treat the fruit the same as Mr. Crump does, viz., by filling the barrels under the tree and then placing them close together in a shed and covering with straw in severe weather. The result was that the owner got the profit instead of the dealer. What is the use of growing early, mid-season, and late Apples if all are picked and sent to market direct from the tree? The result is that the price is ruinously low for a few weeks, while Apples that ought to fetch 8s. to 10s. per bushel are being hawked about on costermongers' barrows at less than half that price, and when the time comes for them to sell well they are not to be had for love or money. J. GROOM.

Gosport.

Unsuitable stocks for Peaches.—Mr. John Webster, writing from Gordon Castle to the *Gardeners' Chronicle*, page 213, sends a sketch of a gouty Noblesse Peach as grafted on a Damson stock. A glance at Mr. Webster's sketch and letter bears out to a great extent the argument of "F. W. B." in *THE GARDEN* (page 152), and in this and many similar cases not brought to light quite so clearly there cannot be much doubt as to the answer to the query, Is grafting wrong? It is wrong, and often wrongs the gardener as well as his unfortunate fruit trees.—SCION.

A Peach from an Almond.—In reference to the note on a Nectarine tree suddenly bearing a crop of Peaches (page 152), kindly allow me to point out that Thomas Andrew Knight, when president of the Horticultural Society of London in 1817, reared a new, soft, and melting Peach from the stone of a sweet Almond tree, the pollen of a

Peach having been used with which to fertilise the flower. The record is in *Hort. Trans.*, vol. iii., p. 1, where a coloured illustration of the resulting fruit is given. Mr. Knight, in his letter which accompanies the plate, says he long before had entertained the opinion that the common Almond and the Peach tree constituted only a single species, and that the Almond might, under proper culture through successive generations, be ultimately converted into a Peach or Nectarine. The late Mr. T. Rivers, on whose shoulders the mantle of Knight seems to have fallen, raised several early Peaches from the stones of Nectarines, and at least one or two Nectarines from the stones of Peaches. There are several authentic records of Nectarines or smooth-skinned Peaches having been borne on the same branch with Peaches, and your extract from the *Revue Horticole* is interesting, as showing that the converse also takes place.—F. W. BURBIDGE.

HARDY FRUITS.

STRAWBERRIES.

IF established beds from which full crops of fruit are expected have not been cleared of weeds and latent runners, advantage must now be taken of dry days for hoeing and hand-weeding, but on no account must the fork or spade be introduced. In a preceding paper I advised the use of soot as a stimulant to the roots and a destroyer of snails; also a liberal dressing of rich vine border soil or compost for catching the young roots formed annually and upon which the swelling of fine fruit mainly depends. If this work was performed a month ago the beds may be well trampled and raked down, when they will be ready for the fruit-preserving layer of litter as it is obtained fresh from the stable yard. Although we have had a mild open winter, it is reasonable to hope that we have done with protracted frost, and may now venture to tread firmly round the young plants put out last autumn. This of course may be delayed, but upon the good old principle of driving the work, no one should put off until to-morrow the most trifling operation that can be performed to-day. This, however, is not a simple operation, as the Strawberry delights in a solid resisting medium and seems to be much benefited by the consolidation of the soil.

Planting.—Ground that has been well manured and deeply trenched for spring planting, with strong runners put out into reserve beds in September, should now be levelled and drilled one way ready for their reception. Cross drilling, very shallow of course, is the proper mode, as the line set longitudinally then forms the exact spot for each plant, whilst one or more rows of each sort can be put in in succession. Deep heavy loam, plenty of room, and firm planting are essential points, and the more new soil placed about the roots the better the progress. When beds are formed upon the block method, that is in consecutive rows, the plants should be placed quite 2 feet apart each way, whilst robust varieties like President and Paxton will not be the worse for an extra 6 inches between the rows.

RASPBERRIES

left full length when staked and tied may now be shortened back to the orthodox height. From 3 feet to 4 feet on light warm soils is quite sufficient, as fruit a safe distance from the surface derives great benefit from moist exhalations from the mulching. Extra strong canes on cold, heavy loams may be left quite 5 feet and less numerous, as good quality depends upon the free admission of solar heat and fresh air.

THE ORCHARD.

Planting.—An open winter having been so favourable, the preparation of the ground for spring planting should now be in an advanced stage. Early autumn, no doubt, is the best time for putting in fruit trees, as the roots take to the soil at once, and, provided they are well protected by a mulch of manure of good ordinary moisture-retaining power, they require very little attention in the spring. But of late, especially since grubbing, clearing, and renovating came to the front, this

preparatory work has occupied the dead months, and planting necessarily has been postponed until the spring. December and January being considered the worst months, a dry, mild February tempts a great number of planters into activity, but unless the newly disturbed soil is well pulverised and in thorough working condition, I have found the early part of April, just when the buds are beginning to swell, but little, if at all less suitable than October. Indeed, in planting deciduous or evergreen trees the dormant season, if possible, should be avoided. Shallow planting, especially on newly broken ground, is good practice, and securing to stakes, not only standards, but dwarfs and pyramids, is equally important. We define our stations by driving the stakes first and planting to them, as we then avoid bruising the roots, whilst each tree can be made to sit comfortably against its support.

Mulching.—If this work is still in arrear, no time must be lost in pushing it to a close. Feeding mulches should be composed of rich, stimulating materials, but, like all other diet, two or three meals at stated intervals as the season advances will be found preferable to one early heavy dressing, which may keep the ground cold and wet when solar heat and air are essential to the bold development of the flowers and the setting of the fruit. Moisture-holding mulches, most applicable to newly planted or strong, thoroughly established fruit-bearing trees, may be light and comparatively poor, but sufficiently abundant to resist wind and drought until the foliage produces a certain amount of shade.

Grafting may now be commenced in mild, open weather, the most forward stocks having precedence. Plums, early Pears, and Cherries claim first attention. Late Pears and Apples often take best when grafted in April.

WORK IN FRUIT HOUSES.

EARLY FIGS.—When the fruit upon early pot trees has completed the first swelling, outward progress for a period extending over about three weeks will be imperceptible, but the roots being right, we may assume good work is going on within. The flowers, unlike those of other fruit trees, are confined to the internal surface. They are male and female, but whether fertilisation ever takes place is extremely doubtful, as the best authorities assure us that English seedlings are unknown. Further, they state that the stamens not unfrequently are imperfect, and yet the fruit swells and ripens. This being the case, the fruit forcer need not trouble about fertilisation or the mythical process of capricification, but the trees, nevertheless, require the greatest attention, as anything approaching dryness at the roots or great vicissitudes of temperature is sure to be followed by dropping, when this semblance of setting is at an end. In dealing with these tantalising fruits, the first step, as I have pointed out, is liberal thinning; then a night temperature ranging about 60° should be maintained, whilst that by day may average 70° from fire-heat, and fully 80° on bright days with fresh air and plenty of atmospheric moisture. Where fermenting material is used for keeping the roots about 70° or 75°, forcing not only is safer and easier, but more rapid, as an extra 5° through the night will do no harm, whilst that by day may run up to 90° after closing, not later than 2 p.m., with the shower bath. Being gross feeders, pot trees enjoy plenty of rich top-dressing in the form of large rough pieces of new turf of a light fibry nature, bone dust, and rotten manure, not packed tightly, but the reverse, for much as they revel in warm diluted liquid, it must pass as freely as it is administered to the roots.

Successions.—Houses in which the trees are growing in restrictive borders with warm material packed round the turf walls may be kept at 56° to 60° by night and 10° higher by day, that is from fire-heat, but the season being pretty well advanced, considerable progress without hurting them may now be made by closing very early with sun-heat and moisture. Syringe well with tepid water and occasionally with soot water twice on fine days, once when the weather is dull, and on no account allow the roots to feel the want of good liquid 5°

warmer than the medium in which they are growing. Stop or cut out all superfluous side shoots, as nothing can be more baneful than overcrowding, at the same time looking well to the proper furnishing with spur wood, that is short pieces with good points, and laying in all leaders full length, as these should produce a continuous succession of the finest fruit throughout the season.

CUCUMBERS.

If plants which have been in bearing all the winter must be retained well into the summer, the time has now arrived for commencing a course of renovation, by the removal of the old foliage, cutting back old vines to good breaks, and getting the trellis covered with fresh healthy shoots free from insects. This work, as a matter of course, will take a little time, as it must be performed piecemeal, and the better to expedite a return to a bearing condition, the plants, if only one or two at a time, should be divested of all fruit with the exception of shows as yet in their infancy. Conjointly with this manipulation it will be necessary to give the roots a fresh start, by the replacement of old soil and top-dressing with fresh compost of a rich rough turfy character, and thorough renovation of the fermenting bed. If the weather is anything like seasonable, a few hours' sun may now be expected almost every day, and as this is the great talisman which helps all tropical plants forward, its warmth should be shut in very early, when plenty of water at a temperature of 80° to 90° syringed over the walls and other surfaces will produce conditions most favourable to rapid progress. If spider has gained a foothold, it must be taken in hand with a steady resolve to settle the account quickly, as it is simply impossible that the plants can support this pest and produce good fruit. Insecticides are plentiful enough, and not unfrequently finish up the work commenced by spider, not because they are bad, but owing to the extreme tenderness of the plant, through being used too strong, or, equally fatal, at the wrong time. A very mild solution of soft soap, a piece the size of a walnut to 3 gallons of warm soft water, syringed under and over the foliage every night for a week, is quite safe and efficacious, and so is the same quantity of Gishurst compound, especially when good culture and light cropping are brought to bear upon the enemy through the roots and stems. As Cucumbers will stand strong heat, I would suggest a bottom temperature of 75° to 80°, a night heat ranging from 65° to 70°, whilst that by day should touch 80° under gleams of sun, and 85° to 90° after closing. Some growers never ventilate, but I like giving a little air at 76° if only for half an hour, and gradually increasing it when the temperature can be maintained at fully 80° at mid-day. Ventilation at this early season in high exposed situations, I know, is a most troublesome business, but cutting wind can be softened by means of a piece of canvas strained over the openings, whilst hit-and-miss ventilators close to the ground line and immediately in front of the hot-water pipes not only are safe, but the best preventives of canker in the stems.

Spring plants.—Where these were given a good start in clean houses well furnished with top and bottom heat from fire and fermenting material combined, they will now make very rapid progress, if they have not already touched the wires. If planted out upon sharp narrow ridges or small cones of compost, they must be steadily supplied with fresh materials, consisting of light turf, lime rubble, or charcoal, as the young roots creep through. A stout, but by no means gross growth being best calculated to give lasting results, manure should be avoided and stimulating liquid but sparingly used, but once they get into bearing, the latter in a mild form and thoroughly warm may be given alternately with pure water. The same also may be used for damping the surface of the bed and for filling up the evaporating pans after the house is closed for the day. If all the laterals as they emerged from the main stems have been pinched at the first leaf and early fruit is in demand, the second breaks, which are sure to show, may be allowed to retain their fruit until one or two of the most promising can be selected for swelling to maturity, when all

the others, together with male flowers, must be removed. A brace of fruit on each plant is quite enough for a start, and these should be cut before they attain full size, as nothing can be more damaging than allowing them to form seeds. As growth proceeds, remove all superfluous growths, lay in the others, and pinch incessantly at the joint beyond the show, or, space being limited at the show itself, the moment it can be seen. To carry out this close stopping well, the plants require going over every other day at least, but I do not, I must admit, approve of the plan, as I have always found thin planting and semi-extension training not only the most profitable, but the most simple mode of growing good fruit.

Frame Cucumbers.—I stated some time ago that the sowing of the seeds in the nursing frame and the building of the fruiting bed are operations which should be performed, if possible, on the same day. If this has been acted upon and the compost, in the form of a narrow ridge resting on turves Grass side downwards, has been put into the frame, the plants may be put out as soon as it is warmed through to a temperature of 80°. Years ago clumps

and better fruit than it would have been possible to obtain had they been started into growth four, six, or eight weeks ago.—J. MUIR, *Margam*.

TREES AND SHRUBS.

TOURNEFORTIA CORDIFOLIA.

THE genus *Tournefortia* (so named by Linnaeus in honour of the celebrated naturalist Tournefort) is one of the richest in species of the natural family of the Boraginaceae. Fully a hundred of these have been already described, most of them being natives of the warm regions of both the Old and the New World. They all have an arborescent or shrubby habit, by which most of them can be distinguished at first sight, while their seeds or fruit are more decidedly drupaceous in character than those of the *Heliotropes*.

Among the species most frequently met with in South America are *T. hirsutissima* (L.) and *T. polystachya* (Ruiz and Pavon). These form



Tournefortia cordifolia; natural size.

of these plants were formed in the centre of each light, but by placing them equi-distant on ridges, the same number in each light, the frame can be more quickly filled, as it is not absolutely necessary to stop the plants at the third or fourth leaf, whilst the even distribution of the roots is favourable to better growth and freedom from canker. Steam from rank manure in the bed or external linings being the most subtle enemy, as it cannot be seen, the frames, in the first place, should be well jointed, and those parts of the bed not covered by the ridge should be faced with thick sods to prevent its entrance. Linings—certainly necessary—may then be built up with a large degree of safety, but then, by way of an extra string to the bow, the frame, when covered up with mats, should never be left without a chink of air under each of the lights throughout the night.

W. C.

SHORT NOTE.—FRUIT.

Forcing Strawberries.—The present is a good time to introduce Strawberries to force, especially in the case of those whose appliances are not of the best, as the rapidly lengthening days and increasing sun heat will cause them to grow freely, and produce more

tall velvety shrubs, with long leaves and rather pretty, large-sized corymbs or panicles of white flowers. The last-named species is not uncommon in the southern parts of Ecuador at an elevation of from 8000 feet to 9750 feet above the sea-level. Closely allied to these two species, but yet distinct from both, is a third one, discovered by me in 1876, and which forms the subject of the present notice. I did not succeed at the time in bringing home with me any living plants of it, but I have since then grown it in the open air in my garden at Lacroix, Touraine, from seed sent to me by M. H. Poortman in 1882. The plants flowered last year, growing vigorously all through the summer and attaining a height of upwards of 6½ feet. The species may be described as follows:—

TOURNEFORTIA CORDIFOLIA (Ed. André), a new species, forms an erect, very vigorous-growing shrub, with a stout stem, the herbaceous parts of which, as well as the branches, leaves and inflorescence, are covered with short, stiff hairs. The branches are angular, roundish, slightly compressed or faintly furrowed, and, when young, are of a whitish colour. The leaves are almost all opposite,

long-stalked, oval-acute, heart-shaped at the base, very entire, veined and wrinkled, and broadly undulated on the margins. Inflorescence very branching, in terminal and lateral corymbs; spikes very numerous, scorpioid, many-flowered; flowers alternate, sessile. Calyx covered with short, stiff hairs; tube very short, almost wanting; divisions lance-shaped, very narrow, and more than one-third of the tube of the corolla in length. Corolla white, with rough hairs on the outside, smooth on the inside; lobes short, obtusely rounded.

The species which come nearest to the present one are *T. hirsutissima* (Lin.), *T. loxensis* (H. B. K.), and *T. polystachya* (Ruiz and Pavon), from all of which it is distinguished by its leaves being heart-shaped and not attenuated at the base. One very remarkable characteristic, almost without parallel in the genus, is that all the leaves of *T. cordifolia* are opposite, at least in all the plants of it which I have raised; in the other species the leaves are alternate, or, in very rare exceptional cases, sub-opposite. From this I was almost tempted to name the species "*oppositifolia*," but that I feared my plants might have merely exhibited an accidental development which it would be imprudent to regard as a constant specific character.

The handsome foliage of *T. cordifolia*, which is characterised by a very vigorous growth in the open air during the summer, entitles the plant to a good place amongst fine-foliaged subjects. I have measured leaves 16 inches long on a young plant about 5 feet high, and this was the growth of a few months only. The great flower-clusters also, which are composed of corymbs of very numerous small, scorpioid spikes of white flowers (see illustration), are not devoid of interest, both from an ornamental point of view and from the use that might be made of them for hybridising with the genus *Heliotropium* and thus obtaining a progeny possessing the arborescent habit of the *Tournefortias* in combination with the *Vanilla*-perfumed flowers of the *Heliotrope*.—*Revue Horticole*.

Witch Hazel (*Hamamelis arborea*).—I have had a cut spray of this Japanese Witch Hazel in water for the last three weeks, and it is still as fresh as ever, and forms a very beautiful object in the dwelling-house. It is equally attractive outdoors, for the frosts we have had during the month of February have not been sufficiently severe to injure the blooms, with which the still leafless branches are thickly covered. The individual flowers are very curious, being composed of a number of strangely twisted petals of a bright yellow tint, while the crimson-coloured calyx stands out very conspicuously. Though tree-like in habit, it does not appear likely to attain the dimensions of a tree. Young plants less than a yard high will flower freely.—*T.*

The Elder or Boor tree (*Sambucus nigra*).—This is one of the hardiest and most accommodating of our native plants, growing freely and luxuriating even at high altitudes and in exposed situations, where few other shrubs could exist. Few, indeed, are the positions in which it cannot live, be it on the wind-swept hill-side, or where almost constantly exposed to the saline blasts along our roughest shores. As a fence and screen plant for high-lying farms and farm-buildings, the Elder is of great value, as it grows in such elevated sites with the greatest freedom, and affords an amount of shelter that is quite surprising. On the windward sides of the Welsh mountain farms, at nearly 1000 feet altitude, it grows stout and strong, and defies the hard-hitting storms to which it is almost constantly subjected. Planted at 3 feet apart in partially prepared ground, the plants being stout and stocky, and from 18 inches to 2 feet in height, the Boor tree soon forms an excellent fence, but it requires an annual pruning and trim-

ming to maintain that close and compact habit that is so desirable. For planting on the wind-swept sea-coast, the Boor tree is an invaluable shrub, as it grows in such a situation stout and rampant, and affords just the necessary shelter. Few are the uses to which the wood of the Boor tree may be applied, but for skewers it is much in request, and when fairly dry burns with a clear and steady flame, and sends out a strong heat. Around the Kentish coast this plant is in great request on account of the almost invaluable shelter it affords to more tender-growing trees and shrubs. From St. Margarets to Dover it may be seen as the principal fence plant around the pretty sea-side gardens along the coast.—A. D. WEBSTER.

PLANTING TENDER CONIFERS.

WHILE a great many Conifers are quite hardy in this country, whatever the soil and situation may be, there are, on the other hand, some, and particularly among the Silver Firs, that are proof against even our most severe winters, and yet are very liable to be injured by late spring frosts, in consequence of the season's growth commencing so early in the year. *Abies Webbiana*, *Pindrow*, *bracteata* and *cephalonica* may be named as examples; indeed, nearly all the Silver Firs are, to some extent, liable to be injured in this way. The beautiful Himalayan *Tsuga Brunoniana* will scarcely exist in many parts of England, owing to the injury inflicted on it by spring frosts. In planting trees of this character, the position assigned them should receive due consideration, for they may be often seen flourishing in one spot, while in another perhaps not a mile away they will barely exist. Such being the case, it is evident in planting these Conifers that the position assigned them should be such as to retard their growth as much as possible; in fact, till the spring frosts are past. The best situation for such as these is on well-drained rising ground with a northern aspect, as there the growth is sturdy and far better ripened than is the case if the plants are growing in low warm valleys, which are by no means desirable spots for tender plants, snug and warm as they are often supposed to be. The aspect occupied by the specimen has also a good deal to do with its hardiness, for on a southern or eastern exposure, irrespective of the growth being more forward there, the sun on rising shines directly on the plant and totally destroys the frozen shoots, which would have been little if at all injured if the plant had been shaded from the direct rays of the sun till all traces of frost were past. This can often be seen in the case of a large plant, which on its sunny side has lost every shoot, while on the other it is quite uninjured. In planting, too, due regard should also be paid to the conditions under which the specimen has been previously growing, for if sheltered and pampered when young, the wood altogether lacks firmness and solidity, as well as the frost-resisting qualities of one whose earlier stages were passed under conditions conducive to thorough hardiness. Again, in planting any Conifer a very important consideration is to avoid as far as possible a plant that has been grown any length of time in a pot.

These remarks do not apply to the first potting off from the seed-pans, as in the case of a scarce kind the risk is less than if they are at once planted out in the open, but they need not be left long enough in these pots for the ball of earth to become hard and the roots closely packed together. Again, in planting, the roots should be carefully disentangled and spread out, so that there is no opportunity for them to become cramped. The evil of planting out from pots is more especially noticeable when the

specimen has attained a good size before it is planted; indeed, I have seen trees upset by the wind which, when examined, showed that the circular mass of roots remained compact, and but few had broken away from the hard ball into the surrounding ground. An error very frequently made in planting trees, and, indeed, shrubs, is that of overcrowding, or not considering the space that the specimen will require after the lapse of a few years. This mistake may be met with almost daily, yet it is an extremely serious one, necessitating as it does the removal or mutilation of a specimen just as it develops its true character. The effect of such planting may be very good at first, but then as the plants grow up they are perhaps much admired, and there is consequently a disinclination to interfere with them, but directly the free circulation of air is checked, all the branches deprived of their natural invigorator become weakened, and when it is at last absolutely necessary to remove one specimen, the other is often irreparably injured by having been for so long in too close proximity thereto. Again, trees are often planted far too close to dwelling houses or walks, more especially in small or medium-sized gardens, and with a little forethought this need not be, for we have a very large variety of trees and shrubs from which selections may be made for any position. *T.*

Magnolia Halleana.—This *Magnolia*, with no more than the protection of a greenhouse, can be had in flower by the end of February, as may be seen in the case of a specimen now in bloom in the temperate house at Kew. It is also a very desirable shrub for the open ground, being perfectly hardy, but it flowers naturally so early that its beauty is often marred by spring frosts and heavy rains. The *Magnolia* in question forms a much-branched, compact shrub, whose flowers are borne before the expansion of the foliage. They are produced on the tips of the branches, and composed of over a dozen narrow, drooping petals. The blooms are about 3 inches in diameter, and they last a considerable time in beauty when in a cool structure. The pinkish tinge which is visible in the bud state disappears directly the flowers open, being limited to the outside of the petals. This *Magnolia* is a native of Japan and is thoroughly hardy, but not sufficiently vigorous to be crowded up with strong growing subjects. It is also known under the name of *M. stellata*.—*H. P.*

The Pernettya.—This interesting tribe of small evergreen berry-bearing shrubs is well worthy of the attention of amateurs and planters generally. *Pernettyas* are natives of South America, and, with few exceptions, are all quite hardy and very suitable for planting on grounds of limited extent, as well as in mixed shrubberies, rockeries, &c., and are not particular as regards soil, provided it is thoroughly drained and well broken up. It is one of the best evergreen shrubs for planting in smoky districts about large towns, and this of itself is no mean recommendation. The narrow-leaved *Pernettya* (*P. angustifolia*), a native of Chili, and said to have been introduced into this country about the year 1840, has proved to be quite hardy in open places, as well as under the shade of large trees, but in such positions it does not yield its pretty white flowers and rich pink fruit so freely as in the open. It attains a height of about 3 feet, well furnished with branches and narrow leaves of a glossy green colour. The spiny-leaved *Pernettya* (*P. mucronata*) is found in quantity at Cape Horn and elsewhere. It is said to have been introduced into this country about the year 1828, has proved to be quite hardy, and, like the former, thrives in any average texture of soil and under trees when not too densely shaded. It attains a height of from 2 feet to 3 feet, and is of a dense habit of growth. In autumn and winter when loaded with its pretty reddish, purple, and pink berries, it is very attractive. Any of the *Pernettyas* makes a fine specimen for a small Grass plot or for the lawn

of a small villa garden. There are several interesting varieties of *Pernettyas*, some of which are well adapted for pot culture, and as they produce a greater wealth of flowers and berries of various colours than the type, they are highly worthy of the attention of the cultivator.—J. B. W.

THE KENTUCKY COFFEE TREE.

GYMNOCLADUS DIOICUS, although occupying a comparatively wide area in North America, is nowhere common. The most northern limits of its distribution are in the province of Ontario and in Southern Minnesota; it is found from Western New York and Southern Pennsylvania as far west as Eastern Nebraska and the Indian Territory, although east of the Mississippi River it has not been noticed anywhere south of the central part of the State of Tennessee. It is always found scattered among other forest trees, upon rich hillsides, or on the bottom-lands of rivers. The trunk is erect and rather slender for its height, rarely attaining a diameter of 2½ feet, and is covered with dark, grey-brown, conspicuously furrowed bark. The branches are all erect, not spreading, giving to the tree, even when old, a narrow, ovoid outline; the branchlets are unarmed, very stout, covered with thick, coarse bark, and entirely destitute of spray—a peculiarity which led the French botanist Lamarck to give to this tree the name *Gymnocladus*.

The wood of the Kentucky Coffee Tree is quite heavy, although not very hard, strong and coarse grained, the layers of annual growth being strongly marked by one or two rows of large open ducts. In colour it is light rich brown, tinged with red, the thin sap-wood, which turns into heart-wood generally at the end of five years, being much lighter. It is very durable when placed in contact with the ground, and is therefore sometimes used for posts and fence-rails. It is occasionally used, also, in cabinet-making, as it works easily and can be made to take a good polish. It is liable to shrink, however, in drying, and the grain is rather coarse for fine work. The seeds were sometimes used as a substitute for coffee before and during the Revolution by the inhabitants of the then remote regions west of the Alleghany Mountains—a fact which has given to this tree its popular name. It is said that the fresh leaves, macerated and sweetened, are sometimes used to poison house-flies, but I have never been able to substantiate this statement to my satisfaction.

The Kentucky Coffee Tree has a good deal of value in ornamental planting. It is an excellent street tree, possessing the merit for this purpose of not putting forth its leaves until late in the spring. The foliage is light and graceful, and in winter this tree is always a conspicuous and interesting object, with its upright branches and thick branchlets. It requires a deep, rich and rather moist soil. It is never a fast growing tree, but this peculiarity is not a disadvantage in the case of ordinary street-planting.

The tree from which the very fine specimen log in the Jesup collection in the American Museum of Natural History was cut grew in Missouri, not far from St. Louis, and, although only 18 inches in diameter, was 105 years old. This, perhaps, should be taken as above the average rate of increase of this tree growing naturally in the forest, although the Verplanck specimen, which was probably several years old when it was planted in 1804, has grown much more rapidly.

It was believed for a long time that the American species was the only representative of the genus *Gymnocladus*, but 15 years ago a second was discovered in China, and is now known to be widely distributed through the central part of the Empire. It is the *G. chinensis* of botanists, the *Fei-tsoo-toa*, or Fat Black Bean of the Chinese, the seeds of which are largely used by the Chinese women in washing their hair and heads. Very little, however, practically, is yet known of this tree, which has not been introduced into the United States or Europe.—*Garden and Forest*.

Large Yew trees.—Growing in the churchyard at Cutham, a parish in Kent, are two mag-

nificent specimens of the Yew, and which from their old and gnarled appearance betoken having braved many a storm. The largest girths 28 feet 2 inches at 1 yard from the ground, and has a branch spread covering a diameter of 57 feet. For 20 feet up the main stem is clean and straight, but after that it ramifies into four huge limbs, the stem, as is usual in such fine specimens, being hollow. The other girths 27 feet 8 inches at 3 feet from the ground level, the branches covering a spread of 47 feet in diameter. The main stem is hollow and forms a large cavity of 6 feet in length by 5 feet in width. From its appearance it was easy to judge that the hollow stem had been put to some use, probably by the village boys, but now the entrance is guarded by an iron railing. Rarely indeed is it that one meets with two such giant specimens in so close proximity, for the branches almost meet; and as they are in perfect health they may be expected to adorn their rather exposed position for many years to come.—A. D. WEBSTER.

Cupressus macrocarpa.—It is stated that shelter-hedges of this species are being planted in Australia, and some can be seen 20 feet in height, the trees being closely furnished with branches right down to the ground. It is further said that in the New World it can be trained as high as 40 feet if necessary. Along the coast in South Hants it does finely, growing freely and of a bushy thick character, affording an excellent shelter, and it does not appear to mind a full exposure to the sweeping winds that come in from the Solent. There it is one of the most beautiful of Evergreens; it is very hardy and of remarkably rapid growth. A single plant forms a compact coneshaped specimen thickly clothed with heavy massive branches and foliage of a bright grassy green colour. Some authorities say that it is impatient to exposure from high winds, but I have not derived that impression from what I have seen in the south of England. *C. Lambertiana* is now acknowledged to be but a synonym of this. It would appear that with age the tree changes its character somewhat, and mature trees on the Californian mountains are described as having a "far-spreading, branching flat top, like a full-grown Cedar of Lebanon." Plants raised from seeds obtained both in California and Europe are found to vary very much in habit, and forms intermediate between the spreading habit of *C. Lambertiana* and the fastigate growth of *C. macrocarpa* are of frequent occurrence.—R. D.

KITCHEN GARDEN.

POTATOES FOR ALL SOILS.

NEVER, probably, were there more complaints anent the quality of Potatoes than has been the case during the present season. In many instances I feel confident a faulty method of cooking is much to blame for this unsatisfactory state of affairs; but the best cook in the world would fail to render some Potatoes fit for the table. Those who have to purchase most or all of their supplies are to a certain extent helpless in the matter, but only to a certain extent, as they have a remedy, and it is this: If they cannot procure good Potatoes in their immediate locality they ought to have samples from a distance, and continue to order from those who can supply what are needed. In the case of those who grow the greater portion of, or all the Potatoes required during the year there is no reason whatever why they should not have them of the best quality. In the first place, no greater mistake can be made than that of clinging to any varieties that have failed to give satisfaction in either a bad season or a favourable one. With so many excellent new and old sorts to select from it must be a very peculiar soil indeed that would not grow any of them to perfection. There is no necessity to try every variety in cultivation in order to discover those that best meet the requirements of the establishment, as this would be an undertaking that

anyone might well shrink from. What I advise is that a limited number should be tried every year, and when the right variety or varieties are discovered to grow these largely till something better is found to replace them.

Some soils suit almost any variety of Potato grown on it, but these are few and far between. Others there are on which the greater proportion of varieties cultivated have been conspicuous failures. These extremes may be found in one district, the most marked divergencies I have noted being in the county of Wilts. In the chalky soil that abounds on or near portions of the Wiltshire Downs, these being naturally of a light warm nature, Potatoes of American origin proved by far the best in every respect. At Heytesbury House, for instance, the only two varieties relied upon are Beauty of Hebron and Peach Blow, the former being the earlier. Both are very heavy croppers, rarely fail from disease, and are always of excellent quality. This year a trial, at my suggestion, will be given to Puritan, apparently a white form of Beauty of Hebron, and which should replace it. Neither of the foregoing, nor indeed any variety with a similar constitution, would succeed at Longleat, or within driving distance of Heytesbury, the clayey nature of the soil being altogether unsuited to any of the American varieties. What is needed for heavy soils are Potatoes with a good constitution, these rarely failing to do well. At Longleat, a few years since, the only varieties planted were old Ashleaf, Myatt's Ashleaf, and Scotch Champion. Old Ashleaf is always good for early use, while Myatt's proved a good succession, the tubers keeping well. Both of these are liable to succumb to disease, but not so the Scotch Champion, this good servant revelling in a showery season, and, what is even more remarkable, when lifted early or long before the haulm is ripe is excellent when cooked. Nor does it, as a rule, fail in this respect till the spring.

The soil here is constituted much the same as that at Longleat, but we prefer for several reasons a little more variety, and this we have, and still keep up a good supply of excellent Potatoes. If the old Ashleaf were not available, I would unhesitatingly plant either Ringleader, Mona's Pride, First Crop, Victor, or Eclipse, a good succession being obtained with the aid of either Veitch's Improved Ashleaf, Myatt's, Rivers' Royal Ashleaf, or Ashtop Fluke. As a third early, if I may class it as such, I find none to surpass Cole's Favourite, this being thought highly of here. It is of sturdy, compact growth, crops heavily, matures early, and there is no waste. Sutton's Seedling, Early Market, and Early Regent are all good for lifting comparatively early, and the quality is generally satisfactory. For main and late crops we have a very serviceable variety in King of the Russets, this also resisting disease. Satisfaction bids fair to become popular, this and Emperor cropping heavily, the tubers being of good size, form, and quality. Scotch Champion never fails here, but there is rather too much waste with the deep-eyed tubers, and we are gradually replacing it with the superior Laxton's Reward, which is of much the same habit and the tubers of better shape. Reward is a yellow-fleshed variety, very floury and mild in flavour. Abundance, a strong grower, a good cropper and disease-resister, also succeeds well on heavy soils, the quality of the tubers when cooked being excellent. Chiswick Favourite is a most reliable disease-resisting variety and crops heavily, while the quality is good very late in the season. Magnum Bonum we have not yet done with, this being disease-resisting and the tubers excellent at the

present time, but it does not crop so heavily as those just named. I do not recommend those in charge of rather heavy, clayey soils to cultivate all the varieties named, but if they are not satisfied with the sorts they have already grown, give some of them a trial, and thereby discover which are the best for their respective soils. The experience of one season is not enough, though nearly all the varieties I have mentioned as having been grown in the gardens under my charge are as good in most respects during a bad season as in a good one.

No difficulty whatever ought to be experienced in finding varieties suited to medium or naturally free-working fertile soils. For these, again, I would still recommend varieties raised in this country. Those of American origin will in a favourable season produce very heavy crops, and in an exceptionally hot summer they are unequalled as regards cropping, the table quality also being good.

American sorts, however, fail conspicuously in such a season as that of 1888, and for this reason should be discarded. There are so many good disease-resisting varieties to select from, that it is, to say the least, very unwise to plant any main-crop or late sorts that are not more or less disease-resisters. Scotch Champion is not, as a rule, profitable on medium and light soils, but all the rest I have named for heavy land are still more profitable on free working ground. To these may be added, as being well worthy of a trial, Masterpiece, Snowdrop, Vicar of Laleham, Surprise, Advancer, and Empress.

W. IGGULDEN.

KITCHEN GARDEN NOTES.

CROPPING WARM BORDERS.

WELL-RAISED early borders usually dry quickly and can be sown down or planted at almost any time in March, and seeing that quick rather than heavy crops are required from these, the first favourable opportunity ought to be taken advantage of for getting some of them in. Before frames were so plentiful, these positions were more esteemed than they are at the present day, but the good old custom of raising early crops of Peas, Beans, Potatoes, Cauliflowers and Lettuces at the foot of the walls has still much to recommend it. By all means utilise hotbeds, frames, and pits to their fullest extent, but do not neglect to maintain a close succession by the aid of sunny walls. It is useless to put out plants or sow seeds at the base of walls without some preparation of the site, such positions usually being dry and poor. There should be no digging, but instead of this carefully fork back some of the surface soil, returning this on the top of a good thickness of solid manure. If some good fresh loamy soil can be added to the surface, so much the better, the aim being to have a flat ridge of manure and soil 18 inches wide and about 6 inches above the ordinary level of the border. In this may be planted a row of a good early Ashleaf Potato, the sets being buried 8 inches apart, 5 inches deep, and the soil made level. With these may be thinly sown seed of any variety of early Radish, the old Wood's Frame still being unsurpassed, lightly covering this with fine soil. The Potatoes need not be moulded up, but the haulm should be protected from severe frosts either with hoops and mats or branches of Evergreens. The dwarf early Peas, such as Chelsea Gem, American Wonder, and Lightning, also produce early and much-appreciated crops when either planted or sown in these positions. A single row 9 inches from the wall is all that should be grown, and in front of these, near the edge of the ridge, may be planted a row of Early Paris Market Cabbage Lettuce or any other early variety. We find a double row of Lettuces, grown at the foot of a west wall, heart in at a time when this salading is usually rather scarce. Cauliflowers in a single line at the foot of a sunny wall heart in very early. These should be put out not less than 15 inches

apart and must have abundance of manure under them. Later on these ridges may in some instances be utilised for the production of Tomatoes, Capsicums and Chillies, or the preparation of winter-flowering or berried plants, and that too without any detriment to the roots of the fruit trees near them. Carrots sown on a warm border, clear of, but sheltered by the walls, usually prove a profitable crop, this extending over many months. We prefer Nantes Horn for this position, but Early Scarlet, Early Gem, and Improved Scarlet Horn are all suitable. The seed should be sown thinly in shallow drills, 9 inches apart, some of the finest soil being used as a covering. It is very doubtful economy to sow Radish seed over a Carrot bed, and it pays better to devote a small portion of a warm border to the production of early supplies of the former. A small sowing may be made now, and more seed every fortnight or so. A breadth of short-topped early Potatoes may also be planted now with advantage. We devote one long border to these, and no crop pays better for the trouble taken with it. The drills are drawn about 5 inches deep and 20 inches apart, the sets, each with one strong sprout attached, being disposed 8 inches apart, and carefully covered with some of the finest surface soil. As fast as the haulm shows through the soil it is moulded up, and it also pays to further protect it, if need be, with branches of Fir or Evergreens.

EARLY PEAS.

If from any cause no rows of early Peas have been sown ere this, or if those sown either in the autumn or winter fail in any way, it is advisable to raise a number of plants under glass and in gentle heat as soon as possible. A pint of seed of either of the extra early varieties, or William I., sown rather thickly in boxes filled with fine light soil, or, if preferred, either in 3-inch pots or turves, will produce sufficient plants by the middle of April for forming one long row or several short ones. The crops from these rows, though not heavy, will be fit to gather at least a week before those produced by plants raised in the open ground. Not unfrequently large rough frames and pits are used for storing Strawberry plants in pots during the winter, and these might soon be utilised for the culture of dwarf early Peas. Seed of either Chelsea Gem, American Wonder, or Lightning sown at once in boxes and set in an early Peach house or vinery would soon germinate, and when the plants are 3 inches high they may be shaken out and replanted on a bed previously prepared for them. We form slight hot-beds in a rough pit, on this being placed about 9 inches of good soil. This having been well warmed through by the time the Peas are fit to transplant, deep drills, 15 inches apart, are opened with a spade, and in these the plants are disposed rather thickly and deeply. Between the rows of Peas a single line of Paris Market Cabbage Lettuce is planted, these alone more than compensating for all the trouble taken. The Peas and Lettuces being duly watered in, the lights are put on, kept close, and matted over during cold nights; no great check is given, a quick growth soon following. Subsequently the Peas will require short stakes and plenty of air, the lights, or other coverings substituted, being eventually dispensed with.

PEAS FOR SUCCESSION.

When the earliest rows of Peas of medium height are either sown or planted on a warm border, there is often a slight break in the supply. In order to avoid this, the first favourable opportunity should be taken for sowing a row or rows of William I. or some other early variety in the open quarters, and from these heavy and comparatively early crops ought to be obtained. Essex Rival, Dickson's Favourite, and Laxton's Supreme are heavy cropping second early varieties, but the two first-named especially are of poor quality, while Advancer and Day's Sunrise do not possess good constitutions. We rely principally upon Telephone for affording heavy crops of Peas of the best quality in close succession to William I., but Paragon and Telegraph answer equally as well. Those who prefer varieties of medium height ought to grow either Stratagem or Wordsley Wonder, while the good old Hair's Dwarf Mammoth is yet one of the best

second early varieties. On heavy soils especially it is yet quite early enough to risk sowing seed of the wrinkled Marrow varieties above-named, but at least one good row may well be sown with William I. Directly the plants from this sowing are peeping through the ground, the time has arrived for sowing more seed of second early and such successional varieties as Criterion, Huntingdonian, Dr. McLean, and Royal Jubilee. It is most unwise to crowd Peas in any way. The early round-seeded varieties and which do not branch freely may safely be sown rather thickly, but even in this case a pint of seed is ample for a row 16 yards long. A pint of the more delicate second early wrinkled-seeded varieties may also be spread over a similar length, as in this case the seeds are larger, some, too, failing to germinate. When the plants are crowded in the rows they come into bearing rather more quickly, but the crop is of much shorter duration than in the case of those given more room and which branch strongly. We invariably sow the seed in wide drills from 2 inches to 3 inches in depth and cover with fine soil. The rows should not be crowded, much the heaviest crops being always obtained from those either well isolated or disposed quite as far apart as the known height of the varieties. To be plain, if a variety under favourable conditions attains a height of 6 feet and upwards, the rows ought to be fully 6 feet apart and may with advantage be given another 2 feet, Cauliflowers, Cabbage, Spinach, Turnips, Celery, and other crops being grown between them. As a rule, Peas require a deeply dug, freely manured site, as they collapse quickly on poor ground, especially in a dry season.

HERBS.

Although there is less demand for a great variety of herbs than formerly, it is yet necessary to cultivate a few of the most serviceable kinds. More often than not the herb border is in anything but a flourishing condition, many of the kinds being represented by worn-out or half dead plants, which, if closely gathered from, soon fail. This is not the only drawback, as not unfrequently a wall border with a west aspect is devoted to herbs, which, when left undisturbed for several years, completely impoverish the more valuable fruit trees rooting near them. The herb borders ought therefore to be overhauled at least every other year, and the present is the time to attend to this. If a fresh site cannot be chosen, the least that can be done is to manure freely, and add some fresh soil prior to dividing and replanting any of the herbs requiring this treatment. Mint is always in demand, and so also is Tarragon. A bed of these being broken up at the present time, a good proportion of the roots may be reserved for forcing in boxes, the rest being planted in rows 12 inches apart, or else thinly all over the bed, a mulching of manure being beneficial in each case. Sage, another popular herb, is raised from seed, this being sown now in boxes and placed in gentle heat, the plants being duly hardened off and eventually planted out in rows 1 foot apart. Seed will also germinate when sown in the open ground, or cuttings may be taken off old plants in May and rooted under hand-lights. Old plants may be lifted, divided and replanted, but these divisions never equal seedlings. Common and Lemon Thyme are also best propagated by seed, this being sown at the end of March in shallow drills 6 inches apart and covered with fine sandy soil, the seedlings being thinned out when large enough and replanted if need be. Pennyroyal rarely fails. This will grow in any cool position and may be divided readily. Fennel must be raised from seed, sowing it at the present time in shallow drills 15 inches apart, thinning out and replanting the seedlings so as to have all 12 inches apart in the rows. Winter Savory can be divided and replanted in rows 1 foot apart, or a stock may be raised from seed sown in the open border early next month. The Summer Savory is an annual, and the seed should be sown on a warm border in shallow drills 9 inches apart, the seedlings being duly thinned out and left 6 inches apart. Sweet Marjoram should be raised and treated similarly to the last named, or, better still, raised under glass and duly planted out,

while Pot Marjoram can either be raised from seed, or old plants may be lifted, divided and replanted. Sweet and Bush Basil should be sown now in gentle heat, the plants being transferred to a warm border early in June. Curled Chervil ought to be sown frequently on sheltered borders in drills 6 inches apart, while Borage should be sown now, in May and again in July, a good succession being thereby maintained. It requires plenty of room, and the plants ought eventually to be thinned out to about 15 inches apart each way. In many gardens there is no necessity to sow Borage, seedlings coming up annually in various quarters. W. I.

ORCHIDS.

W. H. GOWER.

AERIDES VANDARUM.

THIS is a very elegant plant, and one, moreover, that has always been rare in collections and but little known. It cannot lay claim to novelty, as Sir Wm. Hooker figured it in 1857 in the *Botanical Magazine* (t. 4982) under the name of *Aerides cylindricum*, having there confounded it with the *cylindricum* of Wight. Some ten years afterwards Professor Reichenbach discovered the error, and gave it its present name. The matter, however, does not appear to be well understood by gardeners, for wherever I find the plant, *vandarium* is usually looked upon as simply a synonym. This, however, is incorrect in a sense. True, the *cylindricum* of the *Botanical Magazine* is identical with the *vandarium* of Reichenbach, but the name *cylindricum* was given by Wight long before Hooker's figure appeared, so that *A. cylindricum* (Wight), curiously enough, cannot yet be reckoned amongst our cultivated plants, so that we know of another treat in store when the collectors shall have found its hiding place. When Hooker figured this plant, upwards of 30 years ago, it was flowering in February, and in February of the present year I noted it flowering in the Studley House collection at Shepherd's Bush, so that it may be reckoned amongst the winter bloomers, thus rendering its pure white flowers all the more acceptable. The plant in question has been likened to *Vanda teres*, but although its leaves are terete, they are both longer and more slender than those of that species of *Vanda*, and in my idea it bears a more striking resemblance to *Vanda Hookeri* in its habit of growth. The leaves are alternate and some 6 inches long. The spike is short, issuing from the joint opposite the leaf, and seldom bears more than two flowers, and sometimes only one. The flowers, which measure nearly 2 inches across, and as I have before remarked are white, and in addition have a delicate tinge of rose along the base of the column which is very charming, continue in full beauty for two or three weeks. They are well adapted for button-holes, and last a long time when cut and placed in water. *Aerides vandarium* is a small-growing plant, seldom exceeding 2 feet in height, without getting bare of leaves at the bottom. When this is the case, as it roots freely along the stem, it may be easily reduced and replanted. It may be grown in either pots or baskets, the latter system being preferable. It should be kept near the roof glass, as the plant enjoys plenty of sun and light, and during the summer season strong heat and moisture. During winter it should have a decided rest, but it should not be allowed to become so dry that the leaves shrivel. Of course being a winter bloomer, it must be given sufficient moisture to nourish and develop its flowers, and a slight increase in the temperature will materially assist in this operation. During late autumn and early winter a temperature of about 60° with free circulation of air on all possible

occasions will be found to suit it admirably. It is well deserving of more attention, and if its roots are not overburdened with Moss, it thrives all the better. *A. cylindricum* is a native of Coimbatore, in the presidency of Madras, but I am unaware of the habitat of *A. vandarium*.

Lælia cinnabarina.—This charming old Orchid is more grown now than it formerly was but even now it is not so frequently seen as it deserves to be. An extra good form of this species is now flowering in Mr. Goodhart's collection at Beckenham. The rich reddish-orange of its flowers renders this kind very attractive, and when cut the blooms last in good condition a long time.

Phajus Bernaysi.—This very handsome and rare plant is now flowering in Mr. Bull's establishment at Chelsea. It is a strong-growing species, with very much the same habit as the older *P. grandifolius*, with long and broad plaited dark green leaves. The scape varies from 2 feet to 3 feet in height, and bears long racemes of flowers, which in the sepals and petals are china-white on the outside, pale yellow within. It comes from Queensland.

Lycaste lasioglossa.—It would appear that the cultivation of this genus is extending to a considerable extent, although this species is yet very rarely found. The flower sent to me by "R. M. G." measures upwards of 5 inches across the sepals, which are dull brown or olive-green, narrowly oblong, and acute; petals much smaller than the sepals, erect, recurved at the tips, rich yellow; lip also rich yellow, the anterior lobe being clothed with long silky black hairs. I believe this plant was introduced from Guatemala some eighteen years ago by the Messrs. Veitch, of Chelsea.—G.

Dendrobium Cooksonianum.—This remarkable variety of nobile is now flowering in the Cambridge Lodge collection at Camberwell. Unfortunately, this plant has not yet been seen of any size, but when it attains the size of some of the large specimens of *D. nobile*, the effect will be very grand on account of the extra amount of colour developed by the petals. It requires just the same treatment as the species. The same form has appeared in several collections in the country, which would lead one to suppose it has been imported and is not of garden origin.

Angræcum Sanderianum.—This is a charming small-growing plant which improves with cultivation. I recently noted some examples with spikes nearly 1 foot long, and densely laden with elegant flowers of the clearest white. The flowers, which have a slender, pure white spur upwards of 2 inches long, coming in at this season of the year, are specially desirable. The plant appears to enjoy heat and moisture, and the only fault growers have with *Angræcums*—if it is a fault—is that they do not yield a diversity of colour like the *Saccolabiums*. We may yet, however, be enriched by coloured forms.—W. H. G.

Cypripedium villosum.—"T. W." sends me a flower of this species for an opinion. I may say it is without exception the finest variety of this plant I have ever seen. The flower is nearly 7 inches across; dorsal sepal large; from the base to the apex there is a band of mahogany-brown, with a broad margin of green; petals nearly 2 inches across, divided with a central stripe of dark mahogany, the upper half deep orange-red, the lower half yellow; lip $2\frac{1}{2}$ inches long, the point of pouch yellow, the remaining portion orange-red, but less brilliant than in the petals; this colour extends over the large horns at the side of the mouth. It is a remarkable and grand flower.—W. H. G.

Odontoglossum Edwardi.—It is just turned nine years ago since this plant first flowered in England, causing great surprise by its colour. It was then, and still remains, the most distinct species of the genus yet introduced. Its colour makes one long to see some larger flowered kinds of the same hue, and no doubt there are yet plenty of fine fresh forms which have not yet been seen in our gardens. But too many travellers who visit the moun-

tains of Columbia and Peru either keep upon the beaten tracks, and consequently do not obtain new varieties, or else do not collect their plants at all. In these days we sadly want a few more collectors of the stamp of Warszewicz, the brothers Lobb, Douglas, Pearce, Roezl, and others who have joined the majority. Good representatives of these men are Blunt and Boxall, the latter a most successful collector, still sending new plants home to the Messrs. Low, of Clapton. O. Edwardi, named in honour of Edward Klaboch, its discoverer, is a strong growing plant, which produces a tall spike upwards of 3 feet high, laden with many deliciously scented flowers, which are purplish mauve, except a yellow crest on the lip. These flowers are not large, scarcely more than 1 inch across in the best varieties. It exists in the best collections of cool house Orchids, and during the past fortnight I have seen it blooming in several gardens.—G.

CYPRIPEDIUMS FROM THE WOODLANDS.

I HAVE pleasure in sending you herewith a few *Cypripedium* blooms. Much has been written and said about what is sometimes termed the *Cypripedium* craze, but when we consider the good return that we can obtain from these Orchids, I for one fail to see much "craziness" in the predilection that is manifested by so many for this genus. Commencing in the month of October, I counted no less than 870 buds and blooms, and since that date to the present, at no time have we had less than 380, and this at a time when flowers are so much in request.

The leaves also, as well as the flowers of many of the *Cypripediums* are exceptionally beautiful. Take, for instance, the various hybrids, such as *Dayanum*, *Lawrencianum*, &c., raised by Veitch, Warner, Cookson, and others. What can be more beautiful than the foliage of a well-grown pair of either? They can also be easily grown. This is another virtue that enhances the value of *Cypripediums*. In the box I send, you will find amongst others *Sedeni candidulum* (Veitch's variety), also the same (*Drewett's* variety), and *Sedeni porphyreum* (which has been in bloom for over a year and nine months); *insigne* (Lord Lonsborough's variety), which is an old and well-known flower; also *nitens*, *grande*, *tonsum*, *Hartwegi*, *Harrisianum elegans*, *Dauthieri*, *conspicuum pictum*, *conchiferum*, *Argus*, *plunum*, *hookerianum*, *Dayanum*, *villosum*, *Boxalli*, also a batch of Warner's seedlings, such as *meirax*, *marmorophyllum*, *melanophyllum*, *calophyllum*, *barbatum Warneri*, *superciliare*, and by way of comparison *Amesianum*.—A. ABRAHAMS.

** Mr. Abrahams, gardener to Mr. Measures, The Woodlands, Streatham, has kindly sent us, from his rich collection, a large and beautiful series of *Cypripediums*. The interesting note above quoted will show how useful this genus is, as at all seasons, whether in the depth of winter or height of summer, some species or varieties are sure to bloom. The majority of the kinds sent have bright, and in some instances showy flowers. The great drawback to the *Cypripediums* is, in the eyes of many, their dull colours; but the browns and dreary purples are being in part eliminated by hybridising. It would be difficult to find a softer or more pleasingly coloured flower than *Drewett's* variety of *C. Sedeni candidulum*; it has a brighter coloured and more contracted lip than that of *Veitch's* variety, and though smaller is richer; the petals and dorsal sepal are both suffused with rose-pink; *C. S. porphyreum* is another gem, with petals curled like a bull's horns and with the lip deep rose-purple. Mr. Abrahams writes us that it has been in bloom for one year and nine months. *C. conspicuum pictum* has a highly polished flower, the lip rich brown. *C. hincheanum*, an excellent form of *villosum*, *grande*, and *barbatum Warneri*, a very neat, shapely flower, were also in the gathering. Separate notes on many of these *Cypripediums* have appeared in THE GARDEN.—ED.

Lycaste macrobulba.—I have received from Mr. Moss, of Western Grove, Southampton, a beautiful flower under the above name, but which I am

under the impression is that of *L. macrophylla*. The flower measures nearly 4 inches across; the sepals are spreading, greenish yellow; petals large, erect, increasing in size upwards, reflexed at the tips and rich yellow, with a faint medial line of pale brown spots; lip of the same colour as the petals. It is an exceedingly handsome flower. The plant was picked up promiscuously by a sailor in Brazil, and brought home by him a few years ago.—G.

ORCHIDS AT MANOR HOUSE, GUNNERSBURY.

THERE may be fewer large collections of Orchids at the present day than there were a few years ago, but the roll of growers has been greatly increased by those who, while not wishing to have every species and variety in cultivation, yet cherish a love for this class of flowers. This is evident at Manor House, Gunnersbury, where an excellent collection of Orchids has already been formed, although a start was made but two or three years since. A few days ago a specimen of *Dendrobium Devonianum* had seven spikes, which carried upwards of 240 flowers. This is not a rare species, but one of the most beautiful and delicate of its genus. The pendulous stems carry a profusion of lovely flowers, the sepals of which are cream colour, shaded with delicate purplish pink, the petals finely ciliated, tipped with magenta, and the lip white, enriched with a spot of orange on each side of the column. It is growing in a small teak basket hung up from the roof, in which position it always does well. *D. aureum*, of which an engraving was given in THE GARDEN of August 13, 1887, is known in gardens generally as *D. heterocarpum*. It is not so frail and beautiful as *Devonianum*, but it has a sweet fragrance, and has been used as parent plant in many beautiful crosses. From *D. aureum*, crossed with the well-known *D. nobile*, have resulted such noble varieties as *Leechianum*, the better-known *Ainsworthi*, and *splendidissimum*. The sepals and petals are usually of a cream-yellow tint, the lip recurved at the apex, and veined with soft crimson on a yellow ground. It is not often seen in collections, but it is worth growing. Of course *Odontoglossum Rossi majus* was in full bloom, one plant having fourteen flowers. This is becoming almost as popular as *O. crispum*, and in good varieties its flowers are rich, if not striking. Dark-coloured forms of *Lycaste Skinneri* abounded, and a considerable variation was to be seen in the varieties of *Cattleya Trianae*. Some were excellent, others so poor as not to be worth house room. All Orchids vary, but *C. Trianae* is especially changeable. A very good form of *C. amethystoglossa* was in flower. The sepals and petals were freely spotted. Several notes have appeared upon this *Cattleya* in THE GARDEN. *Vanda Cathcarti* was in bud. Mr. Gledstanes, the proprietor, has done well to take up such kinds as he has in his collection. It is those named that give lasting pleasure and provide plenty of cut flowers.

SHORT NOTES.—ORCHIDS.

Cypripedium Elliottianum is flowering in the nursery of Messrs. Veitch at Chelsea. This noble plant is one of the introductions of Mr. Sander, and a fully descriptive note is given in THE GARDEN, Nov. 3, 1888, p. 408.

Calanthe Darblayana, raised by M. Maron, head gardener at M. Darblay's, at Corbeil, is worth mentioning. This fine plant, whose white or pale rose flowers, shaded with carmine in the centre, make it a valuable novelty, is the result of a cross between *C. vestita lutea* and *C. Regnierii*.—H. MARTINET.

Cypripedium villosum aureum.—The best form of this plant which has yet come under my notice is just now flowering in the Studley House collection; the plant in its growth is typical, but the large flowers are wholly of a soft and pleasing yellow hue. It is a very distinct and desirable variety.—G.

Orchids on cork.—Referring to "Orchid Amateur's" note in THE GARDEN, Feb. 23 (p. 162), it would be interesting to know the names of the Orchids that have done well with him on cork. As far as my limited experience goes as to its use, I find that out of about a dozen kinds blocked on that material only two

have made themselves completely at home on it, these being *Scuticaria Steeli* and *Cattleya citrina*.—J. G. M. G.

***Odontoglossum crispum flaveolens*.**—This is a good yellow form of the species, but the flowers are not large. It accords with the plant named by Reichenbach, but it is destitute of the red spots on the lip. It is a pretty distinct form, now flowering with Mr. Tautz.

***Vanda concolor* (W. J. M.).**—This, we believe, is the name of the flower sent, and it is a kind very seldom seen. It is a welcome addition, being a winter bloomer, but its flowers are not particularly showy, the sepals and petals being of a uniform cinnamon-brown, without tessellations; side lobes of the lip dotted with rose on the inside; front lobe yellow, streaked with cinnamon. Lindley says it is a native of China.

Pruning *Dendrobium nobile*.—Mr. Hudson makes a practice of cutting down the stems of *D. nobile* as soon as they cease flowering. Young strong shoots soon start again and bear larger, richer and stronger flowers than would have been borne on the old stems. By this method very stout healthy plants are obtained. Mr. Hudson was once quite opposed to the practice of pruning *Dendrobium nobile*.

***Dendrobiums* at Chelsea.**—There are a number of *Dendrobiums* flowering now in the nursery of Messrs. Veitch, of Chelsea, and amongst them a large plant of *D. Ainsworthi*, a beautiful cross between *D. aureum* and *D. nobile*. The sepals and petals are of the purest white, the large stain on the lip being magenta-purple. It is a lovely variety. Hard by the showy *D. Cambridgeanum* was in full bloom. It only wants a few specimens of this to make a house gay. The flowers are large and of the richest orange-yellow, save a blackish purple spot at the base of the lip. *D. cariniferum*, though not so handsome as the preceding, is an interesting variety, the flowers dull white and reddish at the entrance to the throat of the lip. *D. Brymerianum*, that has a lip like delicate lace; *D. Jamesoni*, *Wardianum*, *fimbriatum*, the small-flowered, but very free and beautiful *barbatulum*; *D. nobile*, *D. n. nobilius*, and *D. crassinode album* were also in bloom. The latter is a chaste variety of a beautiful Orchid, of which we might see more. *D. Sybele* is the result of a cross between *nobile* and *Findleyanum*, and has much of the *nobile* character. It is a beautiful flower.

NOTES OF THE WEEK.

Roses in winter.—Mr. Roberts, of Gunnersbury Park, regards Bouquet d'Or and Cheshunt Hybrid as two of the finest indoor Roses.

Amaryllises at Messrs. Veitch's Chelsea nursery are showing flower, and will be in their fullest beauty a fortnight hence. We anticipate rich treasures amongst the seedlings.

Gardeners' Royal Benevolent Institution.—We learn that the late Mr. John Rylands, of Longford Hall, Manchester, has left a legacy of £500 to this institution.

Saccolabium bellinum is one of the prettiest of its genus. It is very dwarf, and has richly spotted flowers, which are borne in a compact cluster. We hope shortly to give a coloured plate of this gem.

***Azalea amœna* Colvilli** is a Hose-in-hose variety of a rich magenta-purple colour. A large plant of it in the nursery of Messrs. Veitch at Chelsea shows its worth. The flowers are larger than in *A. amœna*.

The weather in South Wales.—All last week we had from 9° to 15° of frost nightly, and to-day, March 4, snow has fallen in twelve hours to the depth of 13 inches. Until February the winter was remarkably mild; now it is the opposite.—J. MUIR, *Marham*.

Single Japanese Cherry.—Flowers of this come from Messrs. Gordon, of Twickenham. They are soft pink in colour, and like the opening flowers of the Dog Rose. The Japanese Cherry is well worth growing under glass, as at this season there is a lack of variety in our greenhouses.

Pelargonium flowers from Swanley.—Messrs. H. Cannell and Sons, Swanley, send us flowers of a few of their best kinds of *Pelargoniums*. The flowers are very varied in colour, large, and well formed. The *Pelargoniums* at Swanley are a mass of bloom through the winter.

Cyclamen-flowered Daffodil.—There can be no question now about the value of *N. cyclamineus* as

a garden plant. It has proved a decided acquisition; we find it as hardy as any of the others, and earlier even than *pallidus præcox*. Its lovely flowers opened a short time after those of *N. minimus*, and in spite of the severe frosts they do not seem to suffer in the least.

Colchicum luteum is another charming spring bulb, perfectly hardy in the open, and adding much to the interest of the bulb garden. The leaves are from 4 inches to 12 inches long, bright green, and about half an inch wide. The flowers, one to two to a bulb and of a fine pale yellow colour, are produced from December to May, and do not suffer in the least from the cold.

***Azalea amœna*.**—In the conservatory this plant makes a charming picture just now, covered as it is with its bright purple-red flowers. It may not be generally known that this plant is perfectly hardy in the south at least, and flowers towards the beginning of May as freely as it does indoors. We have grown it in the open air for many years, and have never known it to be touched with frost.

Ranunculus anemonoides is now in full flower in a cool frame. It is very early considering the late season, but the flowers are large and very fine notwithstanding. The blooms are rather over an inch in diameter, white, tinted with pink, and very attractive. For the rockery it is amongst the most choice of alpine, and loves an exposed spot in rich loamy soil. The leaves are finely cut and glaucous. Native of the Styrian Alps.

A blue *Tacsonia Van Volxemi*.—The world has waited long for the blue Rose, and may well be startled this week by the presentation of the brilliant *Tacsonia Van Volxemi* with blue flowers and blue leaves! The plate is issued in a gardening paper for the present week. The comic journals must not rest on their laurels if this sort of "coloured illustration" is to become a "feature" of garden journalism.

Conifers from Eastnor.—We had no idea of the beauty of *Abies Smithiana* until we received a branch from Mr. Coleman, of Eastnor Castle. This branch was loaded with cones of a beautiful brown colour. It was the finest specimen we have ever seen. We also received a branch of *Pinus insignis* from Mr. Coleman. It shows how well this *Pinus* grows in some parts of England. There were also sent very fine coning branches of *P. Jeffreyi*, *P. Edgeriana*, and *Cupressus Govaniana*.

***Crinum Hildebrandti*.**—"W. H. G." was right (p. 194) in not fixing positively the name of the *Crinum* flowered by Mr. White at Winchmore Hill as this species. It is a form of *C. erubescens*, which is widely distributed over S. America, from whence Mr. White's plant came. *C. Hildebrandti*, however, belongs to the same section, but it is a Tropical African species. Let us hope that the day is not far distant when these lovely bulbous plants will again return to the favour they once enjoyed in gardens.—JAMES O'BRIEN, *Harrow-on-the-Hill*.

The Spring Meadow Saffron (*Bulbocodium vernum*) is nearly at its best just now, making a very useful plant for the rockery or bulb border. Though not by any means fastidious, it thrives better and flowers more freely in a good sandy soil than in any other. It is amongst the earliest of the spring bulbs, and unique in its rosy-purple colour. It rarely exceeds a few inches in height, and on this account should never be planted where the blooms are likely to get splashed with spring rains. We lately received the variety *versicolor* under the name of *B. ruthenicum*. It does not differ much from the type, but it is well worth a place in the border.

***Rhododendron arboreum*.**—Where accommodation can be spared in the conservatory even for a limited number of these Himalayan *Rhododendrons* they form a very interesting feature all through the early spring months. *R. arboreum* is just now a picture, being covered with fine bunches of red or deep rose flowers which nestle amongst the foliage, giving a fine effect; the leaves are lance-shaped, pointed, bright green above, silvery underneath. *R. nilagiricum*, from the Neilgherries, is also very fine and extremely free flowering. The flowers are produced in large bunches, deep rose in a bud state, changing as they become older to pink or nearly white. The effect of the variously shaded flowers is most striking, and this is heightened by the

numerous deeper red spots on the inside of the flowers. Almost all these species flower in a comparatively small state, and a selection could be easily accommodated in an ordinary greenhouse. The best results are always obtained by planting them out.

The weather in Ireland.—Mr. Offler, writing from Newry this week, says, "A great many half-hardy plants have been damaged by frost this season; even Rose Maréchal Niel is killed with me to snow line, also Gloire de Dijon damaged to 6 inches and 9 inches from buds. This is rather new in this locality."

Dielytra spectabilis, now in full flower, is one of the most beautiful subjects to be met with. Although quite hardy, it is rarely seen in the open border in such fine condition as when grown in pots under glass and subjected to a little warmth. The plants referred to have been grown in a light open position, with just sufficient warmth to encourage growth without drawing them up spindly.

A fine strain of Chinese Primulas is that which Mr. Manning, gardener to Mr. Gledstanes, Manor House, Gunnersbury, has succeeded in raising. The flowers are of the Chiswick red type, deeper if anything in colour, larger, fuller, and of greater substance. All the seedlings are very much alike in merit. We advise Mr. Manning to preserve the purity of this selection of Chinese Primulas.

Calanthe vestita oculata gigantea is a long name for one of the most beautiful of late-flowering Calanthes. It has the great advantage of blooming when most of the other Calanthes are quite over. Mr. Hudson, of Gunnersbury House Gardens, has an excellent specimen bearing four spikes of the large flowers, which are of the purest white save a crimson stain at the base of the lip. Mr. Hudson finds it more inclined to be evergreen than the ordinary *vestita oculata*, which blooms in autumn.

Winter Sweet (*Toxicophlæa spectabilis*) is well named. It has small flowers, but they are pure white, deliciously and powerfully fragrant, and crowded close together in compact corymbs. Some years ago it was cultivated in a few places, but was afterwards lost to cultivation, and was re-introduced by Mr. Williams, of Upper Holloway, who exhibited finely flowered plants of it. This *Toxicophlæa* is well worth growing, as it comes into bloom when flowers are scarce. A coloured plate of it was given in THE GARDEN, July 7, 1877.

A red-berried Mistletoe (*Viscum cruciatum*).—At the last fortnightly meeting of the Paris Horticultural Society, the above-named interesting form of this well-known parasite was exhibited by Monsieur H. Luiseau, and attracted much attention. It is a native of Portugal, and is there usually found growing on the branches of the Olive tree. Its leaves are cuneiform in shape, and are smaller than those of the common Mistletoe (*Viscum album*), and it produces berries of a beautiful carmine-red. If this new Mistletoe should turn out to be as hardy as the common white-fruited variety, it should prove an interesting and valuable acquisition to our gardens.—W. E. G.

Scilla bifolia.—Of all the varieties of the early Squill, none in our opinion equals the pretty form called *taurica*. The plant is more robust, and usually produces more than the usual two leaves, while the flowers are much larger than those of the type. Such varieties, however, as *pallida*, *præcox*, *rosea*, *candida*, and *carnea* are all well worth adding to the bulb collection. Scillas require little or no attention, and give a fine display in early spring. The Siberian Squill (*S. sibirica*) is also beginning to flower now. It is quite different in character from the above, and is a useful bulb for planting on the margins of shrubberies, &c.

The Persian Iris (*I. persica*), by far the most attractive and distinct of the early blooming kinds, is well deserving of a place in all good collections. It is perfectly hardy in the open, and may be grown even in the most exposed positions. Its dwarf habit is a fault with it, however, as the delicate pale blue flowers are so liable to damage from the heavy rains splashing up the soil; a layer of Cocoa-nut fibre prevents this, and shows the flowers

to better advantage. As a pot plant for the conservatory it is unequalled at the present time. The pale blue-tinted flowers, blotched with velvety purple and emitting a sweet fragrance, are certainly unique in early March. A native of Persia, requiring light sandy soil.

Camellia de la Force is a single-flowered Camellia, quite white and exceptionally chaste. A plant was flowering a few days ago in the Chelsea Nursery of Messrs. Veitch. It is very much like the single white, of which a coloured plate was given in THE GARDEN, August 22, 1885, where also will be found much interesting information on this class.

Corbularias.—In the open air *Corbularia nivalis* is the earliest of all the Bulbocodium group. The flowers, though small, are abundantly produced and of a fine deep orange-yellow, with the style and stamens exerted. It is a native of the mountains of Central Spain and Asturias. It may be reproduced true from seed, which takes about four years to make flowering bulbs. *C. citrina* is neither so early nor so hardy as the above, yet it is a most beautiful plant for the greenhouse. Corbularias stand a little heat very well, but are liable to become drawn and weakly, when much of their beauty is lost, although the size of the flowers is not interfered with. *C. monophylla* is by far the best, and has been in flower for the last month. Home-grown bulbs, doubtless owing to the wet season, did not flower so well as usual.

Saxifraga Burseriana, as we now have it in varieties such as *major*, *macrantha*, *grandiflora*, &c., is hardly equalled by any of the vernal species of this popular family. The first to flower is the variety *major* about the middle of February, and a succession will be kept up for perhaps a month. The variety *macrantha*, which we saw last year for the first time, is very charming in bud, the deep red stems and pure white medium-sized flowers being very attractive. We saw the other day just opening a form called *S. B. var. Boydii*. It hardly looks like a form of *Burseriana*, although said to have been raised from that species. It is, however, too early to judge fairly. The variety *grandiflora* is very near to *major*, but rather later in flowering, while the blooms are somewhat larger. *S. aretioides* and its varieties *præcox* and *primulina* are also beginning to flower. All these are extremely pretty and veritable acquisitions to the alpine garden.

A new label.—I enclose you samples of my patent plant labels. The label has been seen and tested, and I have been myself working for several years to get a really indestructible label which shall be durable, easily used, and when put on the plant shall not be inartistic, as the ordinary white labels are. An ordinary pointed black lead pencil will indent on the surface of the label better than an agate style. The label is made of prepared copper, extremely thin and pliable and cut to suitable form, with tag end or attachment of the same material and substance, the whole being one piece.—ALFRED CHANDLER.

** We have seen so many patent and clever labels, that we are rather suspicious of the family generally, but the above look promising, and they are not expensive, as so many labels are.—ED.

National Chrysanthemum Society.—The adjourned annual general meeting of the members of this society was held on Thursday, the 28th ult. Mr. E. C. Jukes occupied the chair. The object of the meeting, it will be remembered, was to elect a president and vice-presidents in accordance with the altered constitution of the society. Mr. Castle, after explaining the correspondence with Lord Brooke, M.P., proposed, and Mr. Wynne seconded, that his lordship be president of the society. The motion was carried. The hon. sec., Mr. W. Holmes, then moved that the following noblemen and gentlemen be elected vice-presidents: The Earl of Lytton, Lord Ebury, Sir Guyer Hunter, Sir Edwin Saunders, Dr. Hogg, and Mr. E. Sanderson, all of whom had signified their willingness to accept the position if elected, and Sir Louis Pelly, Mr. Leopold de Rothschild, and Mr. J. Wormald, subject to their approval. The election was carried unanimously.

On the motion of the foreign corresponding secretary, Mr. J. N. Gerard, of New York, U.S.A., and Monsieur Platzer, of Roubaix, France, were elected foreign members of the society. The sum of two guineas was voted to the Royal Aquarium employés' annual dinner fund.

DESTROYERS.

Insects on Apple shoots.—I shall be obliged if you can give me the name and cure for the black fungoid-looking growth which has attacked and appears to be killing the young shoots sent.—J. M.

* In reply to the above, "the black fungoid-looking growths" are the eggs of an insect, I think of one of the aphides, or green-flies. They are easily crushed. Rub the shoots with a stiffish brush dipped in tobacco water and soft soap, or if your tree be too large for such a remedy to be used, syringe with the same mixture. Keep a sharp look out later on, and syringe the trees again on the first appearance of the hatching of the eggs.—G. S. S.

Woodlice in plant-houses.—Can any reader of THE GARDEN suggest effective means of getting rid of woodlice in plant-houses? A friend of mine with a fine collection of Orchids stands a chance of having the greater part of them ruined by these nocturnal pests. It is a great mistake to suppose they prey upon decaying vegetable matter; that is their habitat; but their favourite food is tender shoots, buds, and seedlings just germinating, as many a gardener knows to his cost. My friend has tried every means he could think of, even going so far as to have plants, Orchids, &c., turned out of pots, whitewashing the house, and replacing the Derbyshire spar. Potato slices and handpicking are his last resources—very much like Mrs. Partington trying to mop out the Atlantic.—A SUBSCRIBER.

Testacella Maugei.—"W. H. G." shall have some specimens of this interesting slug as soon as we are digging ground which it frequents. It is not common to all our soil, but only to a portion, although it is nearly all of a stiff clayey nature. I was much amused the other day when a labourer digging a piece of ground in the Testacella quarter remarked that he thought the "yaller uns had eaten all t'other slugs up." Probably the non-existence of the common garden slug was due to the fact that there was little vegetable food for it to prey upon, and therefore had for the winter gone below and become torpid. The Testacella Maugei, on the other hand, being of a carnivorous nature, finds earthworms in plenty all through the winter. I have not asserted that I am unfamiliar with the habits of this peculiar slug, except as relates to the devouring of its own kind. On that point I am sceptical. Earthworms, however, they devour greedily, and very likely also wireworms. If they do feed upon these latter pests readily, there should be found, by planting a colony of Testacellas in a wireworm-infested garden or field, useful means of getting rid of one of the gardener's greatest insect enemies. I am not sure that any good is done in the destruction of earthworms, but if the carnivorous slugs eat real pests, some more succulent food in the shape of earthworms cannot be denied them. This particular slug is of a buff colour, and when crawling about quite 2 inches long, and beyond its colour may be recognised by having on the top of its tail end a tiny hard shell.—A. D.

The death of the Rev. J. G. Wood, the popular writer on Natural History, occurred recently. Horticulturists will best remember him by his "Garden Friends and Foes."

Snowdrops.—Will "R. O. B.," who sent some Snowdrops to THE GARDEN office last week, kindly send his address.

Names of plants.—M. —Your *Lycaste* very much resembles *L. macrophylla*.—J. N. —*Dendrobium primulinum*, *Oncidium sarcodes*.—T. and J. Rogers. —1. *Oncidium O'Brienianum*; 2. *Maxillaria* sp.; 3. *Epidendrum virens*; 4 and 5, forms of *Cypripedium barbatum*; 6. *Cattleya Trianae*.

WOODS & FORESTS.

THE SCOTCH FIR AS A TIMBER TREE.

THE above is the heading of an article in *THE GARDEN*, Feb. 16 (p. 160) by "Y." The writer wishes to see the merits and demerits of this tree discussed, and asks if any reader can furnish some useful particulars on this subject. The timber of the Scotch Fir when thoroughly matured has long occupied a high position, but that the growth of the tree and quality of its timber are affected to a considerable extent by exposure, elevation, and the texture of the ground in which it is grown there can be no doubt. In illustration of this I shall give a few examples. Having been engaged for a series of years renovating natural Scotch Fir forests and cutting up the wood of the same for large and extensive building purposes in the Braemar Highlands, I had a good opportunity of comparing the timber as found on different classes of soils and at various elevations. That the pure bracing mountain air, coupled with the inorganic nature of the soil in the locality, promotes the formation of hard, firm wood, I have abundant and conclusive proof. The best wood which I have ever cut in that district was produced upon thin blackish soil a few inches deep, and resting upon an open subsoil of sandy or gravelly clay, and naturally so dry that no draining was required. On sending a quantity of logs from this part of the forest to be cut up at the sawmill, the workmen could tell what part of the forest the wood was from as soon as their saws entered the logs, and I think this pretty conclusive proof that the soil has a decided influence on the quality of the timber. Any difference in the texture of the wood produced here could be clearly traced to the difference in the age of the trees, and trees of the same age that had matured their growth were found to be of a uniform texture throughout. In another part of the forest, where the surface was of an undulating character, I found the hollow places to consist of rich black soil of various depths, resting upon shingle and clay finely mixed, while the higher mounds and ridges were composed of the same class of soil, with this difference, that the surface soil along the top of the ridges was only a few inches deep. Now on felling trees and cutting up the timber grown in this part of the forest I often found considerable difference in the quality of the wood even of trees of the same age, as ascertained by the number of concentric rings which they contained, and which was the only way I had of comparing them in this respect. Trees growing upon deep rich soil in hollow places were often found to be of a softer texture than such as were grown upon thin soil on the ridges, and this in a great measure explains the reason why trees growing within a few yards of each other have been found to be so dissimilar in quality that they have been pronounced by some people as belonging to a bad form. Now in this case the trees could not have degenerated, for the simple reason that they were all the progeny of old specimens of the true Highland Pine growing here and there in the forest and left there as mother trees to stock the ground with fresh plants by natural reproduction. I can well understand the plausibility of the argument that trees raised in a public nursery from seed of doubtful origin may turn out to be deficient in hardness and quality of timber, but in the present case this was by no means the case.

Throw a log of the hardest and best class of Scotch Fir timber down upon a hard road, and it immediately recoils and produces a sharp, metallic ring, so that the experienced forester

can tell to a certainty by this test alone if the wood is of the hardest and best quality. On the other hand, subject a log of the softest class of Pine timber to the same test, and it will be found to fall upon the ground with a dull, heavy sound, so that the difference can be ascertained in this way before the timber is cut up with the saw at all. As a general rule, soft, deep soils rich in organic matter produce a soft, inferior class of timber, while pure Moss ground produces the softest of any. In Grigor's "Arboriculture" (p. 166), the author, speaking of the Scotch Fir, says:—

Of all soils common in waste lands, pure bog is most uncongenial to its growth; and although the plant sometimes lives in soil composed almost wholly of this vegetable substance, yet it requires a mixture of inorganic matter, in order that it may produce timber.

This statement corroborates what I have said, and as I consider Grigor to be one of our best authorities on the native Pine, I attach the greater value to his remarks. Chalk and calcareous soils are likewise inimical to the growth and full development of the tree, except in cases where there is a considerable depth of soil on the top of the chalk, but in all cases where the latter is only covered with thin poor soil, the trees never reach a great size, and the wood is of a soft, inferior quality. Climate also influences very much the growth of the tree and the formation and quality of its timber. When cutting up and manufacturing the timber of the Scotch Fir in some parts of Ireland, I found that where the trees were grown upon the class of soil most congenial to their growth and the formation of the best class of timber, the wood was of a fair texture, but certainly not equal to that of the same species of trees which I had formerly cut up in the natural forests of Braemar. Now in this case I attribute the difference in the texture and quality of the wood entirely to the influence of the climate and the difference in the elevation above sea-level. In Ireland the trees which I refer to were grown at an elevation of something less than 100 feet, while the trees in the natural forests of the Highlands of Scotland were all produced upon ground upwards of 1000 feet above sea-level. The chief difference in the wood of the trees grown under such conditions is that the timber produced at the high elevation is harder, firmer in texture, and more thoroughly impregnated with resinous matter than that grown on a lower elevation. I may, however, state that trees grown upon soft mossy ground, although deficient in hardness and firmness of texture, are generally of a tough pliable nature. I have extracted the surface roots of these and found them capable of being used for making baskets, creels, and hampers, and although not in use now, yet many years ago these roots were used in the Highlands and inlands of Scotland for making ropes, &c.

J. B. WEBSTER.

Collecting tree seeds.—The spell of keen frosty weather which we experienced some time ago has been very beneficial in retarding too early vegetation. In many cases the buds of trees and bushes of different species had begun to expand, and if this had gone on for any length of time, the probability is that later on they would have been cut up by cold, frosty weather. The cones of Larch, Scotch Fir, and other coniferous trees are now thoroughly matured by frost, and may be collected at any time during dry weather. Some fifty or sixty years ago nurserymen generally collected their cones in February and March, but this rule seems not to be very strictly attended to in this respect, as I have seen large quantities of Larch seeds in nurserymen's establishments in De-

cember. This, however, is not good practice, as the seeds have not been thoroughly ripened by frost. Nature never extracts the seeds from the cones till April and May. The alternate bursts of sun-heat and April showers are Nature's mode of extracting the seeds, and the nearer we can follow her unerring laws, in like proportion will our efforts be crowned with success. The seed collector should be very careful to gather his cones from the finest and healthiest trees, otherwise the progeny will be of small size and weak constitution.—J. B. W.

TIMBER TRADE AND HOME SUPPLIES.

PERMIT me to supplement my last week's note on this subject with a few more remarks I had not then time to send. The proposal to "boycott" foreign timber on gentlemen's estates would have scarcely a perceptible effect on the trade, so little timber comparatively goes in that direction, while it would without doubt send the supply into the open market, where English timber growers as well as foreigners have to dispose of their main stock, and the result would be a corresponding depreciation of prices all round. It would be "cutting off the nose to spite the face." So long as we have to deal with free imports, let trade take its natural course. You may as well tell farmers to kill their own beef and mutton, but they do not do it. Indeed, plenty of farmers who have a good few men and servants to keep buy imported meats and American fresh meat for home consumption while selling their own. Where there are quarries or mines on an estate, as suggested by Mr. A. D. Webster, a clause could be inserted by the proprietor enforcing the use of home-grown timber, but the lessee would take it off the rent, for having to compete with others not so bound he could not get any better price for his produce. The whole idea is a narrow one and quite impracticable. As to the stress laid upon the necessity of seasoning timber and making extensive provision for that purpose on estates, it may surprise some to know that not above a fractional portion of the English timber disposed of is ever seasoned in any way. One of the biggest firms in the midlands has 2000 wagons on the road, and builds as many at its own yards as it can. Within eighteen months I supplied about 20,000 feet of Oak for this purpose mainly, every foot of which was converted as fast as it came out of the wood from which it was supplied as the sawmill could take it. I once said to the manager, "Seasoning does not appear to be of any consequence to you," and his reply was, "Oh no; the timber only shrinks a little sideways, never lengthways, and the wagon frames are so constructed that we can screw them up when they shrink." For almost all colliery, railway, &c., purposes the practice is the same, and dealers in Ash fell it at any season of the year and convert it into shafts and for a great variety of purposes. As to prices, accounts to hand are more cheering than ever, both in the home and foreign timber. The following slip, from among numerous references to the subject, expresses the position of affairs. It is from the *Timber Trades Journal*, but I know it to be true, as at almost every sale I have heard of or been at the attendance has been much better, bidding brisker, and prices higher:—

In the home timber trade the only item worth recording is the increased number of lots of standing timber being put into the market. Landlords have come to the conclusion that this is their time to take advantage of the improved position the trade has assumed, and quite an abundant supply for the year's wants is now in prospect.

YORKSHIREMAN.

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No. 904. SATURDAY, March 16, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSE MADAME LAMBARD.

SEVERAL points of interest have been brought out by the recent discussion on Lacharme's beautiful red Tea. Notes have been contributed from various parts of the country, beginning as far south as Rochester—from the metropolis of Roses I had almost written; the Metropolitan, perhaps, would be nearer the mark—and Surrey; coming from as far east as Norfolk, as far west as Herefordshire, as far north as Aberdeen, and coming also from the north of Ireland.

There is considerable unanimity as to the chief merits of the plant, everybody testifying to its vigour and freedom, as well as to the beauty of the glossy foliage, retained so late as often to render the plant practically evergreen; but only Mr. Grant draws attention to the valuable quality of erectness, which is so essential to the effectiveness of any Rose in the garden, and which so usefully distinguishes Mme. Lambard. The attractiveness also of the innumerable varicoloured flowers, whose shades of rose and yellow are so fancifully mingled and rarely twice in exactly the same way, is incontestable; and Mr. Burrell justly lays stress upon the special beauty of the blooms in autumn or in a cool season. Indeed, it would seem that it is just in such a sunless season as that of 1888 that Mme. Lambard is seen at her best, to judge from the evidence given with his usual admirable precision of facts and figures by Mr. Mawley in his genial article on p. 185. The difference between 2 flowers staged in the heat of 1887 and 51 in the cold of 1888 affords an unmistakable indication of the kind of summer in which fine blooms of this Rose are to be looked for, particularly when so able an exhibitor of Roses of all sorts as Mr. Grant states further that he alone exhibited it during 1888 in upwards of thirty winning stands.

It is, consequently, perhaps only to be expected that the defects most generally insisted upon in this flower in an ordinarily hot summer are lack of size and fulness, and it is to be feared that these are defects which no grower will conscientiously be able to do otherwise than endorse. Personally, I have not experienced to any noticeable extent the lack of symmetry in the flowers of Mme. Lambard that is complained of by some of the most able growers. Want of depth and substance has been a constant trouble, but the "quartered" or double-centred flowers have not been very conspicuous on my own plants. On the other hand, I think Mr. Prince puts his finger on a weak place when he points out that the flower is liable to lose colour after it has been cut. It might be thought that this is a peculiarity of the variety at Oxford, where we have reason to know that some Tea blooms lose their colour even before they are cut, but that it is also referred to by "Delta" and Mr. Mawley, and is, unfortunately, too common an experience. There can be little doubt that this dulness of colour is attributable to the shades of red in the petals, which are constantly undergoing subtle changes until the whole colour of the flower becomes confused and presents a "dirty" appearance. Red seems a singularly unstable colour in Roses, compared, for instance, with yellow. Hardly any red Rose, or Rose

with red in it, remains exactly the same colour for many hours in succession; and in the case of Tea-scented varieties that have red shades in them the change is rarely for the better, such Roses as Jules Finger, at times very beautiful, becoming under unfavourable circumstances almost livid in hue.

Everybody appears to find Mme. Lambard one of the hardiest of the Teas, and this important quality contributes to render the variety one of the most valuable of all garden Roses. There is also a general unanimity in favour of the Brier as the best stock, the seedling Brier being most commended, but owing to its great vigour and freedom, Mme. Lambard makes a handsome standard, and succeeds well grown in this form. It is perhaps natural that in the far north of Aberdeen the Brier cutting should be preferred as a stock, as its roots keep nearer the surface than those of the seedling, and it may be a matter of importance in a cool climate to keep the roots as much within reach of the influence of the sun as possible.

As to the best soil and situation in which to grow Mme. Lambard and how to prune it, the correspondence affords an answer which might be summed up almost in a "Thro'-the-Looking-Glass" kind of phrase, "Any, anywhere, no-how, contrariwise!"

While no doubt it is desirable, wherever possible, to grow Roses in good rich loam, I am quite convinced that the Teas in general, and Mme. Lambard in particular, are far less affected by the consistency of the soil than by the supply of manure. Mme. Lambard will grow and flower freely in any soil or situation in which Roses may be grown at all, but my experience does not tend to support Mr. Page-Roberts' theory that the flowers come thin *because* the soil is light. I have grown the Rose on very strong clay, and there the tendency to run to wood and leaf complained of by Mr. Mawley was conspicuously apparent; but the flowers have always been as thin and undersized as any in the garden, more so than those on plants growing in what is literally nothing but sharp sand; and Captain Christy expressly states that growing it in poor light soil and also in good loam, he has found it to do well in both. Mr. Cocker lays stress on the supply of manure, and Mr. J. A. Williams, I believe, gives the soundest advice in recommending that Mme. Lambard be fed well, and be always top-dressed. Owing to the too great rapidity with which the flowers open in the sun, a situation considerably sheltered from its rays would seem likely to afford the best chance of obtaining fine flowers, and, consequently, it is a little surprising to find that the Dean of Rochester gives a south wall as the situation on which he would prefer to grow Mme. Lambard—a choice in which he is followed by several other growers. In the hope of preventing the too rapid and premature expansion of the flowers, complained of by Mr. Lindsell, I have even gone so far this autumn as to plant Mme. Lambard on a north wall, having found the other aspect mentioned by the Dean of Rochester, namely, east, to be too hot in an ordinary season, although probably the best that could be selected in a season like that of 1888. The question of aspect, however, is only of importance where exceptionally fine flowers are required, since as a garden Rose Mme. Lambard will grow, as has been said above, practically anywhere.

The question of pruning is probably a far more important factor in obtaining fine blooms of this Rose than either soil or situation, and on this point there is a direct conflict of opinion—a very unequal conflict as far as numbers go, the proportion being something like six to one.

Nevertheless, my own experience leads me without hesitation to join the minority. Nearly all the contributors to the discussion say that they would prune hard to obtain fine blooms, yet it does not appear that by this means they attain their end, for they almost without exception refer to the flowers as generally "uncertain," "lacking in size," "disappointing," "unreliable," or in some such doubtful terms. On the other hand, Mr. Page-Roberts says boldly, "severe pruning does not suit it, either for extra fine flowers or garden decoration," and Mr. J. A. Williams expresses a similar opinion, which I firmly believe to be the correct one. Mr. Mawley tells us that he has always pruned his plants pretty hard, but without obtaining particularly good flowers, and this has been exactly my own experience. Finding that hard pruning answered so well with the majority of the Teas, I continued for several years to prune Mme. Lambard severely, thinking that the indifferent flowers were probably the result of some accident of the season. At last, however, I got tired of growing magnificent plants that alone of all my Teas never gave me a creditable flower, and I began to prune them less, with the result that the flowers improved, though, of course, the hot seasons of 1886 and 1887 were much against so thin a Rose. Last spring I cut half the plants hard back, as formerly, and left the rest entirely unpruned, with the result that from the unpruned plants I obtained the best blooms that I have ever grown of the variety. Of course I shall be told it was the season, but I do not think that would be sufficient to account for the fact that the flowers on the severely pruned plants were as indifferent and undersized as ever, although the plants were splendid. At any rate, my own conviction that hard pruning is not a certain means of securing exceptionally fine flowers is such that I intend this year to leave all my plants of Mme. Lambard entirely unpruned and await the result, following Mr. J. A. Williams' plan of manuring heavily and mulching during the summer.

The evidence in Mme. Lambard's favour as a pot Rose seems to indicate that it makes an excellent plant and blooms most freely under glass, but that when forced the colour of the flowers is liable to be unsatisfactory, as is the case with all Teas that contain two or more distinct shades, such as Mme. de Watteville and others in addition to the variety in question. The two colours in the flower are not distinct and clear as when grown out of doors, but, as it were, run together, which gives the bloom a very muddled, not to say muddy appearance.

This, of course, would be against its value in the cut-flower market, although it is interesting to note that Messrs. Cocker, of Aberdeen, record a great and growing demand for cut blooms of the variety. Nevertheless, it is probable that the chief value of Mme. Lambard to the grower for market will prove to be as a hardy Tea that may be profitably grown in the open ground for the supply of beautifully coloured buds and blossoms late in the season, when Roses good enough for bouquet-work are more scarce than at almost any other time of the year.

It is to be hoped that contributors and Rose growers generally may be able to note the behaviour of their plants in reference to the way in which they are pruned during the coming season, with a view to seeing what prospect there may be of establishing the system of pruning by which the best results may be obtained from the beautiful Mme. Lambard.

Bending down the shoots of Roses.—I have for several years practised successfully the plan of bending down long and strong shoots of

Roses for the purpose of inducing them to flower more freely. In the majority of cases the plan answers admirably. My first attempt in this direction was with a vigorous plant of Climbing Devonensis, which if left alone would only have flowered at the points of the shoots, but by bringing down the ends to a horizontal direction a fair proportion of the lower buds break, and if once they start into growth they are sure to flower. There is a great difference in the behaviour of some Roses with regard to their flowering all along the shoot. The Maréchal Niel, as a rule, will do so without any attention, but Gloire de Dijon does not, although it generally flowers so freely that most people are satisfied with it. In the case of a very vigorous plant, however, that has made long, strong growth, the number of blooms may be increased quite one-third by bending down these long shoots in a horizontal direction until the buds are started, when they may be taken up to their proper place. Some people cut back these long shoots for the purpose of making them flower lower down, but bending down is preferable. Reine Marie Henriette is another Rose that flowers chiefly on the points of the strongest shoots, especially late in the summer, but if the shoots are trained in the way suggested, there will be blossoms at nearly every bud along the shoot instead of a large bunch of them at the end.—J. C. C.

SELECTED ROSES.

MADAME GABRIEL LUIZET.

It is proposed to ask for the experience of readers of THE GARDEN and of Rose growers generally in the cultivation of Madame Gabriel Luizet (Liabaud, 1877), a very beautiful Rose, in dealing with which several somewhat perplexing points not infrequently arise.

The questions to which answers are requested having been slightly altered in one or two details, it is thought better to print them again at length, to save confusion and the trouble of referring back to the issue for the 2nd of February; they now stand as follows:—

1. What have you found to be the distinctive excellences of this Rose both as a plant and as a flower?
2. On the other hand, what do you find to be its defects?
3. As compared with others of its class, have you found it hardy, moderately hardy, or tender?
4. In what soil or situation have you grown it with most success?
5. What stock do you find suits it best, or does it do better on its own roots?
6. By means of what system of pruning have you succeeded in obtaining (1) exceptionally fine flowers, (2) the most effective general display in the garden?
7. Have you found it to grow well in pots, and may it be forced easily?
8. Have you observed any peculiarity of character in this Rose, or any alteration in character as an autumnal since it was first distributed?

It is hoped that the substitution in No. 8 for the former question may be the means of obtaining some valuable information as to the position as a Perpetual that is now occupied by Madame Gabriel Luizet.

Tea Roses.—The Tea Rose has been brought into very prominent notice in the pages of THE GARDEN, and at page 185 it is stated that this beautiful class of Roses is not perfectly hardy in the Vale of Taunton. In our Essex gardens we had considerable difficulty in growing the Tea Roses satisfactorily out of doors. I mentioned this to Mr. G. Paul, of the firm of Messrs. Paul and Sons, Cheshunt, and he advised planting them on raised beds, the sides of which are formed by a sloping bank of green turf. This was done and the result has been most satisfactory. We now have abundance of beautiful Roses in summer, and also quite late in the autumn, but, as "J. C. C." suggests, we cannot protect them from east winds in March and April in that way, but I fancy the plants do not suffer so much on the raised beds as they do on the flat ones. The only way, however, to have a supply of our

favourites in spring and early summer is to grow them in pots. I cut a number of very beautiful buds and half-opened flowers on February 14 this year. We will from two dozen plants continue to cut Roses up to the time they come in out of doors. Their culture is very simple, but they must not be neglected, more especially just as they have finished flowering. When the bloom is gone the plants are very often pushed aside, to make room for something else that is in flower, either on to a back stage away from light and air, or out of doors where they lose nearly all their leaves and require half the season to recover themselves. Tea Roses in pots are better if they are never placed out of doors, but if this is necessary, they ought not to go out until the end of May. When under glass the plants ought to be in a light, airy place, and be kept quite free from insect pests and mildew.—J. DOUGLAS.

ORCHIDS.

W. H. GOWER.

DENDROBIUM WARDIANUM.

THIS beautiful plant is now very fine in many gardens round London, but more especially in country gardens. The fogs in the metropolis this season have so destroyed its flowers, that very few good blooms opened in London before the last week in February, and these I saw with Mr. Cowley, gardener to Mr. Tautz, at Shepherd's Bush, where numerous examples may be seen heavily laden with large flowers measuring more than 4 inches across, and with Mr. Laing at Forest Hill the show of this species is superb. This plant flowered with myself for the first time in Europe in the month of March thirty years ago, and passed into the Ruckerian collection. It was figured in the *Botanical Magazine* in the same year as *Dendrobium Falconeri* var. *sepalis petalisque obtusaribus*. This abominable name drove the Orchid growers of that time nearly frantic, and deep were the vows made that so fine a plant should not be so designated. Some few years afterwards a plant from the same imported batch flowered with Dr. Ward, of Southampton; and another from the same importation, which afterwards flowered in Mr. Day's collection at Tottenham, was figured and dedicated to Dr. Ward, and thus was obtained a name for this—one of the most beautiful of all the Dendrobies. *D. Wardianum* remained a rare plant in gardens for a long time, but about fourteen years ago it was again imported, and this time from Burmah, by the Messrs. Low, of Clapton; and only a few days ago I noted a grand lot of this species just to hand from the same district in Messrs. Low's establishment. This form of the plant is a robust and free grower, flowering in abundance, the blooms in many instances being large and massive, one before me at the present time measuring nearly 5 inches across, the sepals and petals being stout, broad, and waxy white, broadly tipped with amethyst-purple; lip large, tipped with the same colour as the petals, with a broad blotch of soft yellow at the base, where there are two large eye-like spots of rich velvety maroon. This is now the most popular and showy plant, and certainly takes the lead of the Assam plant, which is much more slender in its growth, and, as a rule, produces smaller flowers, which, however, still maintain their reputation for brilliancy of colour. This species should be grown by everyone having a warm house, from which, however, it requires to be moved to a lower temperature when growth is completed. It should be fully exposed to the sun and kept dry, in order to ripen its growth, for it must be borne in mind that *D. Wardianum* flowers upon the one-year-old growth. Notwithstanding the strong habit

of the Burmese form of this plant, I have had several proofs that to compel the plant to grow erect is wrong, not that it does not produce fine bulbs, because in this respect I see no difference, but in flowering I observe that in every instance the plants when grown in baskets and their pseudo-bulbs allowed to hang down in a natural manner produce fully two-thirds more flowers than those plants with their stem tied up straight. This is a fact well deserving the attention of growers, whether it be those who grow for a display only at home, or those who grow for profit, whilst at the same time the plant when grown in a natural manner invariably produces the finest display. *D. Wardianum* does not appear to have been very successfully used by the hybridiser, one kind only, *D. micans*, being recorded as the result of a cross between it and *D. lituiflorum*. In the form named *crassinode Wardianum*, a supposed natural hybrid, said to be well attested, I am an utter unbeliever, that is if the flower given me from Mr. Tautz's collection is true. In this plant the growth more resembles the Assam form of *Wardianum*; the flower now before me does not show the slightest affinity with that of *crassinode*. In shape it is exactly like that of *Wardianum*; the sepals and petals and the lip are tipped with amethyst, the base of the lip is light yellow, and the same two maroon-purple blotches ornament the base of the lip. I cannot but think Mr. Tautz's plant is not true, but if it is, I should like to know from whence the inference is drawn that this is a hybrid between the two forms named, my opinion being that it is simply a poor form of *Wardianum*. If any grower has a flower which confirms the hybrid origin of the plant, and can spare it, I would be very thankful if he will send it to me.

SHORT NOTES.—ORCHIDS.

Burlingtonia fragrans is an old Brazilian species, which is remarkable for the powerful odour of its white flowers, which are stained on the lip with yellow. The perfume resembles that of the White Thorn.

Cymbidium eburneum.—This beautiful large-flowered species still retains its position as the finest of all the white-flowered section, and since the more sensible treatment of keeping it cool it has flowered very freely, and in such condition I recently noted it in Mr. Laing's nursery at Forest Hill.—W.

Miltonia spectabilis Moreliana is a well-known Brazilian Orchid. The sepals and petals are intense deep purple, the very large broadly obovate lip being rich deep rose. It is an extremely beautiful plant, and easily cultivated with ordinary stove plants. A coloured plate of this variety was given in THE GARDEN, April 23, 1887 (p. 374).

Odontoglossum Cervantesi Morada.—Amongst numerous examples of this beautiful plant now flowering in Mr. Tautz's garden at Shepherd's Bush this variety is conspicuous, the whole flower being of a rose colour instead of white, otherwise the markings are similar to those of the type. It is a beautiful variety, and is a worthy companion to *O. Rossi majus* and other cool house plants.

Cymbidium Lowianum.—A bold and handsome Orchid, which is grown well in Mr. James's nursery at West Norwood under quite cool treatment. Large plants are flowering well, and many plants of Messrs. Low's last importation have grown well and are also pushing up spikes. It produces enormous racemes of showy flowers which continue for many months in full beauty.

Dendrobium nobile.—Very fine forms of this plant are now flowering in the Devonshire House collection at Stamford Hill. I believe these are from recently imported plants, and the intense rich colour of some varieties proves that there are many superb forms yet to come from fresh localities. This old species still stands high in public estimation, and I doubt if any other species could be named in this large genus which is so generally useful.—H.

WAKEHURST PLACE.

DURING the time of Queen Elizabeth Sussex became fairly studded with manorial residences, many of which remain to this day as beautiful and substantial as ever, though hoary and grey with age. Such a house is Wakehurst, the residence of the Dowager Marchioness of Downshire. It was formerly the seat of a family of the name of Wakehurst, passing from them into the hands of the Culpepers, by one of whom the present house was erected in 1590. Each age has its distinguishing characteristics, especially in architecture. The prominent features of Elizabethan erections in Sussex are picturesqueness of outline, many-gabled ends, and general irregularity of form. The materials used were always the best, the natural sandstone for the walls and the thinner layers upon the roof composing the buildings. The walls and roof are covered over with the growth of many Lichens, yet as storm-resisting, element-defying erections, they are quite fresh and substantial, and will probably outlast the harsh-looking red brick and tile mansions which are springing up upon the fair Sussex landscapes.

Wakehurst is in the Hayward's Heath district, and situated upon a sandstone ridge of exceptional beauty. The whole country round is one vast series of hill and dale, meadow and wood, stream and river. The scenery very much resembles that around Tunbridge Wells, and the comparison is a true one, for here, as there, occasionally huge masses of sandstone rock emerge from the ground and rise up like walls or lie scattered in large masses. Everything tends to show that the whole of this district was at one time a great expanse of forest. The flat hill crests have been partly cleared, the houses erected and surrounded with many acres of greensward, which is diversified to such an extent that in some parts level ground is a thing unattainable. At Wakehurst the park falls away into deep masses of wood, principally of Oak. Along the sides of the wooded vales, the rocks, overshadowed by hanging masses of trees and always kept moist by the trickling water oozing from countless little springs, are draped with *Hymenophyllum tunbridgense*. Safe from the hands of the ruthless Fern collector grows this transparent and most elegant gem of British plant life, while on the sandy surface of the ground large masses of *Blechnum* are conspicuous. From the house, which stands in an open, airy situation facing south, a fine view across the park is obtained.

The engraving is from a view taken in the pleasure grounds on the offside of a small piece of water, in which *Typha latifolia* luxuriates. This oblique view conveys the impression that the beautiful specimen of *Cupressus macrocarpa* and other masses of shrubs interrupt the foreground scene from the house, but in reality they do not, for, as before said, the front view is due south and extends across the park. There are a few creepers on the house, but the softness of these old walls harmonises so well with the surrounding vegetation that they need no screen, and, moreover, it would be a pity to effectually conceal their lichened beauty. A beautiful *Garrya elliptica* clusters against one of the windows, while a *Myrtle* nestles beneath another. A *Wistaria*, *Escallonia*, *Banksian Rose*, and an *Ivy* (*Rægneriana*) conclude the list of things upon the front wall. There is more *Ivy* on the walls of the carriage front, whilst the porch itself is wreathed in a cluster *Rose*. To the east of the lawn are masses of trees and shrubs, with a quiet walk between. This walk is bordered with *Grass verges*, and on these are

now flourishing young specimens of the best and choicer kinds of coniferous trees. *Ivy* is used for clothing the stems of dead trees, and surely there is no better way of utilising some of our best *Ivies*, provided it is done in moderation.

Occasionally surprise nooks occur between the trees. One noted had a centre arbour of Hops and some simple beds filled with annuals, such as *Love-in-a-mist* and *Godetias*. Another surprise is a border in which the old and beautiful plants, unknown to many modern gardens, find a home, and which, whilst giving little trouble, as each season comes round spring up and flower.

surface is lost, and choice Pears predominate. Pears do remarkably well, and among the best are *Doyenné du Comice*, *Marie Louise*, and *Louise Bonne of Jersey*.

The glass erections are not numerous, but sufficient to supply the needs of the place. Grapes and Peaches are well grown, one viney being especially noteworthy. It contained *Black Hamburg* in one half and *Madresfield Court* in the other. The *Madresfield Court* Vines had an enormous crop of fair-sized, nicely finished bunches without cracked berries. The border is an outside one and the treatment the same as for the *Hamburgs*. Late Grapes were



Wakehurst Place, Sussex. Engraved for THE GARDEN from a photograph by Messrs. W. and S. Fry, Brighton.

Upon a wall near this border *Jasmine*, *Ceanothus*, *Pyrus*, and the Sweet *Verbena* display their charms, the *Jasmine* being a special favourite, and deservedly so. *Choisya ternata* is splendid on one of the walls, against which it clusters. Its growth is not restricted and it flowers freely in spring and in autumn when the season is favourable. There was a fine lot of rooted cuttings of this desirable shrub under a handlight in the open border of the kitchen garden. Another and almost general accompaniment of these old residences is a good, well-walled-in kitchen garden. That at Wakehurst is no exception. Not an inch of space upon its

well finished, and chiefly comprised *Lady Downe's* and *Black Alicante*. In a stove filled with useful decorative plants *Cypripedium insignis* and *Cœlogyne cristata* were represented by large pieces grown chiefly for cut flowers. On the rafter of the greenhouse was a *Maréchal Niel*, which, planted out in 1887, made a shoot 29 feet long. This shoot was only shortened by 6 feet, and in 1888 the laterals put forth flowered so freely, that as many as five dozen blooms were cut at one time. It is worked on the *Brier*, but own-root *Maréchal*s are also being tried. *Violets* are well grown in frames, the kinds found most suitable being *Marie Louise*, *Neapolitan*, and

Swanley White. In the cool conservatory the old *Vallota purpurea* was flowering freely.

A. H.

STOVE AND GREENHOUSE.

SCHUBERTIAS.

THOUGH these plants were introduced more than half a century ago, they are seldom met with. The genus is a very limited one, only two species being in cultivation—*S. grandiflora* and *S. graveolens*. Both come from Brazil; consequently, they require stove heat to grow them. Schubertias may be grown in the form of a bush, or as climbers trained to a pillar or rafter, for which latter purpose their natural twining habit renders them suitable, and in which they are most advantageously seen. The leaves are opposite, the flowers being produced in umbels, and they are fleshy in texture. Those of *S. grandiflora* are white, whilst in *S. graveolens* they are pale yellow or creamy white. The time of flowering varies according to the manner the plants are treated in the matter of heat. In a warm stove, where enough heat is kept up through the early months of the year to start them into growth early, the flowers usually appear in the latter part of summer. Where less heat is used they come in during autumn, at which time in most cases they will be found the most useful, as flowers are less plentiful than earlier in the season. Both the species are less rampant in their growth than the majority of stove climbers. In small or medium-sized structures, it is a common occurrence to meet with such plants as *Allamandas*, *Passifloras*, *Thunbergias* and *Bougainvilleas*, that naturally require a good deal of room; whereas, if kinds that require less room, like *Combretum purpureum*, *Clerodendron splendens*, *Ipomœa Horsfalliæ*, some of the *Hoyas*, or the Schubertias under notice, were used, they could easily be kept within the space allotted.

Schubertias are easily struck from cuttings, but with them, as with many other plants that have an abundance of milk-like sap, some discrimination is required in the selection of the cuttings. Those that are the most certain of rooting readily consist of young shoots that have been produced from eyes immediately below where a branch has been cut back. If these, when from 4 inches to 6 inches long, are taken off with a heel, they rarely fail to strike. Cuttings of this description can generally be had in spring, sooner or later according to the time the plants have been started into growth. As in the case of other stove species, it is an advantage to get the plants struck early, for it gives them a longer time in which to gain strength. The cuttings should be put singly in small pots in sand. Stand them in a propagating frame or under propagating glasses with bottom heat, if this is available; if not, they will do without it. An ordinary stove temperature will suffice, say from 70° to 80°. Shade closely from the sun, and keep the sand quite moist. Treated in this way they ought to strike in about six weeks. As soon as they are fairly rooted expose them to the full air of the house, and when the pots are moderately filled with roots move the plants into others from 4 inches to 6 inches in diameter. The soil that answers best is brown peat of good quality with plenty of fibrous matter in it, sand being added in proportion to that which it contains. For the first potting the peat should be passed through a fine-meshed sieve, or broken small by the hand. Keep the plants in a similar temperature to that in which they were struck. Continue to shade with thin material when the

weather is bright during the summer. Stand where they will get a fair amount of light, and give air in similar quantity to that which answers for the generality of stove subjects, being guided by the state of the weather, but never admitting it in such a quantity as to dry the atmosphere too much. Whilst the plants are small they should be stood on a moist bottom, under which condition they will make much more progress than if on dry shelves or stages. In all cases shut the air off early in the afternoons, so as to run the temperature up high, and syringe overhead at the same time; the accumulation of sun heat obtained by thus closing the house early, combined with the humid atmosphere, produces more growth during the time that intervenes before darkness comes on than is made during the rest of the twenty-four hours.

When the plants have made 8 inches or 10 inches of growth, pinch out the points of the shoots, for it is better that they should consist of several branches than be confined to a single stem. About July give pots 2 inches larger; use soil of a similar description to that in which the plants were first placed, but not broken quite so fine. As the autumn comes on cease shading, admit more air, and use less atmospheric moisture, by which means the growth will be discouraged and the wood will attain its wonted solidity. During the winter a temperature such as is usually kept up for stove plants that require medium heat will suffice. If in February a few degrees more heat is given, it will help them to get an early start, and in this way time will be saved, as the object is to get them up to a size large enough to fill the space they are to occupy without delay, and by securing an early start they will make proportionately more progress before autumn. But where stove plants are pushed on in heat early in the manner advised, it is necessary that the house in which they are grown should be so constructed as to admit all the light that is available, and that they be kept well up to the glass, otherwise the growth will be weak. Where the stove happens to be deficient in light, from whatever cause, it is better not to start the plants until March.

As soon as the roots and the top growth are fairly in motion, move the plants to pots 3 inches or 4 inches larger, according to the size they have already attained and the condition of their roots. Now use the soil in a little more lumpy state than before, being careful to see that the peat is of a lasting character, for the plants under notice should not be shaken out nor have the soil taken away, so as to interfere with their roots, for years, being treated in this respect much in the way that *Stephanotis* usually is. The plants should now be placed so that their shoots can be trained in the space they are to occupy. Though they may be planted out in a bed or border, pot culture is better adapted for them. The treatment in respect to air, water and shade will require to be similar to that which was recommended for the previous season. If all goes well, the plants will flower nicely during the summer, after which the shoots may be shortened more or less according to the space they have to fill. Treat through the winter as before. Early in spring, give pots a size or two larger; when the roots have got well hold of the new soil, manure water may be given once a week. This season they may be expected to flower well. The management required afterwards is of a routine nature, such as already advised. A little more root room may be given as it seems necessary, but much may be done to keep up the

requisite vigour by manure water alone, or by surface dressings of concentrated manure that gets washed down to the roots in watering. Sometimes the plants are discarded after flowering once or twice, young stock being grown on to take their place.

When these Schubertias are required to be grown in the form of a bush, it is necessary to resort to frequent stopping during the early stages of growth, and to secure the shoots to sticks inserted in the soil. In this way they will flower nicely, but are not seen to such advantage as when trained as climbers. T. B.

CHOROZEMAS.

THESE plants, I hope, will again come into favour as greenhouse ornaments, and I, for one, shall be extremely glad to welcome them; but I think "H. P.," in *THE GARDEN*, Feb. 2 (p. 95), has fallen into some error in his remarks upon these New Holland beauties. I do not object by any means to his praise of these plants, as he has by no means over-rated their merits, for they are exceedingly beautiful and cheerful in the greenhouse at the present time, while their flowers are well adapted for cutting, their elegant sprays enlivening other things in a glass or vase upon the table. These sprays can in most instances be cut full length without injury to the plants. I object to "H. P." describing *C. Henschmanni* as a plant with deep green Holly-like leaves. This species always was the rarest of the genus, and I have not seen it now for several years, but I always found it to require more care and attention than any other kind, and, moreover, it was the only *Chorozema* that gave me trouble with mildew through the dull days of winter. Nevertheless, I used to have in the old times some handsome specimens of this species, and the *C. Henschmanni* of those days used to be a plant with alternate, entire, needle-shaped, or very narrow leaves, more or less downy, which gave the plant a somewhat hoary appearance. This certainly does not correspond with the description of the plant given by "H. P." but perhaps he has confounded some other plant with it, or perhaps in the new arrangement of Australian plants it has been re-christened; but if it has, I shall always continue to call my old pet by the name under which I knew it so well and for so long a time. I find that "H. P." maintains the popular idea that peat only should be used for growing *Chorozemas*, but I can assure him and others of my readers that some of the finest plants which have ever been grown in this country had fully one-fourth of fibrous light loam mixed with the peat. I recently noted several kinds of *Chorozemas* flowering with Mr. Laing at Forest Hill, and also with Mr. Williams at Hollo-way. W. H. G.

***Clematis indivisa lobata*.**—I do not think half our gardening friends are aware what a beautiful cool greenhouse climber we have in *Clematis indivisa lobata*. Having received a pressing invitation, I called upon the gardener at Norwood Park, the beautiful residence of Mr. L. R. Starkey, to see his splendid plant of the above in full flower. The plant is only three years old with shoots 5 feet long, and covered from end to end with sprays of beautiful starry flowers. On several sprays I counted twenty-four blooms. I consider this plant one of the best of our greenhouse climbers, for at this time of the year I never have seen a more beautiful sight. I have also seen it used with good effect for decoration, the plant having been grown in a 6-inch pot, and the shoots twisted round stakes or wires. Great care must be taken to have the wood thoroughly ripened. For cut flowers it is invaluable, as it can be used to great advantage where a light spray of white flowers is required. HENRY MERRYWEATHER, *The Nurseries, Southwell*.

Few know the beauties of this New Zealand climber, or we should more frequently find it in our gardens. A large plant in a pot, covering a large part of the roof of a greenhouse in Mr. Laing's nursery, is now bearing

thousands of its pure white starry flowers. It continues in full beauty for a great length of time. Even plants in small pots are covered with flowers. This plant would thrive well in an amateur's unheated house, and to such I would strongly recommend it.—W. H. G.

THE AMARYLLIS.

I DO not know any reason why "Gantois" should have dragged my name into his article on Amaryllis. The information I have always furnished to these pages and to the *Gardeners' Chronicle*, from which he quotes, has been founded on practical experience, and the result of my work can be seen in the garden where I have held the office of chief for upwards of a quarter of a century. I have also exhibited my plants at the London exhibitions against those of all comers, and I fancy the plants grown by me have not often been beaten in competition; nor do I ever write under a *nom de plume* or hide my light under a bushel. I tell the gardening community exactly what I do and how I do it. Referring to the quotation from the *Gardeners' Chronicle*, I may say that I use freshly slaked lime to rub on the parts that have been injured or from which any decayed portions have been removed. The tobacco powder is used to dust the crowns of any bulbs that may be supposed to be infested with thrips or a species of mealy bug that sometimes lodges upon them. If the bulbs are perfectly sound and free from insect pests this would not be required. "Gantois" cannot have any practical knowledge of the subject, or at least his experience cannot have extended over a long series of years, or he would know that no large collection contains only sound healthy bulbs if it is composed of named varieties propagated through a long series of years.

As to the remarks about potting, your correspondent is certainly in error. The bulbs in Messrs. Veitch's nursery are repotted every year in January, exactly as I recommended, and if any bulbs amongst them were partly decayed they would also be treated as I have stated. I can vouch for the correctness of this, as I frequently consult with Mr. Heal, Messrs. Veitch's foreman over this department, and he is not above consulting with me.

The remark about copious waterings before the flowers open is a rash statement to make. Mr. Heal and I are quite agreed on that point. To apply water copiously to the roots at that time would carry ruin and disaster in all directions. All our bulbs were repotted the first week in January, and although I do not know it as a fact, I venture to say that the whole of Messrs. Veitch's collection was repotted two weeks later. They always pot their bulbs ten days or a fortnight later than I do, and I can say that some of our bulbs have not been watered at all, and none of them more than twice. I have gone to Chelsea in March, and Mr. Heal has told me that not a bulb had been watered up to that time. I can also inform "Gantois" that they can be forced into flower in a high temperature and with perfect success, but I do not care to do it; 55° to 60° at night is much better for the plants than 65° to 70°. During the present cold weather the bulbs have been in a house kept about 50° at night, and I expect a few of the flowers to be open about the middle of March. I want to get a few good ones by March 20, and I will have to raise the temperature to 55° as a minimum on cold nights and 60° when the nights are warmer. I may say further that I know of one large grower who tried to grow his bulbs on the system of biennial repotting, but found when too late that he had committed a grave error. The manner in which the bulbs are grown in the summer does not admit of their being repotted biennially; nearly all the best roots are produced over the rims of the pots, and what to do with those roots if the bulbs were not repotted is quite beyond my comprehension. J. DOUGLAS.

Solanum jasminoides.—Some reference has recently been made to this plant in THE GARDEN, but I do not remember seeing any mention of its behaviour in the open air in South Devon. On

several occasions and in different gardens I have seen it thriving and flowering in the most satisfactory manner upon open walls in a south aspect; notably so in one garden at Dawlish, and the further west one goes the more vigorously it grows. As might be expected, when the climate is favourable the growth is much stronger, and the individual blossoms larger in the open air than under glass. As this plant is not very particular about soil if only the climate be sufficiently warm, I believe it may be grown in sheltered positions in many gardens along the south coast. Seeing that it often reaches a height of 10 feet to 12 feet in Devonshire, I see no reason why it should not reach at least half that height in other favourable localities. I do not think it would thrive in the open air near London or in the midland counties.—J. C. C.

Boronia tetrandra.—This fine old New Holland plant, seldom seen in our gardens, is now in great beauty in Mr. James's nursery at West Norwood. The large flowers, produced from the axils of the leaves, are of a delicate soft pink, whilst the pinnate leaves are deep green. Many other fine old-fashioned plants will soon be flowering in this establishment, which is noted for the forgotten beauties of a bygone age.—W. H. G.

Begonia Scharffiana.—This is a fine plant which I recently noted in Mr. Laing's nursery at Forest Hill. It is a robust, yet neat grower, the leaves being almost pilose on the upper side and pale green, whilst beneath they are of an intense deep red; the scape is erect, and bears a large truss of beautiful pure white flowers. It is an imported plant, and one of a set that a few years ago largely enlivened our plant houses in winter; now, however, they are gone, and we have nothing to replace them.—W. H. G.

Boronia megastigma.—Large quantities of this plant are now flowering in Mr. Laing's nursery at Forest Hill. The plants are very much branched, and form neat little bushes. Many might imagine this was a matter of growth entirely, but I was assured by Mr. Laing that such was not the case, but that this fine compact form has been obtained by selection, and as the plant originally distributed by the Messrs. Rollisson was raised from seed, it would seem to be very feasible. There does now appear to be a chance of obtaining good specimens of this deliciously fragrant plant, which should be grown in quantity, so that a spray might accompany every bunch of flowers arranged on the table.—W. H. G.

A charming arrangement.—In a stove house in Mr. Darnell's garden at Devonshire House, Stamford Hill, I recently noted a combination of plants which produced an elegant effect worthy of note, and that is now-a-days far too seldom seen. The plants were not large, but just nicely suited to the size of the house in which they stood. For greenery, there were various Kentias of the Fosteriana and Canterburyana type, the latter, I believe, called the Umbrella Palm by its discoverer, Mr. C. Moore, director of the Sydney Gardens. Other plants used were Cocos Weddelliana, Geonoma gracilis, Davallia pallida (better known perhaps by the name of D. Mooreana), Dicksonia squarrosa, Cyathea Smithii, and C. dealbata; these three last being New Zealand Tree Ferns, however, the temperature, as the season advances, will be found too high, I fear. With the above plants are arranged various highly coloured Crotons, dark-leaved Dracenas, and a beautiful example of the charming Dracena Lindenii; its leaves are recurved and broadly banded with creamy yellow; Heliconia aurea striata, its green Musa-like leaves profusely streaked with golden yellow; various Anthuriums and Alocasias. Among the Alocasias, A. Thibautiana, metallica, and crystallina were conspicuous, and through and amongst these are arranged nice examples of Adiantums, Aspleniums, and Lomarias. In hanging baskets were numerous specimens of the Gold and Silver Ferns. This system of hanging them near the glass during the winter months is by far the best method of bringing these tender

plants through the dull weather. The colours are nicely arranged and diversified, so that the house has a specially gay appearance.—W. H. G.

LILIUM LONGIFLORUM HARRISI.

VERY few plants have given rise to so much controversy within the last few years as this Liliium. When attention was first directed towards it by our American friends it was regarded by some as the same as Wilsoni or eximium, but it is now, I think, generally acknowledged that it is distinct. The bulbs imported from America are best, for as grown in this country they are not so amenable to early forcing as the American ones are. The reason of this is not far to seek, for the first importations reach this country while the leaves of our plants are fresh and green, that is to say, about the end of August. The first time this Lily was exhibited in England was in June, 1883, a fine spike bearing five flowers having been shown by Mr. G. F. Wilson, who succeeds so well with the various members of the Lily family. The plant in question was exhibited under the name of the Bermuda Lily, large numbers of bulbs being grown in that island, and for a season or two most of the imported bulbs came from there, but now nearly all are sent by nurserymen of the United States. This variety of L. longiflorum differs from all the others in the readiness with which it can be forced, in the number of secondary stems which are pushed up after flowering, and in the rapidity with which it can be propagated by means of scales. The flowers are especially valuable during the spring, and in order to have it in bloom at the present time the bulbs should be potted as soon as received. The largest bulbs will require a pot 6 inches in diameter, but for all the others an inch less will suffice, that is, if they are to be limited to one bulb in a pot. If masses or clumps are required, several bulbs must be put together, and a corresponding increase allowed in the pots. The soil should consist principally of good loam with an admixture of leaf-mould, well-decayed manure, and sand. The pot should be well drained, and sufficient space left for a liberal top-dressing when the growing shoots are sufficiently advanced. After potting, care should be taken that the bulbs are not over-watered, especially at first, as the roots have not then begun to push forth, and an excess of moisture at that time might prove injurious. An ordinary garden frame is a very good place for them after potting, as they are protected from the heavy rains often experienced about that time, and in this way they will not be excited by any heat, as, like all other bulbs, forcing must not be attempted till the roots are in active operation. With a mat or two to protect from severe frosts, these Lilies may be left in the frame till December, at which time most of them will have commenced to push up their flower-spikes; then a good place for them is in a light situation in the greenhouse, from whence after Christmas those that are required to bloom the earliest may be moved into a structure the temperature of which ranges from 50° to 65°. They quickly grow in this heat, and it is essential that a light spot be assigned them, as if at all shaded they run up far more rapidly, and are also greatly weakened thereby. Occasional doses of liquid manure are of great service, as the pots get full of roots, the leaves being richer in colour and the blooms more massive where assisted by some stimulant. It is important to see that the plants are not attacked by aphides, for these insects increase rapidly on the soft foliage and flower-buds of this Lily, and in a few days will so cripple the flowers that they will not open

properly. Either immersion in tobacco water or fumigating may be employed, this last being preferable, as the leaves, though so very soft, are not injured by the smoke, while in dipping the foliage is apt to be bruised. If the plants are just protected by mats in a cold frame and removed to an airy greenhouse when too tall for the frame, they will not flower till June, or even later, so that it is easy to spread the flowering season over a lengthened period; indeed, it is possible to have flowers of this Lily for the greater part of the year, as those that bloom in June push up secondary stems, the most forward of which flower again in about a couple of months, while in some of the later ones the blossoms do not expand till October and November, thus contesting the right of *L. neilgherrense* to be regarded as the latest flowering of all the Lilies. H. P.

WORK IN PLANT HOUSES.

STOVE.—BOUVARDIAS.—Cuttings that were put in some weeks ago will by this time be well rooted, and should be at once potted off. A mixture of sifted loam, with some leaf mould, rotten manure, and sand is the best soil for them. Let the plants have a similar temperature to that in which the cuttings were struck, with a moderately moist atmosphere. It is a mistake to give newly-struck stock of any kind cool treatment at this time of the year. No time must be lost in pushing Bouvardias on, so that they may have a good start early in the season, as without this they will be too small at the end of the growing season to flower properly. As soon as about two joints of growth have been made pinch out the points of the shoots. It is necessary to attend to this early so as to get the plants sufficiently furnished at the bottom. Another reason for early stopping is that the earlier in the season the requisite number of shoots are secured the better, so that there may be no need for stopping later on in summer, as when this is done the branches that are intended to flower are deficient in size and strength. Much better results are obtainable from a limited number of strong branches than a quantity of weak ones. Any old plants that were cut in recently, and that have not yet been repotted, should be attended to before the young shoots since made have got too far advanced. As much of the old soil will have to be shaken away, the destruction of the roots consequent on this would interfere with the growth if the repotting was long deferred. Eight-inch or 10-inch pots will not be too large for one-year-old plants, provided they are strong and well rooted, unless for any that are to be planted out in pits, or frames during the summer. In the case of these much smaller pots will do, as the plants will not have to remain more than six or eight weeks in them.

GARDENIAS.—Where it is necessary to increase the stock of Gardenias no time should be lost in getting the propagation completed, so that the plants may have time to gain size and strength before autumn. When the plants from which cuttings are to be taken have been kept through the winter in stove heat, the wood will be in better condition for striking than where they have been subjected to cooler treatment, as the sap will be moving freely. When in this state good sized pieces of the branches with several shoots attached may be put in, as the mature wood will root readily and in a way that comparatively few things would do. Cuttings of this description should be put separately in 3-inch or 4-inch pots according to their size. The pots may be half filled with a mixture of peat and sand, or loam and sand. In a temperature of from 70° to 80° they will strike in a few weeks, after which push them on in a brisk stove heat, giving additional root-room as it is needed. Little stopping is required, as the plants if stood where they get enough light seldom fail to branch out freely. When kept warm and liberally treated they will fill 12-inch or 13-inch pots before autumn, forming dense bushes over 2 feet in diameter. *G. intermedia* is the best sort

to grow. Where the stock is infested with mealy bug, the insect gives more trouble than it does on most things, the peculiar sheath-like coverings of the branches affording secure hiding places under which the bugs shelter. An effort should be made to get rid of the pest before the hot summer weather comes.

SOLANUMS.—Where young plants of the berry-bearing varieties of Solanum were struck at the beginning of the year they should now have additional root-room given as is required. Rich soil, consisting of turfy loam, rotten manure, leaf-mould, and sand, is the best material to grow them in. Give them enough heat to keep the growth moving freely, for on their getting a good start early in the season depends their flowering soon enough to allow the berries time to gain their colour before the end of summer. These Solanums are the most useful where large numbers of plants are required for conservatory or hall decoration, when, as usually happens, the plants have to be crowded together in dark positions, and where it is a pity to sacrifice things of more value and that take longer to grow to a serviceable size. It is a good plan to strike a second set of cuttings that will ripen their berries later; they will come in to succeed the earliest. Old plants that, after supplying cuttings, were cut back will now have started into fresh growth. They should be partially shaken out and put in pots 1 inch larger than those they have been in. If kept in a little warmth they will grow apace, and be in flower by the end of April, so that their berries will be coloured before the close of summer.

PANDANUS VEITCHI.—This kind is more in demand for room decoration than the other varieties. When the plants have been properly prepared for keeping in cool quarters, they will bear standing in an ordinary sitting-room through the summer without showing any ill effects, provided they are not too near an open window. This is a good time to take off suckers, as the growth will not yet have made much progress; consequently the check of removal from the old stool will not be felt so much. Choose only those suckers that have their leaves sufficiently coloured; those that are now too green will, in most cases, remain in this condition when they get larger. The suckers do best when treated similarly to those of Pines; in a bottom-heat of 80° or 85° they will soon make roots. When the pots they are struck in have got full of roots, the plants should be moved into others a size or two larger, but it is well not to give larger pots than necessary. Plants that were struck last spring, and that are to have a shift, should be moved now. During the spring, if there happens to be a shelf over a path in the stove, it will be a good place for them, or the pots may be hung by wires to the rafters, so that the heads will be close to the glass. When grown in this way the leaves are stouter and shorter, and the plants are able to bear keeping cooler when they are used later on. The middle of May is early enough to remove them to a room. After this time they will keep in good condition until the end of September.

CALADIUMS.—It is now time to start Caladiums that have been at rest in cooler quarters through the winter. The tubers should be put in pots proportionate in size, so that they may have enough soil to support the roots through the summer months, as it is better not to give another shift. For ordinary decorations, small or medium-sized plants are the most useful. Stock of this description can easily be kept up by annually taking off suckers from large or medium-sized examples when they have made 6 inches or 8 inches of growth. Suckers of this size will usually have pushed a few roots or be about forming roots. Put them singly in 4-inch or 5-inch pots—these will be large enough for the strong-growing varieties. If kept moderately close and as warm as usual for cuttings, they will get established in a few weeks. Shade from the sun, as it is desirable that the partially developed leaves should not be injured. In all cases Caladiums should be grown near the glass, and with no more shade than is necessary to keep their leaves from

being injured by the sun. Where this course is not followed the plants get drawn, with the leaves so wanting in texture that if they are moved out of the stove for even a short time, they flag in a way that makes them useless. A good stock of the small *C. argyrites* should be grown by everyone who has a stove. It is one of the best of plants for cutting, the leaves being effective when used in any of the various arrangements of cut flowers, provided the plants are treated in a manner that will enable the leaves to keep fresh for a reasonable time. This distinct kind appears to do with less heat than most of the others, and it is not advisable to give it more than is requisite, as, in common with other things, if grown warmer than necessary, the leaves are less enduring.

ROSES.—Tea Roses that have had sufficient heat since autumn to keep them flowering will now be getting somewhat exhausted. To do justice to them they should be put in a house or pit and have no more heat than will prevent their being chilled in the frosty nights that may yet be looked for. The plants will have many leaves on them that are soft and tender and not in a condition to bear hard treatment, such as being exposed to currents of cold air, on which account the side lights or side shutters should not be opened for some time. When the weather is warm the ventilators in the roof should be opened. These will let out the superabundant sun-heat and let in as much air as the plants will require. Water should be given regularly as needed, and a look-out must be kept for mildew and aphides as well as red spider. A daily use of the syringe, applying it carefully so as to get the water to the undersides of the leaves, will help to keep down the last-named insect as well as aphides, but should these be troublesome, fumigate or syringe with tobacco water. On the detection of the least mildew, flowers of sulphur must be applied at once. On the plants being well cared for now when they have flowered depends the work they will be able to do next autumn and winter. If well treated, they will not only regain the strength that has been expended in blooming, but they will become still more vigorous and increase in size, so that when autumn comes round they will be in a condition to do even better than hitherto. Plants that were put in to force later, and that have produced more or less flowers, should have their strength maintained by frequent applications of liquid manure. The mistake that is commonly made by those who have not had much to do with forcing the Tea varieties of Roses is that they neither use enough stimulants nor begin to apply them soon enough after the plants are in heat. The number of successional flowers that are produced depends on the strength of the young wood that is formed after the plants are started, as if it is too weak at first to bloom, no amount of feeding afterwards will make good the defect. T. B.

Gesnera cardinalis.—This is, I believe, the correct name of the Gesnera better known as *G. macrantha*, which is certainly a very bright and telling plant for the stove or intermediate house at this season of the year. It is a tuberous species and starts into growth in the autumn. It flowers during the early spring months, and rests in the summer. This Gesnera forms a stout stem from 8 inches to 1 foot high, clothed with bright green leaves, and terminated by a cluster of tubular-shaped blossoms about 3 inches in length and of a rich vermilion colour. The leaves, stems, and blossoms are all thickly covered with hairs, which, in the case of the flowers, give to them quite a velvety appearance. The cultural requirements of this Gesnera are but simple, for, in the case of flowering plants, they only require to be watered when necessary, till the leaves show signs of the plant going to rest by turning yellow, when the supply of water must be gradually lessened, and when the stems die down the tubers should be kept almost dry. Then in the autumn the plants must be turned out of their old soil and repotted, using for the purpose an open compost, such as equal parts of loam and leaf-mould, with an admixture of sand and well decayed

manure. The tuber should be potted at such a depth that the upper part is about half-an-inch below the surface of the soil. When a considerable number of tubers are on hand, it is a very good plan to make two or three pottings at intervals of a fortnight or three weeks, as by this means the flowering season is spread over a longer period than would be the case if they were all potted at the same time.—T.

WHITE-FLOWERED GREENHOUSE RHODODENDRONS.

AMONG the large number of tender hybrid Rhododendrons now in our gardens (excluding the javanicum group) there are a great many with

couple of strong-growing varieties with very large highly fragrant blossoms are *Sesterianum* and *fragrantissimum*, both claiming as parents *R. Edgeworthi* and *R. formosum*. To get good specimens of these it is necessary that they be frequently stopped during their earlier stages, in order to ensure the foundation of a bushy plant. They may be also trained to the wall of a greenhouse or employed for covering a pillar, and under such conditions I have seen them in a very thriving state. The oldest hybrid of this class is *Princess Alice*, obtained by crossing *R. Edgeworthi* with the little bluish-coloured *R. ciliatum*. This is a very popular plant, and one that may

and *Lady Skelmersdale*. The *Moulmein R. Veitchi* (here figured) is a most beautiful species, somewhat straggling, it is true, when young, but as it grows up this drawback disappears. The leaves are thick in texture, bright glossy green on the upper surface and more or less glaucous beneath, but in this latter respect individuals vary considerably. There is also much difference in the blooms. In the best form they are of a pure waxy whiteness, with a lemon stain in the centre, while a conspicuous feature is the prettily crimped edges of the petals. There is a variety of this (*laevigatum*) in which the edges of the petals are quite smooth,



Rhododendron Veitchi.

blossoms either pure white or relieved by just a central blotch of a yellowish hue, nearly all of which have been obtained by the intercrossing of the Himalayan Rhododendrons—*ciliatum*, *Edgeworthi*, and *Gibsoni* or *formosum*, as well as the *Moulmein R. Veitchi*. One of these, *R. Edgeworthi*, is remarkable for the dense woolly tomentum with which the undersides of the leaves and the young shoots are covered, while, singularly enough, though this species is the parent of several hybrid varieties, none of them have this character to any great extent. *R. Edgeworthi* is rather straggling in habit, as also are some of the hybrid kinds, while others are more compact in growth. A

be grown into a handsome specimen. *R. Forsterianum* is the largest flowered of this class that I am acquainted with, the parents being *R. Edgeworthi* and *R. Veitchi*, two very handsome large-flowered species. There is another group of varieties raised between *R. Edgeworthi* and *multiflorum*, and characterised by a dwarfer habit of growth than most of the preceding, by freedom of flowering, and by their delicious fragrance. They are *Countess of Derby*, *Duchess of Sutherland*, *Countess of Sefton*, *Mrs. James Shawe*, and *Lady Skelmersdale*. Of these, *Countess of Derby* is of rather too delicate a constitution, the best of them in my opinion being *Countess of Sefton*

but though distinct it is certainly inferior in beauty to the type. *Rhododendron Veitchi* is by no means a new plant, having been first shown in flower by Messrs. Veitch in July, 1857, and a coloured plate of it was given in *THE GARDEN*, September 18, 1880. A hybrid between this and *R. ciliatum* is *exoniense*, one of the most useful of all for growing into small bushes, being naturally of a dwarf, much-branched habit, with foliage that bears a greater resemblance to that of *R. Veitchi* than it does to that of *R. ciliatum*. It flowers so freely that the plant is quite a mass of its beautiful waxy white blossoms. A couple of desirable varieties with whose parentage I am unacquainted are *Lady*

Alice Fitzwilliam and Suave, this last being remarkably sturdy in growth. Besides all these above-mentioned Messrs. Veitch sent out a new variety last year under the name of La Belle, announced as the result of a cross between *R. ciliatum* and the hybrid kind *Forsterianum*. It is a plant of very good habit, being well furnished with neat deep green foliage. The flowers, which are borne in large compact trusses, are of the purest white, with the exception of a small yellowish blotch at the base of the upper segment. Like most of the others, the blooms are deliciously fragrant. There is yet another section of white-flowered greenhouse *Rhododendrons*, represented by the different species *R. calophyllum*, *Jenkinsi*, *Maddenii*, *virginale*, and *tubulatum*, through all of which there runs a strong family likeness. Generally speaking, the foliage is dark green above, more or less ferruginous beneath, and of a leathery texture, while the flowers are pure white, and produced rather later than those of the others; in fact we always look upon our plant of *R. calophyllum* to finish up the *Rhododendron* season under glass. The different species of this section vary a little from each other in the shape of the leaves, and blossoms, while some are much looser in growth than others, but the difference is by no means well marked. Seedlings of this class do not as a rule flower freely till they attain a fair size, but plants raised from cuttings will bloom when much smaller. As far as my own experience extends, the varieties of the *R. calophyllum* group will strike root more easily from cuttings than those of any other of the Himalayan species. They are also more tender than those of the arboreal class. All these *Rhododendrons* are of easy culture, for the larger growing kinds can be planted out in the greenhouse or conservatory, and will require but little attention afterwards, while if grown in pots or tubs the principal consideration is to see that they are at all seasons carefully attended to in the matter of watering. H. P.

FLOWER GARDEN.

THE FLOWER GARDEN.

UNDER the new order of things that demands so many more subjects for the summerfurnishing of the flower garden, and which has substituted an almost endless variety of different things for the old ribbon border block or chain pattern, the months of February and March are fully occupied in making provision for the same. Cannas in variety, Solanums, *Acacalophantha*, *Grevillea*, *Eucalyptus globulus*, and tuberous *Begonias* have all been sown, and will soon be ready for shifting. All these are useful where one has large beds or big outlying borders to deal with, either planted in masses or the large subjects dotted at intervals and filled in with the *Begonias* or with a carpet of *Verbenas*, dark and light *Petunias*, *Heliotropes*, or any similar thing which when once planted requires little more attention. No large garden should be without *Glare* of the *Garden Dahlia*. It is a very useful variety for cutting and, planted in a bold clump in rather an elevated position, it is one of the finest features in the summer garden. The small-flowering *Marguerite* comes in very handy for a large bed. Cuttings struck at once and shifted into a fair-sized pot may be planted out a yard apart, and will be a dense sheet of white all through the summer months. In the golden shades for large borders the dwarf *Sunflower* and the African *Marigold* cannot well be beaten, the immense blooms of lemon and gold of the latter being much admired. An editorial note drew attention to the value of the *Fuchsia* as a bedding plant, and I quite agree with all that was then said therein, for, given an ordinary favourable season, they will be about the most attractive features of the flower garden. Let any-

one who has a large bed to fill plant one dozen *Rose* of Castile or *Mme. Cornellissen Fuchsia* and fill them in with crimson tuberous *Begonias* or dark *Petunias*, and they will have a bed that will be very difficult to beat. The above-named and *Annette* are probably about the three best bedding *Fuchsias*, although the old golden and the tiny-leaved silver variegated variety make a very pretty bed, and may be associated with bronze or green-foliaged plants. Plants intended for bedding should be kept in a pyramidal form, as these show to the best advantage when isolated in large beds. Amongst other things to be sown in February are *Tobacco* plants in variety, especially *Nicotiana affinis*, the *Canary Creeper*, crimson *Beet*, and the silver-foliaged *Centaureas* and *Cinerarias*. Another interesting feature in the summer flower garden for which provision should be made are beds of scented plants, and a really pretty effect can be produced by grouping together some of the *Eucalypti*, *Aloysia*, *Heliotropes*, and such *Geraniums* as *Unique* in its several varieties, *Fair Ellen*, *Lady Plymouth*, *Pheasant's-foot*, *odoratum*, &c., and the foliage of the last-named will furnish a splendid supply of material for summer bouquets and vase work; indeed, where there is much of this work to be done, a good stock of these elegant finely-cut foliaged *Geraniums* is almost indispensable. Claremont.

E. BURRELL.

CHRISTMAS ROSES.

"F. W. B." would not have to lament the loss of so many of his imported roots had he given them protection during the winter instead of putting them at once into the open ground. The first lot of imported plants I had did very badly, a large percentage of them rotting, while the remainder were so weakened that very few made really good specimens. Were this not the case, Christmas Roses would be almost, or quite, as common as most hardy flowers, seeing that enormous quantities of them annually come to us from their native wilds. It seems a pity that so many thousands of good plants should be brought into this country with such poor results, for one may safely assume that not one-tenth of them ever get established in English gardens. It cannot well be otherwise with ordinary treatment, as the plants are torn up with more or less roots, many of which are mutilated and packed in large quantities together, probably undergoing some degree of fermentation on the journey. To make matters worse, the plants remain exposed to the atmosphere for some time before coming into the hands of purchasers. There is consequently considerable loss of vitality, and it is not to be wondered at that in such a debilitated condition they decay wholesale when put into the ground at a time when the temperature is very low and heavy rains have made the soil sodden. Christmas Roses are at the best ticklish subjects to transplant. Few hardy plants bear removal so badly, and in their case I like to see them in their new homes as early in the autumn as it is safe to move them. A Christmas Rose planted early in October will soon lay hold of the new soil. It is at that time that new roots push from the crown, and once they grasp the soil the plants are safely anchored in their new quarters. So far as my experience goes, the old roots do not throw out new roots until spring; therefore, when new ones cannot come from the crown, the plants are not in a position to resist the trials of our winters in the open, more especially as the close packing necessary for transport causes the foliage to decay. Another thing that is even worse is that the fermentation caused by their being packed so closely together stimulates them a little, the consequence being that young growths an inch or so long and like blanched *Chicory* are produced. These are almost sure to die off during the winter, and thus wet settles in the crowns and rot sets in. By spring, according as the winter is wet or otherwise, these plants are more or less decayed. These evils, however, may be avoided to a great extent. By guarding the roots from extreme wet, not five per cent. of them will go off. One thing is important, and that is getting the plants home as soon as they arrive in this country. The

longer they lie in the importer's warehouse the more they shrivel, and the more difficult it is to restore the crown and roots to their normal plumpness. Instead, too, of putting them into the soil at once, whether they be potted, planted out, or laid in in frames, it is better to spread them out thinly, sprinkle now and then, and cover them with old mats. Many plants of delicate organisation are permanently crippled by being watered heavily after they have got very dry at the roots, and the change that the partially shrivelled roots of an imported Christmas Rose experience when put into very moist soil is too great. By keeping them out of the ground until the roots plump up a little the plants are brought back more gradually to their natural condition. The principal roots being mostly broken, every plant should be gone over carefully and all bruised parts cut away with a sharp knife. A good plan is to well dust them with dry silver sand, which if the roots are in a moist condition will help to keep them sound. I find this an excellent plan in re-potting or planting any kind of fleshy-rooted plant that has got into a bad condition. The sand not only acts as a preservative against excessive moisture, but promotes the formation of new fibres.

There is as much diversity of opinion as to the best time to transplant Christmas Roses as there is in the case of Evergreens. I used to be in favour of spring planting, and in soils of a heavy moisture-holding nature this may be the safest time, but in those of a light character I am now of opinion that autumn planting is best, and that even the early portion of the winter is preferable to waiting until April. I find that when Christmas Roses are set out so late, unless they get the advantage of shade and every attention in the way of watering, they are apt to make but puny growth. Put out in autumn they get hold of the ground well, and when the weather improves they at once start into growth. Neither do they need so much care later on. I transplanted some about the middle of October, and I find that the new roots then being made have taken so firm a hold of the ground, that the plants will start into growth at the proper time. If early autumn planting were practised, Christmas Roses would not require a couple of years to come into a good blooming condition again. I know a large trade establishment where many thousands of plants are annually sold, and warranted to give good satisfaction as regards bloom production, and yet the great portion of the stock is transplanted every year. But the time taken to do this is during October, and thus the plants do not suffer even a temporary diminution in vigour. When plants are taken up and potted for the production of bloom under glass a serious check is inevitable if the plants are again put into the ground, but I do not see that this need be the case if they are kept that year in the pots. Plants potted up in autumn are now, I find, making roots, fibre formation being favoured by keeping the soil only just moist till brighter days come. By looking after them well in the summer they will make good growth, not so strong as established plants, but good enough to save them from any serious loss of vigour. J. C. B.

Notes on Gladioli.—The improvement that has been effected in these of late years is little short of marvellous, as witness the magnificent spikes of beautiful flowers of nearly all shades of colour and lovely markings that are to be met with at late summer and autumn shows, where they always attract much notice and command admiration. Most of those above referred to are hybrids from *gandavensis*, but besides these large-blooming varieties there are others of smaller growth, which though not quite so varied in colour are equally desirable and even of more value for cutting, as their spikes are quite large enough, and may be used for vases, &c. These belong to the *Colvilli* section, of which there are many kinds. The *Bride* being pure white and very free-flowering. This and the other sorts of *Colvilli* as well as *Queen Victoria* and *Ne Plus Ultra*, are well adapted for pot culture, and as the corms are small, several may be grown in a

6-inch pot. If put in early they will bear gentle forcing, but to fit them for this it is necessary for them to have time to make roots first. If potted now, they should be stood in a cold frame and allowed to come on gently, and after they have done blooming every care must be taken in the way of watering till the corms ripen and the leaves die away naturally, soon after which the bulbs should be shaken out and repotted again. The soil best suited for this purpose is rich loam, leaf-mould, and sharp sand, the proper depth for burying the corms being about an inch, but when stood in the frame it is advisable to cover the pots with Cocoa-nut fibre, which prevents the soil becoming dry. Before planting out in beds and borders, the ground should be deeply stirred and have a good dressing of rotten manure worked in below, as there it will not come in contact with the corms. To keep these clean and healthy, it is advisable when putting them in to surround them with sharp sand, which affords free drainage without distressing the roots. The large-flowered Gladioli look best in clumps of three in borders, and are well adapted for dotting in among Roses in beds, or placing in groups in the foreground of shrubs, while the smaller kinds make fine masses in narrow borders along the fronts or ends of houses or low walls, where if covered in the autumn with leaf-mould they may be left to take care of themselves.—S. D.

PANSIES.

SOME 20,000 sturdy plants of Pansies of different kinds present a very interesting feature to all who have a fondness for a favourite hardy flower. It is true few of the plants are yet in bloom, but still there are enough to show that here is a big block of yellow-flowered varieties in two or three shades, and also of purple, white, and blue sorts. There are also various good hardy selections of yellow and white ground forms, not good enough perhaps to command the respect of the Pansy florist, but they are eminently favoured by those who like bold showy flowers let the markings or colours be what they may. Thus we find here self or bedding forms in variety, and belted forms in variety, whilst in another place may be found a huge breadth of capital Pansies, a fine strain, the big blooms rich with deep blotches and aglow with striking colours, creating for the plants a ready sale. These latter, being raised from seed, have the advantage of the named varieties in bulk and robustness. Hundreds of plants as big as tea saucers, if not larger, when presently carrying a score of blossoms each, will make a very fine show. So well do these fancy varieties like the soil, which is of a blackish nature and yet on gravel, that last autumn they made too much growth. Some thousands probably were lifted, divided, and replanted, and have again become as big as at the first and substantially rooted. What a difference do these clumps present to the small stuff sometimes sent out as plants in the spring. But were any special plants from this big batch of seedling fancies to be selected, named, and propagated by means of cuttings, probably some purchasers would have to put up with very small stuff. One trader in thousands, however, does not trouble with cuttings. It is too slow a method of procedure for him. Selected plants are in the spring lifted and pulled to pieces; each piece is dibbled out into good soil and is well watered, perhaps topped once to induce breaking up from the base or roots. Thus when about the end of August the weather will admit of yet a further lifting and division, a good quantity of rooted stock is formed and the dividing and planting are repeated. It will perhaps be possible, should good growth be made, to yet lift and re-divide, and plant the stock a third time in one year, and thus it is rapidly increased.

BEDDING VARIETIES.—It is very obvious that the uniformity of growth and colour essential to bedding effects can only be obtained by propagation by division. When there are 5000 of one kind the stock may be reduced by sale to 500, and yet in a year the needful number is made up again. The production of a big stock of any kind is not difficult once a good reserve is secured. Blues and

Yellows are chiefly asked for, these colours being the most popular, and without doubt the most attractive. Our growers are not specially tied to named varieties, as found in the florists' lists. Any well-marked and strong-growing seedling, whether yellow, blue, or purple, put aside soon produces a stock, and will do as well for Cloth of Gold, King of Blues, Royal Purple, &c., as any other. Of named varieties which have a wide reputation, none are in greater favour amongst blues than Blue King and Archie Grant. This latter figures usually in the lists of Violas, but it is a very large-flowered form, and goes with all other large-flowered sorts as Pansies. Yellows, whites, and purples have no such assured individualities. All the same, they are excellent, and the various breadths when in bloom produce very striking effects in colouring. Of course, all these plants suffer when lifted and offered for sale in the spring. They have to submit to enforced transplanting just as the bloom is coming to its best, and when strong root action is essential. Pansies cannot be sold from the dealers' carts and barrows except when in bloom; hence the necessity imposed upon the growers of tearing the plants from their beds at the very moment they are putting on their chief beauties. Could purchasers who invest in half a dozen or in several dozens but be induced to purchase and plant in the autumn, the gain to the plants as well as to themselves would be considerable indeed. With so many thousands of plants it is obvious that very little soil can be allowed to each. Were too liberal an allowance to go with the roots, the land utilised for the growth of these cheap Pansies would suffer very material robbing.

SEEDLINGS.—Whilst no trouble is taken to save seed from selfs, because no reliance could be placed on the product coming true to colour where so many diverse colours are grown, seed is largely saved from both fancy and belted flowers. These sections are dependent for favouritism chiefly because of the rare and attractive markings of the flowers. And when a big batch of seedlings first comes into bloom, those which open one or two flowers early are lifted and carried off, so that hundreds from a big plantation of seedlings will have been removed before the general batch is in bloom. Then when thousands are in flower the purchaser usually selects his own plants, naturally picking the finest flowers. Later on the inferior smaller-flowered plants go at reduced prices. The same is the case with the fine fancies, but as the strain is so good there is little need for picking and choosing. Of course seed-production to maintain the strain is not left to chance; that would never do. The grower keeps a sharp lookout for the very best, and as these present themselves they are lifted with good balls of soil, and planted up together specially for seed-production. A sowing may, perhaps, be made at once of half a pound of seed saved of course the previous year. This is sown in shallow drills drawn on good soil, the surface of which is well pulverised. Towards the end of April is the best time for sowing, and the seedlings are stout enough for dibbling out during the summer. Of course, in dry seasons watering has to be liberally resorted to, but because of the texture of the soil and a liberal infusion of well-decayed stable manure the plants soon make root, and then they are safe enough. When, as last year, the season is cold and moist, growth may be almost too robust, but that rarely happens to Pansies so far in the south even as the locality of London. There seems to be no fear that the popularity of the Pansy will ever wane, at least among those who have but small gardens. Those more highly favoured find formidable competitors now for favour in Orchids, Begonias, Dahlias, Carnations, &c., but still the love for the Pansy is very general. We cannot down here in the south, as a rule, utilise Pansies and Violas for the production of gay masses of flowers all through the summer, as is done in the north, but if plants be got strong and planted out early in the autumn, we may be assured of some three months' abundant gaiety from these from April onwards. Very often, also, they will flower freely in the autumn. Still it may be thought that three months of successive bloom

from one kind of plant in the garden is, with our wealth of flowering hardy plants, enough to satisfy the most exacting. A. D.

FLOWER GARDEN NOTES.

SOWING SEEDS OF FINE FOLIAGE PLANTS.—One of the simplest, yet most effective arrangements of foliage and flowering plants combined that I have ever made consisted of single Dahlias and Giant Hemp (*Cannabis gigantea*). The bed, which was circular in shape, was 15 feet in diameter, and the soil was well thrown up above the turf line, thus giving it a more imposing appearance, and, of course, a greatly increased depth of soil, so essential to the well-doing of all large and quick-growing plants. The Hemp was planted as a kind of standard, there being one plant in the centre, three plants as an inner line, and six for the outer, these latter being planted a sufficient distance from the outer edge of bed to admit of a whole row of Dahlias being planted next the turf, the whole of the intervening space being filled out with single Dahlias in variety, white and scarlet being the prevailing colours. The dwarf scarlet variety, *gracilis perfecta*, was used for the outside row, and White Queen, Duchess of Westminster, another white, Nora, pink and rose, and Faust, dark crimson, for the main part of bed. The Hemp grew to a height of 6 feet, and the Dahlias were kept to about 5 feet, the outer row to 4 feet, and the enclosing band—edging—*Gnaphalium lanatum*, was 9 inches high and 6 inches wide. As it is now time to sow the seeds, any arrangements of this character should at once be decided on, so that the necessary plants may be prepared. The Dahlias can, of course, be raised from seeds, and there is yet ample time to have good plants by the time it is safe to plant them out. But as a very moderate percentage of seedling Dahlias turn out good, I always raise good varieties from cuttings, and as a stock of tubers of well-known kinds can be bought at a very cheap rate, these, if potted and put in warmth at once, will produce cuttings freely, and these will make fine plants by the end of May; of course, supposing that the necessary appliances are at command. The Hemp plants are about as easy to raise as any that can be used in fine-foliaged bedding. Sow the seed in light soil, which should be kept constantly moist, and place the pans or pots in a temperature of 65° or 70°. Bottom-heat is unnecessary, but a glass covering is desirable till germination takes place; then place the seedlings on shelves and near the glass, and pot them off when about 1 inch in length. Castor-oil plants can be raised under exactly the same conditions as to heat, moisture, and soil, but the seeds should be put singly in small pots, because by division of roots when sown in pans they are so susceptible of injury, that, no matter how carefully the roots are parted, they sustain a serious check, and in careless hands die outright. Besides these two—Hemp and Castor-oils—the following are also easily raised, quick growing, and effective foliage plants, either for grouping by themselves or for intermixing with other foliage plants of like habit, such as Sun-flowers, Abutilons, the stronger growing Marguerites, Marvel of Peru, and the tall-growing perennial Lobelias. Amongst the best of these are several varieties of Solanums, *S. giganteum*, *marginatum*, *robustum*, *pyracanthum*, all of them being readily raised by ordinary manure-frame treatment, and after being potted off they require a frame to themselves, so that the necessary condition as to moisture and airing may be maintained. Damp is their only enemy at this stage; hence dry warmth is desirable, and if convenience affords, the plants do best under the same conditions as recommended for Hemp. Shelves in warm houses are preferable to frames, unless these are heated by hot water. *Acacia lophantha*, *Eucalyptus globulus*, *Grevillea robusta*, *Tobaccos*—particularly *Nicotiana affinis* and *variegata*—can all be successfully raised in the same way, and they constitute the cream of the many species of plants that can be made for a comparatively small outlay to do good summer and autumn duty in the flower garden. Sunflowers can be easily raised, no heat or other

protection being required. The giant gaudy varieties have but little charm for me, and if it were not for their immense foliage, which so effectually relieves the showiness of the flowers, they would be unworthy of the place they have lately taken in flower gardens. The variety known as Miniature is, however, very beautiful. The plant has a branching habit and grows 4 feet high, the foliage small and glossy green, and the flowers of the size of those of large Marguerites with deep yellow petals and black centres not much unlike the flowers of Rudbeckia Newmanii, only that they are finer and of a better shape. This is a grand variety and should be grown in all gardens. It makes a splendid bed of itself, is fine for use as cut flowers, and continues to bloom till severe frost cuts it down.

HARDY PERENNIALS FOR THE BEDDED-OUT GARDEN.—To me it has always appeared very difficult and out of character to attempt to use these in a formally designed garden, and the most potent reason I can give in justification of this opinion is that the plants are not readily adapted for use in this way, owing to their irregularity of growth and season of flowering. In gardens arranged on geometric principles, the planting should be done after a set rule, that is, there should be a regular balance of vegetation—shrubs and flowers—throughout the whole. The soundness of this rule all will, I think, admit, and further that these conditions are best attained by confining the planting of such a garden to the ordinary bedding-out fashion. I do not mean "ordinary" in the strict sense of that term, but rather the best and varied forms of bedding-out with purely and solely what are known as bedding-out plants. But whilst believing that this is the best and most appropriate way of treating such a garden, I have, of necessity, had to devise other ways of planting at least part of our formally designed beds with permanent plants with the idea of lessening the labour of keep, and here follow the ways and modes of my procedure. Having a large collection of perennials, and therefore some to spare, it occurred to me that by using these we might to some extent reduce the labour of propagation, potting, &c., as well as the labour of having to plant the beds at a time when every hour that could be spared from such work would be more profitably expended in other parts of the garden. A beginning was made on two of our largest beds. Large clumps of *Galega officinalis* alba form the centre, then six large masses of Japanese Anemone Honorine Jotert, and next twelve plants of Rudbeckia Newmanii. All these were selected because of their well-doing in all weathers, and for their continuity of flowering. Intermediate amongst these we have planted medium sized clumps of Funkia Sieboldi variegata, and presently it is intended to edge the beds with Euonymus radicans variegatus. To complete the planting of these beds at the end of May all that will be required will be the intermixing in the open spaces between the hardy plants, flowering plants of any kind. The most probable sorts will be yellow Marguerites, pink-flowered Geraniums, and Heliotropes.

Two other beds have been planted as follows: In the centres are good plants of Bambusa Metake, then six plants of the dwarf double Helianthus (nearly always in flower), next six plants of a large purple-flowered Phlox, and the same number alternated with them of a pure white Phlox. The edging is variegated Thyme, and over the entire bed are dotted Gladioli and Hyacinthus candicans, and as soon as these emerge from the soil the whole of the remaining space will be filled out with blue and white Violas, so that not a single bedding plant will be required. I hope to further extend this system of planting. It may be at the expense of show, but we shall certainly gain as much as we shall lose, as besides a greater variety of foliage we shall also be gainers in novelty and of time for other work.

GENERAL WORK.—The sowing of all kinds of flower seeds for the summer display, to pot off all kinds of bedding plants that have been wintered in store pots, to sow flower seeds. Asters, Stocks, Zinnias, Phlox Drummondii, and Everlastings should

all now be sown, and Sweet Peas and Mignonette in the open borders. Complete the pruning of Roses, secure to stakes all standards and peg down dwarfs that need it to prevent them being moved by the wind. Cut Ivy on buildings, walls, and trellises, and trim up all hedges that have not yet been done. Well roll the lawn whilst it is wet, and that operation will not again be required before the autumn. Apply a surfacing of fresh gravel to walks, and roll these as frequently as time will allow till dry weather sets in. They will then be firm the summer through. To some, much rolling of walks may seem useless labour, but my opinion is that such labour is well spent.

W. W.

FERNS.

PROPAGATING FERNS.

MOST of the ordinary sorts, such as are extensively grown for market, may be propagated at almost any season of the year, but early in the spring is the best time, especially for all the choicer sorts. Those from spores make the best plants; therefore this method should be adopted in all cases where the spores can be obtained. It often happens, however, that although there may be every appearance of properly developed spores, from some cause or other they prove unproductive.

SOWING SPORES.—The first thing is to be careful to select the fertile fronds of each species from plants that are growing in such a position as to have had the best chance of properly maturing the fertile fronds. They should not have been growing where they could come in contact with the common sorts which produce spores in great abundance and germinate very quickly, for these will prove troublesome weeds, which will overgrow and destroy those sorts which take longer to germinate. The most troublesome Fern weeds are *Nephrodium molle*, *Pteris longifolia*, *P. tremula*, *Polypodium trichoides*, &c., and some of the *Gymnogrammas*, especially *G. Martensi*. It is not always possible to obtain fronds from plants that have been quite isolated, but it is a good plan to have a soft brush to clear off any spores that have settled on the upper side of the fronds. In preparing the pots they may be filled to within half an inch of the top with good loam, which should have been thoroughly cleansed from worms, &c. It should be pressed down firmly, and a slight sprinkling of light sandy peat may be used on the surface, or a good preparation of powdered charcoal, peat, crock-dust, and sand sifted through a fine sieve. After a good watering the pots will be ready. No surface watering should be given after the spores are sown, but the pots should be stood in saucers and each should be covered with a piece of glass. They may be placed in any warm shady position, and the saucers may be filled up with water as they require it, but should not always be kept full, for whilst the pots are moist outside it is evident that the soil is wet enough.

PRICKING OFF.—This should be done as soon as the little green prothalia have covered the surface of the pots. The pots for the reception of these should be prepared with good drainage and filled up with light peaty soil. The seedlings may be taken out in little patches and lightly pressed on the surface of the soil. Only the forwardest should be taken out the first time and the seed pots kept, as the first crop of seedlings may contain mostly common sorts which will overgrow the sort that is most desired. As soon as the seedlings begin to make the first tiny fronds they may be divided again. After they are pricked off they will require to be kept

in a close, rather moist situation for a time. In raising Ferns from spores a great point is to save all that make an appearance, and not destroy the seed pots until it is evident that the right sort has been obtained, or that there is no further chance of getting it. Surface watering should be avoided as much as possible until the seedlings are well established; if standing on a moist bottom and kept well shaded they will require very little watering. If well watered, once in three or four days will be often enough. It is better to water thoroughly than to be continually sprinkling the surface.

DIVISIONS.—Some of the *Adiantums*, the *Davallias*, *Nephrolepis*, *Polypodiums*, and a few of the *Pterises* may be readily increased by dividing old plants. It is sometimes recommended that this should be done while the plants are in a dormant state, but I have generally found it best to divide the plants after they have started into active growth. If done carefully the young fronds will not suffer, and the plants start again much better than when disturbed while they were inactive. A great point is to prepare the plants beforehand. Those that have been standing long and have become pot-bound should have the surface soil removed and some good fresh soil added. If this is done, some new roots will be made on the surface, which will be a great help in giving the divisions a start. Another important point is that when the divisions are made, care should be taken that it is done where the plants are not exposed to cold draughts. Everything should be in readiness, so that no delay occurs. They should be potted, watered, and placed in a close shady position as quickly as possible.

A.

GARDEN FLORA.

PLATE 692.

HIMALAYAN DAISIES.

(WITH A COLOURED PLATE OF *ASTER STRACHEYI*.)

IT is only within the last few years that any of the Himalayan species of this popular genus have been cultivated in our gardens, and although not more than half of the varieties have yet been introduced, they form an extremely interesting group, and are certainly a decided acquisition to those we already have. The dwarf habit of these Himalayan Daisies makes them valuable for the rock garden, where they fit in so harmoniously with the alpine and other dwarf plants. They are all found in the temperate regions of the Himalayas, a few at very high elevations, and all have proved as hardy as our native plants. Over their new American allies they have a decided advantage, and that is their habit of flowering early. This takes place during the summer and early autumn, the best of the flowers being past long before there is any fear of autumn frosts. To the ardent lover of hardy flowers it is, to say the least, tantalising to get all his flowers destroyed in a single night and almost before he has had any return whatever for labour, &c., he has bestowed upon them. These late American species can only be grown successfully in nice sheltered spots, where the chances are all in their favour, instead of in the bleak border, where the first frost leaves them a total wreck.

The Indian kinds certainly have an advantage. They are just as easily managed and increased from division or seeds as their American congeners.

A. DIPLOSTEPHIOIDES.—As a show plant for the flower border or rockery, this species is by far the

* Drawn for THE GARDEN by H. G. Moon in the Royal Gardens, Kew, June 1, 1888. Lithographed and printed by Guillaume Severeyns.



ASTERS, PINK, WHITE, AND PURPLE

most beautiful of the Indian section. It was recently introduced into cultivation by Mr. H. J. Elwes, and since then by various collectors, so that at present it is fairly plentiful. In a shady border in rich peaty soil, and when well established, it has a noble appearance, more attractive even, if possible, than the charming *Amellus* varieties. The stems are erect, from 6 inches to 2 feet in height, leafy; the leaves sessile, broad, lance-shaped, and entire. The flower-heads are solitary, from 2 inches to 4 inches in diameter, and rich bright lilac, with a golden disc. Alpine Himalayas, 12,000 feet elevation, and flowering throughout the summer.

A. PSEUDAMELLUS.—This is said to be a most beautiful species, resembling *A. Amellus* of gardens, but the forms we have seen so far have been very poor, and not to be compared with the above popular species. It is of bushy habit, from 6 inches to 18 inches in height, the stems bearing numerous corymbose heads of medium-sized bluish purple flowers, from 1 inch to 1½ inches in diameter; leaves oblong, blunt, and obscurely toothed. It differs from *Amellus* chiefly in its smaller flowers and leafy bracts. Western Himalayas, 13,000 feet elevation, and flowering August and September.

A. STRACHEYI.—This pretty little species is of very recent introduction, the seeds having been received at the Royal Gardens, Kew, from the Saharunpore Botanic Garden, about four or five years ago. It is as yet a rare plant in the trade; at any rate we have not met with it outside the gardens at Kew, although a veritable gem for crevices on the rockery. It is certainly one, if not the most remarkable of the whole *Aster* tribe, and, as may be seen from the accompanying characteristic illustration, is of a rambling disposition, and plentifully supplied with Strawberry-like runners. The majority of the *Asters*, as cultivators well know who have them in cramped borders, have underground stolons or runners which are always a source of trouble. The corresponding stolons or runners in the above species, however, proceed from the rambling or branching rootstock, exactly in the same way as Strawberry runners, and form independent plants at the point of contact with the soil. An established plant, owing to these stolons having crossed and recrossed each other, presents a curious intricate network of brown stems, more especially noticeable in winter, when the leaves have died off. After a short time these stolons may be cut from the parent, and the young plants, if carefully lifted, will make strong flowering specimens for the following year. It is a ready means of increase, and disposes of the objectionable, yet often necessary and disastrous, method of tearing a plant to pieces to get a small piece for a friend. The whole plant is more or less hairy, and rarely more than 1 inch to 3 inches or 4 inches in height, the lower leaves oval, spatulate, with a few distinct teeth on their margins. The flowers, produced in the greatest abundance from established plants, are about the average size of those of the *Michaelmas Daisy*, the involucre bracts few, scarcely overlapping, all about one length, and usually narrow and pointed. Native of the Western Alpine Himalayas, Kumaon, &c., 13,000 feet elevation, flowering with us in early summer. It is perfectly hardy in the open air, and forms a charming rockery subject where it thrives best in semi-shady spots.

A. THOMSONI is pretty common in the temperate regions of the Himalayas, and is a charming plant either for the rockery or the mixed border. It was first, we believe, known in the trade as a *Calimeris*, until identified as something new to cultivation by the Rev. W. Dod, who obtained the above name from the Kew herbarium. It is one of the most distinct and interesting species from those regions, and may be distinguished chiefly by its broadly oval, coarsely toothed foliage and neat dwarf habit. The stems are herbaceous, 1 foot to 2 feet in height. We apparently have the dwarf form in cultivation, as some forms attain 3 feet in their native habitat. The leaves are of medium size, thin in texture, and clasping the stem, oval, with coarsely serrated margins, the lower leaves 3 inches to 4 inches long, and half as broad; flower-heads few, in some forms in a lax corymb, but usually

solitary, from 1 inch to 2 inches in diameter; ligules broadish, bifid, lilac, disc yellow; involucre leafy, hardly overlapping, narrow, and pointed. The whole plant is more or less hairy, giving it a whitish green appearance. It flowers from July to the beginning of October, and may be increased by division or seeds.

A. TRICEPHALUS is also a comparatively new species, resembling in habit *A. pyrenæus* and *sibiricus*, but a more useful species for the flower border. It is most nearly allied to *A. himalaicus*, a curious species, which we only once had the pleasure of seeing; indeed, *A. tricephalus* was at first considered merely a more developed form of *A. himalaicus*, but this view is not held by the author of the name. We learn that it has been in the collection at Kew for some years, and although very beautiful, it is also very troublesome in a restricted area. The stems from the creeping rootstock, varying from 1 foot to 3 feet in height, are leafy, and bear one to four large showy flowers. The ligules, varying from forty to fifty, are of a rich purple-blue, and the flowers are produced freely from the beginning of July to the end of August; leaves oval, spatulate, usually hairy, with entire margins. Sikkim Himalaya, 14,000 feet elevation, and quite hardy in the open border.

A. TRINERVIUS.—This is an old friend under a new name (it having been known under all the following: *A. scaberrimus*, *Benthami*, *asperimus*, *Galatella asperima*, and *Diplopappus laxus*). It is a near ally of the well-known *A. sikkimensis*, and a much more desirable plant for the flower border, as the habit is neater, the flowers larger, and more numerous. The stems vary from 2½ feet to 4 feet in height, and bear large, loose, corymbose heads of white or pale bluish purple flowers over an inch in diameter; leaves about 3 inches or 4 inches long, lance-shaped, the margins coarsely toothed. Native of the Central and Western Himalayas, Sikkim, &c., at 7000 feet; the Khasya Mountains at 6000 feet elevation; and also Japan and China. The name is apt to be confounded with that of another species known as *A. trinervis*, belonging also to the *Galatellas*; the plants, fortunately, are totally distinct. Flowers from the end of August to October. D. K.

FRUIT GARDEN.

W. COLEMAN.

DISBUDDING AND THINNING PEACHES.

WHEN experience has taught us that Peaches often set as thickly as Blackberries, and fruit-bearing shoots produce as many buds as leaves, we at once realise the importance of relieving the trees, not only of their superfluous fruits, but also of three-fourths of their young growths. Thinning and disbudding are operations which demand our attention early in the spring, and falling so closely together, they are carried on conjointly and piecemeal until every fruit retained can swell to maturity, and each shoot left will have ample room for the full development of its foliage. Although fruit equal to the finest in the world is grow in this country, our uncertain climate compels us to pay most careful attention to every trifling detail, but time and labour would be thrown away were we to neglect the two I have tacked together as the heading to this paper. It has been proved over and over again that the plain simple system of fan training is the best, that perpendicular leaders are out of place in Peach trees; also that the framework of the young tree can only be formed by most careful and judicious disbudding. Unlike all other trained stone fruit trees, the crop from Peach spurs cannot be relied upon; consequently, no matter how large or old the tree may be, it is still necessary to keep it evenly furnished with young shoots for succession. As many of these are cut out immediately after the crop is gathered, the cultivator is constantly engaged in the management of two distinct sets of shoots,

and as crowding would prevent their development and proper ripening, his most important annual operation is timely disbudding. The next point to be considered is the time to disbud, the conditions which should be our guide, and the mode of procedure when the tree is sufficiently advanced. If, from overcropping or root-pruning, it breaks weak and the growths do not start away freely, disbudding should be deferred until the roots and sap become more active, as defoliation whilst it is in this condition increases the check, if it does not jeopardise the crop and permanently injure the tree. Robust healthy trees, on the other hand, are always fit for disbudding by the time the young fruits have thrown off the remains of the decaying flowers, but in this case even it is not well to be too venturesome, as three weeks may be devoted to the performance of the operation. Occasionally, I may say frequently, a few fore-right growths may be rubbed off gross leading shoots before the fruit is free, especially where they are likely to rob the weakest parts of the tree.

The little-and-often system being the best, the shoots the first time over may be removed with the finger and thumb, but later on they should be taken off with a sharp knife, whilst those which must ultimately come away, having fruit nestling at their base, must be pinched back to three or four leaves. As many of these fruits in due course will be removed, these sap-drawing leaves or embryo spurs can then be taken or left at pleasure. When trees are grown on the restrictive principle—that is, the shortening of all intermediate fruit-bearing shoots to half their original length—two growths from each, as a rule, will be found quite sufficient, one from the point, the other from the base; the first to draw the sap and increase the size of the tree; the second for fruiting the following year. The base shoot, if possible, should be trained above in preference to below that from which it emanates—a system which simplifies training and gives the trees a neat appearance, whilst growths from branches laid in at low angles and near the ground receive the sap freely and quickly. This old method of throwing away good wood and fruit by a too free use of the knife is now fortunately giving way to extension training, but where it is still practised an average of two breaks from each shoot will keep the trees quite full enough. As extension trees frequently make shoots from 2 feet to 5 feet in length, they should be well thinned at the autumn pruning; then when the time arrives for disbudding, it will be necessary to leave a good break on the top side near the base, others 15 inches to 18 inches apart, and the terminal bud for further extension. All intermediate growths may be taken off piecemeal, the fore-right shoots first, then those sheltering and supporting fruits may be pinched, and last of all, the remainder. As the sap invariably forces its way to the extremities of the tree, especially the highest part, disbudding should always be commenced at the top and gradually extended downwards towards the base, where the flush is less powerful, the growth weaker and later, as in aged trees, where we sometimes find failing limbs which produce more flower than wood-buds, whose life and safety cannot always be preserved by deferred disbudding. Indeed, it often happens that healthy old trees set such a profusion of blossom, that we find ourselves going pretty freely into thinning, as in the case of bunches of Grapes, long before the flowers open. In these cases we draw the finger down the under sides of the thickly studded shoots, carrying away all the drooping buds from which we do not care to

select fruit for the crop, if we can secure a plentiful supply from those standing point upwards, the best position for colour and flavour. I have often drawn attention to the fact that an extremely free-flowering condition or a profuse set is no advantage, and nowhere is this opinion so strongly verified as in the Peach house, where shy varieties like Noblesse and Walburton Late Admirable often set every flower and carry their fruit to maturity. From these remarks the tyro will gather that disbudding and thinning are operations which must be carried on together, and then in due course he will find healthy trees, although divested of hundreds of inferior fruits, carrying much heavier crops than they can ripen. The first thinning in the ordinary way is made as soon as the tiny fruits begin to emerge from the decaying blossoms, and those most perfectly fertilised are seen taking the lead. If triple buds have set two or three, these are reduced to one, invariably the best; then all that are small or badly placed below the wood or near the wires are rubbed off, a goodly number being left for choice at succeeding thinnings. This relief under good syringing is followed by a leap forward, and when the Peaches attain the size of Hazel nuts they are still further reduced, a fair percentage being left to compensate for dropping at stoning time. If a tree under my own care is intended to carry say twelve dozen fruit, I should leave two hundred to choose from, certainly not more, otherwise the strain of stoning might produce a check, which would cause the tree to cast half its fruit, and in this way my own greed or want of judgment would defeat my object. When stoning is finished the final thinning should be performed, preference still being given to the finest on the upper sides of the shoots, as they are in the best position for colouring perfectly.

As yet I have said nothing about the quantity of Peaches a healthy tree should be allowed to carry to maturity, and considering the diverse opinions which prevail, I greatly question if my experience will please heavy croppers. Years ago, when anything in the shape of a forced Peach fetched a good price, growers cropped heavily; but those days are gone by, and our aim now is quality first, the greatest quantity we can get afterwards. Some leave one Peach to every square of 10 inches, but having failed in the attempt to finish this quantity and keep my own trees in health, for we have to look ahead, I thin down to one Peach to every square of 12 inches; that is to say, to every 100 feet of trellis covered with foliage I leave 100 Peaches, if I have them. Vigorous young trees possibly might carry a few more, but their lives would be shortened and the weight of pulp would be less, as they would have a greater number of stones to form, whilst the smaller size and inferior flavour would tell on the wrong side in Covent Garden. An extra good Peach weighs 10 ounces; a crop that averages 9 ounces is very fine indeed, and at the rate of one to a square foot, a credit to the most accomplished grower. Nectarines, which average 6 ounces or possibly 7 ounces, may be left closer than Peaches, but quality and commercial value being the first points, each fruit should have a square of 9 inches.

Graham's Royal Jubilee Apple.—This new Apple deserves attention from the fact that it is confidently stated that though an autumn Apple, it is yet a good keeper. Autumn Apples, as a rule, are soft and tender, and consequently they require to be got into the market at once; besides, they travel badly; but in the case of the above new variety we get an early Apple of firm texture, as

well as heavy and handsome in appearance, so that if there is a glut and prices in October run low, it will keep until Christmas, a season of the year when Apples command a good price. This is a variety raised in Middlesex, and came from seed sown at Cranford by Mr. John Graham more than twenty years ago. It is said to be a free-bearer, the habit of growth compact and at the same time free, and the wood being stout and firm the fruits do not fall so much when the weather is windy as in the case of other sorts. Then it is late in flowering, and so getting to a large extent out of the reach of the frosts, can be depended upon to crop. In appearance the fruit is like that of Golden Noble, but more conical in shape, and the skin is of a clear lemon colour. It is regarded as the market Apple of the future, and it is anticipated it will oust Lord Suffield, Ecklinville, and Keswick Codlin from the field.—R. D.

GRAFTED PEACHES INDOORS.

In the "Encyclopædia Britannica" (vol. xii., p. 213) we are told that the object of grafting is "to expedite and increase the formation of flowers and fruit," and further, "scions from a tree that is weakly or liable to injury by frosts are strengthened by engrafting on robust stocks. Lindley has pointed out that while in Persia, its native country, the Peach is probably best grafted on the Peach, or on its wild type, the Almond, in England, the summer temperature of whose soil is much lower than that of Persia, it might be expected, as experience has proved, to be most successful on stocks of the native Plum." The fallacy of the "robust" stock has been exposed over and over again in these pages, since a headed-off stock is only as robust as the scion can induce it to become by its leaf action. The italics are my own.

Of course, grafting on restricting stocks may and does expedite the production of flowers and fruit, but how by restricting the food supply of a tree and the area of its branches we "increase the formation of flowers and fruit" is not so easy to comprehend. Acceleration certainly may take place, and that word represents the facts better than does the word "increase." By growing Pears on the Quince and Apples on the Paradise we get fine fruits earlier than from more nearly related scions and stocks, or from seedling trees, but the results, taking an average of, say, ten years, would be very much in favour of those trees grafted at the same time on Pear or Apple stocks, as most market growers are aware; indeed, by the use of the so-called dwarfing or restricting stocks early fruiting may be induced, and a limited quantity of fine fruit may be obtained. Could not these results be far more easily obtained from own-rooted or root-grafted trees and by cultural methods well known to all practical gardeners? In its native country every fruit tree is stronger, healthier, more productive, and longer-lived on its own roots than as grown in any other way. For all I know the Persian gardeners may graft their choicest Peaches, but trees in the warmer States of America may be reared from stones by the thousand, and these fruit freely the third or fourth year from the stone, and unless budded, which is only a form of grafting, of course, they grow as freely and as healthy as do the seedling Apricot trees on the hillsides and valleys of Tibet. Has it ever occurred to the American growers that the disease so well known to them as "the yellows" may have had its origin in their practice of budding? The sudden dying off of branches in the case of the Apricot in English gardens may, no doubt, be attributed to a similar cause.

Even if it were true that a Peach tree is really hardier in our open-air climate on a Plum stock than when on its own roots—an assumption that is extremely doubtful—even then there can be no reason for the use of hardy Plum stocks for Peaches grown under glasshouses from which all harmful frosts are excluded.

In growing Peaches indoors, do we not very often act by the rule of contrary? For example, we first restrict the natural vigour of the tree by grafting it on a Plum, or Mirabelle, or Damson stock. Then

we plant it in a rich border and give manurial stimulants, liquid and solid, as the case may be, and yet, all this notwithstanding, we wonder why the fruit fails to set properly, or why at stoning time it falls by the bushel.

Let us ask ourselves the question, Can all this stock restriction, on the one hand, and heavy manuring, on the other, which goes on year by year, be the right and best way? Is it impossible to grow Peaches on their own roots indoors in England? If the Peach is naturally such a gross growing tree that a restricting or starving stock is necessary for it at first, and then liquid stimulants to induce fertility, why cannot we simply plant the Peach on its own roots in deep, fresh, unmanured soil, or even in poor, gravelly soils at once, instead of starving it with one hand and feeding it with the other? Is our present method of cultivating grafted Peach trees only the best and only way, or is there not a better and more logical plan to be found somewhere between the extremes we now adopt?

In the *Gardeners' Chronicle*, March 2, p. 278, is a note as to Peach trees which proved defective through bad grafting, i.e., unsuitable stocks, and the consequence led to the uprooting of the trees, and, of course, a serious loss of time and energy—lifting, root-pruning, and top-dressing notwithstanding. If Peach trees are to be grafted, why not root-graft them, and let the scion have the chance of rooting on its own account? In a house there can be no good reason for grafting Peach trees at all. AMYGDALUS.

PROTECTING FRUIT BLOSSOMS.

BLOSSOM-BUDS are abundant upon all kinds of fruit trees this year, and at the present time do not seem to be far from their normal state. How far they are prepared to withstand the rigours of our climate during the next two or three months remains to be proved. The period during which fruit trees bloom in this country is always an anxious one to the gardener and fruit grower. From the opening of the first Apricot flower until the latest Apple blooms unfold the grower is kept in a state of doubt and uncertainty as to the chances of a crop, and when the promise is fair, as at present there seems every probability of its being, this anxiety is very much increased. A single night's frost when the trees are in full bloom often proves so destructive as to reduce the crop to a minimum, while a week of cold, biting wind is equally dreaded.

The question of protection always suggests itself at this season, although the desire to do with as little as possible is, I fancy, generally predominant for various reasons. Protecting materials are considered expensive, and no doubt they are when required in quantity, and thus we are inclined to try and manage without them. The knowledge, too, with those experienced in fruit culture that protection, if not carefully and judiciously employed, has a debilitating influence upon the trees, acts as a deterrent in its use. Experience, however, has proved this state of hesitation to be unwise, resulting in the loss of many a valuable crop which might have been saved by a little timely protection. Materials for affording all the shelter it is advisable to give can be found without having recourse to expensive wall-copings, blinds, and other fittings. A movable wooden coping, consisting of a single board or two joined together, is, I think, preferable to one of glass, being a better non-conductor of heat, and thus preventing radiation at night. I have never observed any ill-effects follow the exclusion of light from the top of the wall, which at no time is very great if the coping does not project more than 14 inches or 15 inches, which is ample.

Apricots are the first to claim attention, standing more in need as they do of shelter from cold storms than any other fruits flowering later on. The best material for the purpose is hexagon netting or shading (No. 3). It gives the greatest amount of protection, while at the same time it admits sufficient light and air to prevent injury to the trees from remaining constantly

fixed, which is preferable to a movable covering. The mode of fixing it is to let some smooth poles into the ground about 2 feet from the wall. They should be high enough to reach nearly to the top, when they will meet the wooden coping, this being secured to them by nails. The poles will also need steadying, which can be done by passing a stout wire round them near the top, and screwing the other end to the wall. The shading can now be stretched along the outside of the poles, securing it in place with tacks, and thus forming an effective shelter from cold winds and storms, as well as a protection from frost. The ends should be enclosed to prevent draughts. If the shading is considered too expensive, fish netting is an excellent protection. The hexagon netting, however, is preferable, and if taken down at the end of May, comes in very useful for shading, protecting ripe fruit from wasps, &c., and thus compensates for the extra outlay in the first instance. Peaches will do with less protection than Apricots. A coping board and two or three thicknesses of fish netting are ample for securing an abundant set in the worst of seasons, provided, of course, the trees are in a healthy and fruitful state.

The same may be said of Pears and Plums, where protection is accorded to these fruits, and certainly they are not less deserving of assistance when in bloom than Peaches and Apricots, although, perhaps, they stand less in need of it. To make sure of a good crop, however, it is well to be prepared, and if a coping board and poles are provided, nets, canvas, or mats can be easily attached to them when the necessity arrives.

Locality and position make a great difference in the amount of protection required, and the cultivator, on becoming well acquainted with the gardens under his charge, soon finds out where it is most needed. Trees growing in the open are not so easily screened as those against walls; nevertheless, it is often desirable to protect some choice or somewhat tender kinds. To accomplish this in the case of pyramids and bushes, drive some long pliable stakes into the ground, about a yard apart, round the outside of the tree, then bring the tops together and tie them securely over the centre of the tree, thus forming a framework for some light material. Tiffany, or scrim canvas, I have found answer very well. Some may say, "Not much protection in that;" but then it must always be remembered that it is not the actual frost which does the mischief so much as the sun shining directly upon the frozen blossoms; therefore, shade from the early rays of the sun is as essential as shelter from frost. Such being the case, destruction of the blossoms, when a frost has come upon us unawares and found us not prepared, can often be averted by shading them from the sun until thoroughly thawed and dry again. Espalier trained trees and horizontal cordons are easily protected; the former by erecting a temporary framework over them to be afterwards covered with tiffany, the latter by bending some sticks over them in the form of arches for supporting the covering. Whatever kind of material is used for protection it is important that it be firmly secured, as much harm is often done by allowing mats and other coverings to whip against the trees. Branches of Evergreens are open to objection on this account, and it is questionable if the protection they afford is not more than counterbalanced by the quantity of bruised and broken blossoms and leaves they often cause during strong winds.

A. BARKER.

Apple Ribston Pippin.—This fine old dessert Apple appears, from a recent correspondence in the *Gardeners' Chronicle* to have been originally raised from seeds imported from Normandy about the year 1688 or 1709, according to good authority. The old tree was seen in August, 1787, by Hargreaves, who, in his "History of Knaresborough," says that the tree was evidently on the decline in vigour, although it bore a fair crop of fruit. As a seedling tree it was never grafted, and to that fact is due the corollary that a sucker from the original seedling is alive to-day. Hence, if our facts are correct, we have to-day alive in an English gar-

den a seedling Apple tree two centuries old. This is in itself not at all a bad argument against the eternal propensity for splicing every plant on something else as a stock, which has now become a sort of innocent, but not harmless mania. No doubt there are old seedling Pears near old religious foundations equally old or even older but where shall we look for grafted fruit trees two centuries old like the Ribston Pippin Apple?—F. W. B.

"THE FRUIT GROWING REVIVAL. PRACTICE V. THEORY.

As the cultivation of fruit is at present engaging the attention of growers for market, the following from the *South Eastern Gazette* may be of interest to our readers:—

"I notice that in a recent issue of your journal you have, under the above title, a leader in which reference is made to a recent article on the subject in the *Nineteenth Century*, and you rightly express your doubts as to the profits named therein.

"It is a pity that such misleading statements are published, as many may be induced to invest their money in hope of getting good profits, only to lose it if they are inexperienced in fruit growing. In the article referred to, Mr. Morgan makes the extraordinary statement that Apple trees in the third year from planting will yield 4s. a tree, or £60 an acre, if planted 300 to the acre, which is too thick for trees to remain. Now out of over thirty sorts which I have tested, and which include the principal varieties, and also include three out of the four sorts he names (the one not included being Blenheim Orange, because it is notoriously unfruitful when young), out of these sorts not one produced on an average quite 2d. per tree the second or third years, and this was the gross price, out of which had to be deducted cartage and railway carriage, commission, manure, rent, taxes, picking, and labour cultivation. Certainly, prices were low, as they frequently are, and they are never very high, for foreign competition prevents this even in unfavourable seasons, when there is scarcely any crop. This year prices were better, and trees of the sorts he named, and which are now some six and seven years planted, made as follows: Cox's Orange Pippin, 8d. per tree (this is the best dessert Apple); Warner's King about 2d. per tree, and Stirling Castle 5d. per tree. I have sorts which pay better, and I have grubbed up and replaced Stirling Castle, because it bears so much that it will not grow into a large tree, the Apples on it being like ropes of Onions most years. It is suitable for small gardens where a dwarf tree is desired. Small trees mean small profits.

My figures are reliable, for every year I add up the amount received for each variety of fruit and divide it by the number of trees that I have of each sort, and so I know exactly how much each variety produces. By this method, though troublesome to attend to in the busy season of the year, I know just which varieties are the most profitable to plant. I do not know any other market grower who does this. The prices are taken from market returns, and not from fancy prices. It is easy to make these things appear very profitable on paper.

"Of the four sorts of Pears that Mr. Morgan names, Louise Bonne and Marie Louise canker too much on most soils to be profitable. Williams off standard trees in England, although of a very fine flavour, do not come large and clear, and in competition with heavy arrivals from France they fetch low prices, and this sort must be discarded in favour of improved varieties. Of the remaining variety, Pitmaston Duchess, a large Covent Garden salesman informed me a few days ago that he had seen half sieves of large and fine English Pitmastons sold at very low prices. Pears have sold very badly this last season, but all these things have to be taken into account, and fruit when grown has to be sold even if it is at a loss. I may add that the soil of my fruit farm is very suitable for fruit growing, and that it is well manured and cultivated. It is a matter for regret that those who take upon themselves the office of being 'teachers of babes and instructors of the public' should make such wild and unguarded

statements as have been made during this winter, and the remark that you make, 'We are afraid that many who plant under these conditions will be rather disappointed,' is quite true. There is not much prospect of improvement in the profits of fruit growing until agriculture, as a whole, is more profitable, for directly any one fruit pays at all well, even for a single year, immense quantities of that sort are immediately planted by farmers in this district, who are anxiously looking out for something that is profitable to grow, and in a few years the supply is so large that prices fall. A few years ago it was Black Currants that were planted, and prices have fallen to about half what they were. Last winter it was Cob Nuts. This, it is large Apples and Gooseberries. Apples sold very well at the commencement of the season, but now have fallen very low. I believe I read in the *South Eastern Gazette* that Mr. Bunyard said that £110 per acre was made by Apple growing. I should be very glad to have proof that anything like that sum has been made on an average during the last seven years, even by a single acre. If it is true, I wonder Mr. B. does not plant his many acres with Apple trees. I suppose raising trees for sale is more profitable."

Yew Tree Farm, Leeds.

WALTER KRUSE.

The fruit crop.—It is rather early to say much respecting the prospects of a crop of fruit. Apples, Pears, Plums, and Cherries promise well, but I cannot say the same for Peaches and Nectarines, the buds on which on open walls look very small and pinched, showing clearly that last season was too cold and wet for the trees. Not only are the buds unsatisfactory, but the wood is green, and should the flowers be perfect when they open, of which I am very doubtful, it is to be feared that they will not set. Bush fruits look all right, and Strawberries have good crowns—that is, those that were planted in 1887; but young ones of last year are not strong, neither are those in pots, as they made little headway till the autumn. Our stock, both for indoors and out, consists almost entirely of British Queen. We only have Keen's Seedling and Vicomtesse for early work, and Waterloo and Elton for late use.—S. D.

Apples and Pears in north of Ireland.—I, with many others no doubt, am much interested in your remarks relative to the best sorts of Apples to grow. I think your list is a very good one and ought to satisfy any reasonable grower. But now-a-days the catalogues are so nicely got up, and contain so many new names with plausible descriptions, that the new hand cannot refrain from adding to his list of varieties. The only sensible way to plant an orchard that may turn out satisfactory is to find out the Apples or Pears that do best in the neighbourhood in which the new plantation is to be made, choose as few sorts as possible and stick to them. Surely, it is better to have a dozen trees of one good bearing kind than to have a dozen different ones that bear only moderately, or not at all. Reinette du Canada grows well with me, and bears most plentifully every year (and this in the cold climate of the north of Ireland), yet I hardly ever see it mentioned. It is a pretty Apple, of very good size, keeps well, eats and bakes well, and in my case is a most abundant cropper. I planted the tree a few years since, and it never misses. I got some Golden Pippin grafts sent to me from America last year; they are growing well, and I believe will fruit this year; but if, as some of your correspondents aver, this sort does not come true from a graft, I shall be disappointed. Still I have the best three sorts in the world—the Irish Peach, Cox's Orange Pippin, and the Blenheim Orange Pippin. One follows the other to perfection.—RICHARD NIVEN, *Chrome Hill, Lisburn, in Field.*

Thinning the heads of fruit trees.—"E. H." in THE GARDEN, March 2 (p. 198), says:—

If the pruning of orchard trees were done upon common-sense principles, there would never be any fagots to tie up from the prunings, and the trees would not suffer from the current of cold air which always happens when a severe thinning has taken place. I look upon it as absolute cruelty to thin severely any neglected fruit tree as is sometimes done. The cold wind rushes in and the tree is injured for

years. The true remedy for neglect is to spread the work over several years, to minimise the check.

I do not believe that any such terrible results as are pictured would happen. Nay, I am sure they would not. And so far from advising persons who have dense-headed fruit trees to be careful in thinning, I should advise hard thinning whilst about it rather than doing the work by halves. I have done plenty of hard thinning, and have seen plenty of it done, but never found other than good to result. A tree which by reason of its shock-headedness has become stunted in growth needs a vigorous restorer, and none is better than a hard thinning. The encouragement given to make new growth helps to develop new root action. The tree will rarely bear appreciably the first year after such drastic treatment, but the second year usually sees a good crop of fine fruit, and very moderate thinning will suffice henceforth.—A. D.

WORK IN FRUIT HOUSES.

PINES.

ASSUMING that all the early Queens which have not started into growth are now throwing up their fruit, and the soil, hitherto kept on the dry side, has been carefully, but not elaborately watered, it will be necessary to help them forward by daily attention to the most trifling matters of detail. March and the early part of April being so changeable, no fixed day and night temperatures can yet be decided upon, but, provided the weather is fairly good, the minimum should range about 70°, not less, unless nights are very cold, and the temperature by day from 80° to 85° when sun heat favours ventilation. As some of the most forward fruits will now be in flower, a little air should be put on early in the morning and shut off early in the afternoon, whilst atmospheric moisture from damping the walls, floors, and surface of the bed must be regularly, but moderately produced, as these succulents do not set kindly when the air is charged to saturation. Once the flowering stage is passed the roots will take more frequent supplies of tepid liquid guano or soot water, and light dewing overhead with pure soft water about 2.30 on fine afternoons may be practised. If the sun is bright and the pipes are moderately warm, this syringing should be preceded by quick closing in time to run up to 90° for an hour or two, and as this is the period of progress the evaporating pans should be filled with clear liquid, not too strong, or guano water, and a little of the same, still further reduced, may be syringed into the axils of the lower leaves in which stem roots are now working. These figures, of course, apply to fine, genial days and mild nights, when growth may be accelerated without drawing the leaves or crowns, but during spells of less favourable weather, the temperature all round should range a few degrees lower. As the young fruits swell, it may be necessary to keep them upright by means of sticks carefully inserted into the soil, as nothing looks worse than a ripe Pine with its crown out of the perpendicular; gills, too, must be removed, and if more than two suckers appear on each or any of the plants, they must be reduced to this number, those left naturally the strongest and best. Dry fire-heat being baneful to the roots, foliage, and fruit, the last, but not least important point to which I must draw attention is the fermenting material used as a plunging medium. The heat from this should range about 85° at the base of the pots, but not unmindful of the fact that hot-water pipes lying in rubble have a drying tendency, I would suggest close examination by lifting a pot here and there, and if it is found that the leaves or tan have been robbed of their sweet, invigorating moisture, it should be restored, not by turning the bed, but by the application of tepid water or diluted liquid at short intervals until the lowest stratum is as moist as the soil in the pots.

Succession fruiters from which the first batch of fruiting plants were selected, quickened by increased bottom heat and moisture early in February, will now be on the move, and although the majority of them will make a growth before they throw up, they may be treated precisely the same as the early

Queens. Days having increased in length and brightness, it is just possible the plants may require more water at the roots, and atmospheric moisture in proportion to solar heat must be increased. If any of the plants start without making a growth, and a corresponding number in the early compartment have missed, now is the time to make an exchange, that is, where this step is thought desirable. Otherwise there is no reason why they should not remain, as these non-growers form a sort of connecting link between the two batches, a very important matter where a constant supply is imperative.

Strong successions transferred to fruiting pots last month having been kept rather close and moist, will now be taking to the new soil, a condition easily perceptible to the practised eye. If the bottom heat from moist tan or leaves has ranged about 85° and atmospheric moisture moderate, they will hardly yet require water, but they must be examined, and if found dry a few inches below the surface, a little pure water at a temperature of 80° will do them no harm. Growth of root being of more importance than that of the leaves, at least for the present, the air temperature should range 60° to 65° at night, 75° to 80° on fine days, and 85° for a short time after closing, when atmospheric moisture will be found preferable to overhead syringing. Air may be given with a rising glass at 70° and gradually increased up to 80°, when it should be diminished and shut off altogether in time for the rise on fine afternoons.

MELONS.

If all has gone well, the earliest plants, divested of their leading points, will now be showing fruit at every lateral. Of these, not more than two, or at most three, will be allowed to swell to maturity, but knowing how important is an even start, all should be fertilised in order to secure the choice of the requisite number that will run evenly through the early stages. If plants in 12-inch pots are plunged close together, space for laterals will be extremely limited; consequently very close pinching will be necessary. We sometimes pinch each lateral close home to the tiny fruit the moment it can be seen, and in this way prevent crowding, as so often happens when this operation is deferred until the Melons are set and swelling. To the uninitiated this sharp practice may appear fatal, but really it is not, as another lateral is found growing from the base of the fruit by the time it is ready for fertilising. This lateral later on is pinched at the first joint, all succeeding spray is removed, and in this way the true cordon form is retained, as we have but two primary leaves attached to each fruit-bearing side shoot; whilst those from which superfluous fruits have been removed are kept pinched to the first joint from the main stem. Where space is abundant and each plant has plenty of room, we allow all the laterals to grow until the fruit is set, and then shorten to one joint in advance; but taking into account the check and waste of force, the gain in size is imperceptible. These remarks apply to plants from which very early fruit is the leading object, but are altogether out of place where Melons are grown upon the extension principle. When Melons commence opening their flowers the heat should be slightly increased to 70° at night and 80° by day; no water should touch the plants, but atmospheric moisture should be regularly supplied when bright sun favours ventilation. A sharp bottom-heat also is an important factor; hence the advisability of renovating the fermenting material some time in advance of the flowering stage, when the old-fashioned method of drying the roots and ushering in red spider is quite unnecessary. When the fruit is swelling freely, each Melon should be supported on a small piece of lattice wire or board fastened to the trellis; heat and moisture may be given *ad lib.*; top-dressings of stiff loam and bone-dust must be applied in thin solid layers, and warm diluted liquid, soot, and guano water, without wetting the stems, must be given freely and alternately.

Successions from later sowings may be put out in pots or upon ridges for keeping up the supply as

often as compartments become vacant. Good tropical heat top and bottom, plenty of moisture and an abundance of light are the main points; but these will not suffice unless the house is kept free from filth and insects and proper attention is paid to ventilation. Manipulation under the different methods of culture is always the same, but the soil as the season advances may be heavier than that recommended for early plants put out in January. A stiff calcareous loam enriched with bone dust, old mortar, burnt refuse, or charcoal used in a dry state and made very fine answers best for pots or hills; but lighter soils may be made useful by the addition of marl and a little very old cow manure free from worms or the larvae of insects. If the presence of any of these pests is suspected, the manure may be baked or well dusted with soot before it is added to the compost.

Manure beds for pits and frames.—If the beds made up last month are still very hot, and the plants in the nursing frame are quite fit for turning out, a few 4-inch or 6-inch drain pipes laid across the centre and left open at each end will prevent the scalding or burning of the soil forming the lower parts of the ridges, which, by the way, cannot be made too narrow at the base at the outset. When these pipes are laid and the whole of the surface has been faced with 2-inch sods or turves to keep down steam, the plants may be put out as soon as the soil is warm enough. As frame Melons do not require one-fourth of the soil frequently given to them, it is a good plan to fix two rough boards a foot or more in width on their edges, and about 18 inches apart, before the roots require soiling. The drain pipes, by this time having served their purpose, may be buried, but the sods must remain to prevent an influx of steam when the linings are renovated. Good covering with dry mats every night is imperative.

CHERRIES.

If the trees in the earliest house are not already in flower and setting they will soon be approaching that stage, when direct syringing must be discontinued, but the house being light, airy, well ventilated, and properly heated, the floors and walls may be moderately moistened early in the morning and again about three p.m. on fine days. The roots, too, must be examined, and if at all on the dry side a nice watering with clear water quite equal to the maximum temperature of the house will put this matter right until after the fruit is set. Another preliminary operation is fumigation, no matter whether green-fly is perceptible or not, as no amount of attention to fertilisation and other details can prevent a serious check where a single aphid is in ambush when the first flower opens. As all stone fruits, the impatient Cherry included, set best under a slightly increased maximum temperature, that by day may range about 60°, with gentle warmth in the pipes and a free circulation of air. On bright sunny days it may run a little higher, but the fixed figure 45° should be touched through the night. It is not a good plan to commence artificial fertilisation too early, but when the trees are in full flower and pollen is plentiful the brush may be advantageously used about noon on fine days. When the fruit is set the trees may be syringed twice a day, the first time when the temperature is rising and touches 50°, and again about three p.m., when the ventilators are closed. If the trees are of full age, and a good set has been secured, the borders may be well mulched with rotten manure or the remains of an old Mushroom bed, which must be copiously washed in with tepid water, diluted liquid, whilst the manure is fresh, being reserved for the evaporating pans and floors. Young trees will hardly require stimulants until after the fruit is stoned, but once this trying stage is got over, weak liquid soot or guano water passed through a moisture-retaining covering of fresh stable litter will tell favourably upon the quality of the fruit. Disbudding and thinning in due course will require attention, and conjointly with these operations a sharp eye must be directed to the detection of grub. All insecticides being lost upon these destructive creatures, the only mode of

saving the crop is catching and killing or pinching the closely folded leaves.

THE HARDY FRUIT GARDEN.

The buds upon Peach trees being somewhat later and, I am sorry to have to say, less prominent and plentiful than usual, we have not forced forward the nailing in, but this work is now nearly finished, and we are hoping almost against hope for a full set of fruit. Trees of mature age, which bear well and are root-pruned every year, are carrying an abundance of flower-buds, but young ones, which annual lifting barely restrains, held leaves on their points till Christmas, and now look more like making wood than fruit. So far there is no sign of bud-dropping, a fact which goes far towards proving that immaturity is not the invariable cause of this distressing defect in Peach houses. A very clever old Scotch gardener, with whom I once lived, often told me dropping was caused by over-ripening the wood, and this theory to a certain extent was right, but it would not have been had the trees under glass been abundantly supplied with water. When trees get too high a temperature, too little air, and not enough water, the buds, as in 1888, ripen before they are properly formed, when dropping in due course follows. Buds, on the other hand, which have not had sufficient heat to perfect them, favoured with a kind winter like the past and a good spring, not unfrequently set fairly well, but they must not be hurried; hence the importance of retarding until danger from sudden checks is left behind. The spring so far is in our favour, and, provided this calm, dry, seasonable weather continues a little longer, I see no reason why fair crops of fruit may not be secured from well-managed trees in all fairly good gardens. The main factor now undoubtedly is time for steady development, and this to some extent may be prolonged by light shading on bright sunny days, but once the flowers begin to open, the walls must be allowed to absorb all the sun heat possible, for the two-fold purpose of ripening and setting the pollen at liberty and repelling frost through the night. Protection from wet and the prevention of radiation being powerful aids, the copings of glass or wood, *i.e.*, broad boards, this year should be fixed with the greatest possible care.

GENERAL WORK.—The protection of trees of various kinds, from the noble Royal George Peach on the south wall to the humble bush on the open quarter, will of course require daily attention, and materials of the rudest kind calculated to prevent radiation will be brought into play, but beyond these matters work for the next few weeks will be comparatively light. Planting, staking, and mulching of course must be brought to a close, and the preparation of sticks, stakes, and shreds for summer use will give employment on wet days. Strawberries may still be planted when the ground is dry and friable, and rather long stable manure as it can be obtained may be placed amongst old plants for the twofold purpose of keeping in moisture and protecting the ripe fruit from grit. If well charged with ammonia, so much the better for the plants, as there is ample time for washing and bleaching, when this less valuable material becomes quite as sweet as new straw. If the pruning of Filberts has been deferred, it may now be taken in hand, care being observed in the retention of a fair sprinkling of male catkins for fertilising purposes. Last, but not least important, is the weekly collecting of soapuds from the laundry for syringing over the various kinds of fruit trees whose flower buds are comparatively dormant. Here this cheap manurial wash has been used for a great number of years, and we find it most effective in the destruction of Moss, Lichen, and the larvæ of insects, whilst the soda carried down to the roots supplies a want much felt in fruit-sick soils.

The grafting of young stocks of Apples and Pears must now be pushed forward, but aged trees need not be taken in hand before April. The heads of these, as a matter of course, were cut back some weeks ago, and suitable wood for scions has been laid in on a cool shady border. Some people graft

Cherries and Plums, but budding in August answers best, and forms the neatest union. Whichever plan is adopted with these or kernel fruits, the young stocks should be worked close to if not below the surface of the soil. W. C.

The Madresfield Apples.—Having read Mr. Crump's interesting and instructive remarks (p. 198) upon his mode of selecting pips or kernels as well as the manipulation of his stocks, I lose no time in thanking him for his courtesy. Whether soil, situation, stocks, or their preparation separately or collectively, produce the satisfactory result, I must say brighter, finer or kinder young trees cannot be met with in any trade nursery in the kingdom. To Mr. Crump's guiding hand and head, as a matter of course, this success is due, and I hope he will long

finest varieties, including the far-famed Ribston Pippin.—W. C.

TREES AND SHRUBS.

THE WEEPING LARCH.

(*LARIX EUROPEA PENDULA*.)

Few trees are so seldom used for purely ornamental purposes as the common Larch. Yet in the weeping form, that is so well depicted in the accompanying engraving, we have certainly one of the most distinct and desirable of hardy Conifers. As a lawn specimen, and particularly when associated with such stiff and somewhat formal trees as the Lebanon Cedar and Swiss



Weeping Larch (*Larix europæa pendula*).

be spared to produce highly coloured fruit equal to that shown at Chiswick last October. Of this I do not entertain the shadow of a doubt, as last year was the most unkind not only for ripening, but colouring fruit that I have experienced since 1860. His failure with the Blenheim Orange as a stock or ungrafted seedling is, I think, due to some local cause or defect, as I believe there are in the country a goodly number of seedling trees which produce fruit of the finest quality. Be this as it may, the ball having been set rolling, I hope others will now give us their experience, not only with Blenheims, but with other sorts of Apples on their own roots, be they seedlings or cuttings. Some sorts of Apples, I have positive proof, will strike root and make healthy fertile trees, and I shall be disappointed if we do not hear of successful attempts with the

Stone Pine, the pendulous or weeping Larch is at all times an object of admiration. More so than perhaps any other Conifer, the Weeping Larch requires plenty of room for its free and perfect development, for if hemmed in by equally robust subjects or overshadowed by taller trees, that free and easy outline, for which it is so remarkable, is quite lost. I would certainly in planting this Larch assign to it a sheltered situation; not a spot where never a blast of wind can ruffle its elegant foliage, but where it will be preserved from what I might term hard and long-blowing gales.

One would fancy in reading up the few notes that are to be found concerning the Weeping

Larch that it is a scarce and low-growing tree, but this is by no means the case, as specimens of almost equal proportions to the majority of those of our normal type are to be met with. Not a dozen years ago Cambria could boast of perhaps the finest, certainly the largest, specimen of the Weeping Larch in this country, but unfortunately, owing largely to ignorance and caprice, this unique tree was laid low. After it was felled an opportunity occurred for me to measure the straight and well-rounded stem, and it contained rather over 60 feet of wood, this being in no wise different from that of any other Larch of the thousands I have seen cut up. It must be borne in mind, however, that this particular tree was not the so-called American Weeping Larch (*L. pendula macrocarpa* or *americana*), but simply a pendulous form of the European tree. Young trees of the American Weeping Larch are certainly, when well grown, very beautiful, and there are several notable examples in this country; but in my own opinion the one just described can compare with it very favourably.

Soil would not seem to be a potent factor in the cultivation of these Larches; but in order to prevent heart-rot and "pumping," avoid that of a gravelly or sandy nature.

In the best forms of the European Weeping Larch the foliage, or rather branchlets, is long and pendulous, often hanging for fully 30 inches from the main branches, and the tree is then most interesting, but particularly at the time when the cones assume that ruddy tinge that associates so nicely and markedly with the almost pea-green foliage.

A. D. WEBSTER.

Spruce and Beech for large hedges.—To form a massive evergreen hedge with not too much formality about it, nothing is more suitable than the Scotch Fir when planted on soil that suits it. Two hundred yards or so of this, fence off part of the high road between Bury St. Edmunds and Thetford from a portion of the Euston estate, and show what may be done with it when properly looked after and trimmed, for the hedge is now about 9 feet high and 6 feet through, very dense, and feathered down to the ground. At intervals plants of the common Elder have been put between the Firs. These are cut down level with the rest of the hedge during the winter, but rise considerably higher in summer, and have a good and unique effect both when in flower and in berry. This bit of hedge is near some cottages, and probably it is well guarded, but farther along towards Thetford, another stretch of road has been hedged in a similar manner, minus the Elder, and the result is bad, for gipsies frequently camp on the common near and have taken the lower branches for firewood, besides maliciously setting fire to the hedge itself in several places, so that it is not allowed to develop. A good native tree like this planted in hedge form, and not kept too formally cut, would form a far better approach to a pinetum than the avenue of lanky Araucarias sometimes seen. The Beech is another native tree which cannot well be beaten for forming a large hedge, and it has practically all the value of an Evergreen for purposes of shelter, as when planted in good ground and properly clipped it carries the majority of its leaves quite through the winter and until the new leaves form. Such a hedge is a great feature here. It is over 10 feet high and 4 feet through, and forms a complete shelter to a portion of the kitchen garden. —J. C. TALLACK, *Livermere*.

SHORT NOTES.—TREES AND SHRUBS.

Evils of grafting.—I should like to add my voice in depreciation of the too prevalent habit among nurserymen of grafting. In 1884 I ordered from a nursery twelve choice Oaks, after reading an article in your paper, and only about three survived the shift from the nursery. —W. F. L.

The Carolina Poplar (*Populus monilifera*).—Was there not a mistake in THE GARDEN, March 2 (p. 189), where the Carolina Poplar is spoken of as *P. monilifera*? I always thought that was the botanical name for the Black Italian Poplar, and supposed it different to the Carolina, which I think they grow much in Picardy. —R.

Butcher's Broom in shade.—Among the small number of plants that will succeed in much shaded situations is the Butcher's Broom, which will grow even under Beech trees. The quality of the soil, too, does not seem to have much influence upon it, although in that which is dry and sandy it is usually smaller in all its parts. Besides its value as an evergreen bush, the bright red berries are very ornamental, but the flowers are inconspicuous. There are a couple of other hardy species well worth a place in gardens, one of which is the Alexandrian Laurel (*Ruscus racemosus*), a native of Portugal, and *R. hypoglossum*, which is larger than either of the others, and remarkable from the fact of its bearing flowers and a small leaflet about the centre of the leaf. —H. P.

PROPAGATING.

COCOA-NUT FIBRE REFUSE.—This material is most useful in the propagating house, but there is a limit to its value. It is frequently recommended for rooting cuttings in. It may be used for some subjects with advantage, but I like to avoid using it as much as possible, for the reason that roots made in such material are soft and fleshy and do not readily take to the soil most suitable for growing the plants on in afterwards. Another point is that, being of a spongy nature, it holds moisture, and if cuttings are potted with some of the fibre, or rather fibre refuse, about the roots it will be detrimental to the plants later on, as it will form a wet mass just where it is most essential that the soil should be sweet. Objections are sometimes raised to the use of fibre refuse for plunging in the propagating house, but I know of nothing better, especially if it can be renewed from time to time. It should also be turned over from the bottom frequently, for if it gets dry and pressed rather firmly it will act as a non-conductor of heat. It is best to use only sufficient for plunging the pots in, and if this does not bring the pots sufficiently close to the glass, some rough open material should be used for filling up underneath. One great point in favour of fibre refuse is, that when obtained fresh from the factory it is clean and free from fungoid matters, but it is favourable to the growth of some of the most destructive forms of fungi if once they get established.

ABUTILONS.—These are very useful for various purposes. Some of the free-flowering sorts form very pretty pot plants, the variegated varieties also being very ornamental. *A. Sellowianum*, which has large leaves beautifully marbled with yellow and various shades of green, is the most showy for pots, and *A. Thomsoni* is the best for bedding. The strong-growing flowering sorts are also useful for the sub-tropical garden. The present is a good time to propagate Abutilons. Cuttings may be taken from free-growing plants, and the more vigorous the former are the more quickly they will make good specimens. If the cuttings are taken before the plants have made much new growth, the wood will be moderately firm at the base. The best position in which to root the cuttings is in a close case where there is a moderate bottom-heat. If they are large it is best to put them in singly, using pots of proportionate size. Light sandy soil should be employed, and only sufficient water given to keep them from flagging, but more water may be given after the cuttings are well callused.

COPROSMA BAUERIANA VARIEGATA.—This is one of the prettiest variegated foliage plants for the cool greenhouse. It may be propagated from cuttings at this season of the year. Short cuttings succeed best, and they should be cut off close under a joint, only one pair of leaves being taken off. Light peaty soil with a good surfacing of sharp sand should be used for the cutting pots. The base of the cutting should not go below the

sandy surface. A close propagating case is the best place in which to root the cuttings.

ASPARAGUS TENUISSIMUS.—This is equally pretty, though not quite so popular as *A. plumosus nanus*, and while the latter can only be propagated by divisions or seeds, which are not produced very freely, *A. tenuissimus* may be easily increased from cuttings. Small side shoots taken off with a heel make the best cuttings. They will root freely in sandy peat, the best position for them being in the close case where there is a good bottom-heat. If about three plants are grown on together in a pot they form a nice compact mass of feather-like foliage which is very effective. Older plants are very useful for cutting, the long feathery sprays being serviceable for decorations.

EUPHORBIA JACQUINIEFLORA.—I have before alluded to this useful plant, cuttings of which should now be ready. Various modes of propagating are recommended. I have always succeeded well by taking the young shoots off when about 3 inches long, having some quite dry sand at hand to put them in to stop the milky juice from flowing. I use small pots filled with peat, leaf-mould and sand in equal parts, and put three or four cuttings in a pot. Everything should be ready so that the cuttings can be put in and placed in the close case before they get withered. They may have a slight sprinkling of water, but not sufficient to reach the base of the cutting. About the second day more water may be given.

CYTISUS RAMOSUS.—This useful flowering plant, which is very extensively grown for market under the name of Genista, may be readily propagated from cuttings, which if put in at once will make nice little plants for flowering the following spring. To have really good bushy plants, two seasons of growth are necessary, and it is not then necessary to propagate quite so early in the season. Soft young shoots from plants that have been cut back make the best cuttings. They should be taken off close to the old wood when about 3 inches long, a few of the bottom leaves being taken off and the cuttings put in rather firmly in sand and peat in equal parts, with a little extra sand on the surface. The best position in which to root the cuttings is in a close case where there is a good brisk bottom heat. They require careful attention, being very liable to damp off, and should be removed from the close case as soon as rooted. After they are sufficiently hardened off they should be potted singly in small pots. During the early part of the season they may be grown in a rather warm position, and should be kept fairly moist, otherwise red spider will be troublesome. The plants will require stopping from time to time, and those that are intended for flowering the following spring should be stopped for the last time about the end of August. Those that are to be grown on for another season may be stopped later, and again early in the spring. For growing *Cytisus* in good loamy soil may be used and the plants potted moderately firm. During the early part of the summer the plants may be grown in pits, and later on they will be better if stood out in an open position. They should remain until frost is expected, when they should be removed to where they can be protected from frost, but kept as much exposed to light and air as possible. A.

Is grafting useful to man?—Some of us are a little taken aback by Mr. Coleman having selected a few specimens of grafted Fir trees as illustrative of the good effects of grafting. Now surely, if grafting is of any use to us at all, it is in the hardy fruit garden and orchard rather than in the pinetum. Practically speaking, all our hardy orchard fruit trees are grafted ones. In America the Apple crop is also from grafted trees, but they are grafted on very dwarf stocks and the union is below the earth level at planting time, as I understand; whereas our fruit growers allow the scion no chance of rooting on its own account. If this is true, I should say a good many of the so-called grafted Apple trees in America are on their own roots to-day, and that may account in some measure for their success. If grafting is of any use what-

ever, it certainly is so in the orchard and fruit garden, and I think Mr. Coleman should enlighten us as to its peculiar advantages in fruit culture.—SEEDLING.

KITCHEN GARDEN.

PROFITABLE CROPS FOR SMALL GARDENS.

As a rule, the proprietors of small gardens, or say those of about one acre in extent, do not derive so much benefit from them as they ought to do. In many instances they are cropped to their full extent, but the fault lies more in the quality than in the quantity of the products of these gardens, more judgment being needed in selecting the most suitable kinds and varieties of vegetables for each particular establishment. When a breadth of ground is given up to a crop not esteemed by the employer of the man responsible for the arrangement, or when gluts, that might easily be avoided, occur, this must be considered so much valuable time and space wasted. Too often much ground is devoted to crops of inferior varieties of vegetables to the exclusion of superior sorts that, perhaps, are left in undisturbed possession of the box or seed bed in which they were raised. In other cases false economy prevails, and the gardener has to be either content with the cheapest seeds procurable, or, what in some respects is even worse, has to save many of his own seeds, the almost inevitable result being in each instance crops of inferior quality. Very few really good vegetables can be bought extra cheap, while a considerable amount of judgment is necessary to be successful in seed-saving, or otherwise deterioration of stock will be rapid. It is the best of everything only that ought to be saved, but if the owners of small gardens follow this practice correctly, they must be prepared for short crops, especially of fresh Peas and Beans.

A frequent mistake is made in the choice of Potatoes for cultivating in small gardens. If there is ground sufficient for the production of enough Potatoes to maintain an all-the-year-round supply, then the stronger growing late varieties, and which are also the best disease-resisters, ought to be extensively grown. More often than not, however, at least one-half the Potatoes consumed on the place has to be bought, and in all such cases the preference should be given to early and second early varieties for planting. These are the best adapted for any system of double cropping that may be tried, as they form short or comparatively short haulm, and can either be cleared off in time for successional crops, or cropped between. Late Potatoes take more out of the ground, are slower in maturing, and, what is of the greatest significance, can usually be bought more cheaply than they can be grown. Peas are appreciated by nearly all owners of small gardens, but gluts rather than a steady supply usually fall to their lot. If the rule of waiting for one sowing to be peeping through the ground before another is made were attended to, there would be far less likelihood of a glut. A few well-isolated rows liberally treated at the roots will produce more Peas of better quality than double the number crowded together and starved. If suitable stakes are available, tall varieties are very profitable, but when stakes 4 feet high are put to varieties that attain a height of 6 feet and upwards, the result is anything but satisfactory. Such medium height varieties as William I., Wordsley Wonder, Stratgem, President Garfield, Prince of Wales, Gladiator, Veitch's Perfection, Queen, and Sturdy are all excellent for small gardens, and might well be more generally grown. Very

early and very late rows are rarely profitable, and no attempt to grow the latter at any rate ought to be made in gardens of a much limited area. Runner Beans are among the most profitable vegetables that can be cultivated, and one or two long rows might well be sown in every garden. If given fairly rich and deeply dug ground, and not crowded in any way, the plants commence bearing in June, and continue serviceable till frosts intervene. Kidney Beans being earlier than the runner Beans should also be grown more often than they are, as not being continuous bearing they can be cleared off in time for other vegetables to succeed them. Broad Beans are not so popular as either of the foregoing, and, as a rule, one long row or a few short ones each of an early long-pod variety and a successional broad-pod are ample.

Sufficient winter Onions or those obtained by sowing seed in the spring are usually grown, but as far as my experience goes, more of the white-skinned Tripoli varieties might well be sown every autumn. These bulb in early, and being of mild flavour form an excellent vegetable and are the best for eating as a salad. Leeks are very hardy and good either for soups or as a vegetable. There is no necessity to sow a great breadth of large-rooted Carrots, as the smaller Nantes Horn, Model, Early Gem, and other improved stump-rooted varieties take up much less room, are also of better quality, and keep well. Turnips are frequently given a too sunny position, especially during the summer months. They succeed well on the cool borders and ground between, but not badly shaded by fruit trees. No large breadths should be sown before August. Not half enough Beet is grown, and what few roots there are to be seen are usually much too coarse, this being the result of sowing very early or before the month of May. If an early supply is needed, a small packet of either Crimson Ball or the ordinary Turnip rooted may well be sown early in April, but these if left long on the ground also frequently become very coarse. Parsnips are worthy of culture, but not many rows ought to be sown unless they happen to be much in demand. Salsafy and Scorzonera are not both needed, and the former being the least liable to run to seed prematurely ought to receive the preference. A competent cook can convert these roots into acceptable dishes, but if badly served they are not asked for a second time. In any case, it is rarely advisable to sow a large breadth, as I have known inexperienced amateurs do, one or two rows equal to a length of about 40 feet usually being ample. Jerusalem Artichokes are not to be despised, and are very easily cultivated. An outside plot of ground is most suitable for these.

I think that the taste for Globe Artichokes is on the increase, and seeing that a dozen strong clumps will produce a good succession of heads, room should be found for them. They ought, however, to be well grown or not at all. A few rows of Seakale might well be found in all gardens. If there are no facilities for forcing it, late dishes of superior quality can be had by simply closely covering the crowns with pots, or better still with fine light mould. Asparagus is simply indispensable, and one or two beds ought always to be grown. Rhubarb is to be found everywhere, but more often than not inferior varieties are cultivated instead of the earlier and well-coloured Royal Albert, Linnaeus, and Johnstone's St. Martin.

Salading is often much neglected by those in charge of small gardens. Fitful supplies of Lettuce are not satisfactory, nor are the summer months the only season for this salad to be sent

to the table. An attempt should be made to winter a number of plants, more seed also being sown under glass early in the year. Then, instead of raising too many plants at one time only to spoil in the seed-beds, small sowings should be made at intervals of from fourteen to twenty-one days. An open piece of ground, and not poor and shady borders, ought to be devoted to Lettuce. Abundance of Endive should also be grown, this with a little rough protection taking the place of Lettuces during the winter. Cucumbers are cultivated in most gardens, and so also ought Tomatoes to be. Radishes should be sown frequently and on good ground, old roots and those grown on poor soil being hot, tough and indigestible. Celery is common enough, but holders of small gardens err when they buy their plants in an open market, these rarely turning out well, being also most liable to bolt prematurely. The few hundred plants needed ought to be raised on the place and put out in the trenches without receiving a severe check. Much depends upon the choice of varieties, some being much more solid and crisp than others.

In thousands of gardens not a Broccoli has yet been cut, but in April and May large quantities will be spoilt. A better selection of varieties is necessary in most cases, a moderate number of each only being grown. Early Cauliflowers are usually appreciated, the plants in this case being autumn-raised or obtained by sowing seed early in the year. In the hot summer months they are very liable to be destroyed by caterpillars. The same remarks apply to Cabbage. A good breadth of Autumn Giant ought always to be grown. Prominence should certainly be given to Brussels Sprouts, these, if raised and planted early between widely disposed Potatoes, proving exceptionally profitable. A few rows of Borecole, notably the Green Curled Scotch, and Asparagus Kale may well be grown, these being hardy and productive. Sprouting Broccoli is equally hardy and serviceable. Savoys are frequently represented by the late Drumhead only; whereas an equal proportion of this variety, Early Elm, and Dwarf Green Curled ought to be planted, a succession being maintained thereby. Chou de Burghley sown in April or early in May would be most profitable at the present time.

W. I.

Runner Beans.—Very frequent are the queries put this year by small gardeners with respect to the price and quality of Runner Bean seed. We had such a dreadful season for the ripening of the seeds last year, and the early October frosts wrought such havoc amongst the pods, not then fully matured, that myriads who invariably have plenty of seed left for own sowing the following spring find that their cherished savings from last year's crop have gone mouldy or are soft, and give poor promise indeed of making growth. One of the best courses to take with soft or even with old hard seed (for a good deal of old seed will be offered this year) will be found in sowing in boxes thickly or into frames direct, or even lacking other room in pots and standing them in a frame, greenhouse, or even in a warm window, and thus giving the seed encouragement to germinate, which they will certainly lack in the cold ground. Transplanting of the young plants need not be a laborious matter if the ground be previously prepared, and if put out fully 9 inches apart there will be little cause later to complain of the thinness of the crop. In large gardens where there is plenty of glass, 200 or 300 small pots may well be utilised with good advantage, as then the plants can be put out towards the end of May without being checked, and certainly there will be no blanks in the rows. The soil so far does not promise to be very helpful to poor seed, as it is cold and wet. Where the sowings of Runner Beans are

made out in the open ground, it will be well to defer the matter for a week or so later than usual, also to sow rather more thickly, as blanks seem otherwise inevitable.—A. D.

POTATOES.

In setting out in search of the most suitable varieties of Potatoes, Mr. Burrell makes the somewhat sweeping assertion that last year nearly all the new, or comparatively new, varieties failed. Before putting that remark to paper he should have been prepared with a list of the new, or comparatively new, varieties he has grown and which failed with him last year. Perhaps he will also give us the names of the older varieties which failed with him. Unless Mr. Burrell grew some fifty or sixty kinds, old and new, he was quite out of court in making such an assertion. As I do grow so many, and know as much as most persons about the respective merits of old and new varieties, I am justified in declaring that so impartial was the season last year, that it treated old and new ones alike, the only exception being the very strong tall growers, most of which were little affected by disease, but all the same, because the season was so late and the stripping of the stems of their foliage so general, the resulting crops were moderate and of poor quality. In all my experience of Potato seasons I have never met with a worse one than was last year, and I believe every impartial gardener will agree with me in saying that a more unfair thing than to gauge the merits of Potatoes by that season could not be conceived. If I were to do so, I should have to decry the merits of kinds which in the preceding year were of the highest order. A wonderful soil indeed must Mr. Burrell have, or else a remarkably odd taste that he should place Red-skin Flourball in such a prominent position. Why, except apparently at Claremont, it is almost out of cultivation, and never, at its very best, had it any reputation for quality. Prior to the introduction of Magnum Bonum, no Potato was more strongly recommended as a disease-resister than Red-skin Flourball. I do not say improperly so, as it did resist the disease appreciably; but whilst declaring so strongly in favour of the Flourball Mr. Burrell winds up his Potato paper with the assertion that "so-called disease-resisters were last year more affected than the older varieties." What disease-resisters, and what older varieties? Name and fact would be a great deal fairer than sweeping conclusions of this sort. All about this neighbourhood, where Magnum Bonum is grown by hundreds of acres and in all sorts of soils, very few diseased tubers were found, but they ran smaller than usual. Chancellor, another robust white kidney, out of a large bulk gave no disease, neither did Abundance nor the new and very handsome true kidney Governor. Early Puritan was diseased here, so also was Beauty of Hebron, whilst the white form Duke of Albany suffered less. Coloured varieties of such fine quality as Reading Russet, Vicar of Laleham, Radstock Beauty, Prizetaker and others suffered more, relatively, than white forms. As to measures for combating the disease, it is easier to write about them than to prove them to be successful. It is very easy with warm borders and light garden soil to get Potatoes to ripen off early, but the same varieties out in the open field grown in bulk will be perhaps three or four weeks later. A. D.

SHORT NOTES.—KITCHEN.

Cucumber Prescott Wonder is a strong, free grower and a most prolific bearer, swelling the fruit quickly and equally, with a good, dark bright colour, and from 16 inches to 18 inches long. This is considered the best market Cucumber in Lancashire, and was last year very successful on the exhibition table. In the first week of April last year I saw a house 300 yards long in full bearing. The produce for quantity and quality surpassed any house of Cucumbers I ever saw.—JAMES SMITH, *Waterdale, St. Helens.*

A valuable late Pea.—Our seed order of this year included 3 quarts of Lynn's Black-eyed Marrow Pea, as we have found this old and little-known variety the best of all for the very latest crop. Last autumn was none of the best, but we had plenty of Peas from

this variety until the middle of November. I was induced to try it through its being recommended as the best resister of mildew that could be found, and I was agreeably surprised to find its disposition to fruit late so conspicuous.—J. MUIR.

KITCHEN GARDEN NOTES.

SPRING-SOWN ONIONS.—A heavy fall of snow has much delayed garden operations, but if the seed is sown during March, or not later than the first week in April, this will usually be found quite early enough. In any case it is a mistake to attempt this work before the ground is sufficiently dry to admit of its being freely trampled on and finely broken down. Not only do Onions require deeply-worked, well-manured ground, but this must also be made as firm as possible, without making it pasty, or otherwise the crop fails to bulb and ripen properly. Early digging and laying up the ground in rough spits are frequently very beneficial to Onion ground, and also, to a certain extent, act as a preventive of the destructive Onion grub. Where the latter is troublesome, soot ought to be freely forked into the ground previous to the sowing of the seed, this both acting as a preventive of the grub, and also as a fertiliser. The same remarks apply to common salt, only in this case care must be taken not to apply too much. A very light sprinkling only should be applied and stirred in with flat hoes, a dressing sufficient to just whiten the ground, or as much as may frequently be safely spread over an Asparagus bed, destroying the Onions directly the seed germinates. Salt applied to clayey land causes the surface to run, and subsequently to crack badly. Some soils, notably those of a light character, are improved by a good surfacing of road grit. This also serves to make the ground firm, and the best formed and most brightly coloured exhibition Onions have been taken from ground into which a surfacing of road grit has been stirred. More soluble manures ought to be reserved for surface dressing the ground after the Onions are well up in the rows. An Onion bed should, prior to being sown, be made firm, level, and smooth. The surest way of securing a good plant is to sow in drills, this also favouring the necessary hoeings and cleaning later on. The drills, which should be very shallow, or not more than half an inch in depth, should be disposed not less than 10 inches apart. Sowing thickly is not only a waste of seed, but it also entails much extra labour in thinning. One ounce of seed ought to be sufficient for a number of drills equal to a length of 70 yards. The less thinning out needed the better in every respect, especially where the Onion grub is troublesome. We always cover in the seed with the feet prior to raking over the surface. Some of the best varieties for present sowing are Banbury Improved, White Spanish, Veitch's Maincrop, Giant Zittau, Brown Globe, James' Keeping, and The Wroxtton. The three last-named are the best keepers, and one of these and either of the first five named would be sufficient for most gardens.

ONIONS FOR PICKLING.—It is unwise to delay sowing seed for the purpose of obtaining a good quantity of pickling bulbs, late raised plants failing to mature and ripen. What are needed are small, well-formed, and perfectly ripened bulbs, and these can only be obtained in quantity by sowing rather thickly on very poor ground. Market gardeners find pickling Onions a profitable crop, and their method of culture is the best that can be suggested. A large breadth of ground, never previously deeply dug, is trenched, the bottom spit of very poor soil being brought to the surface. Some time in March or early in April this is heavily trampled and the seed sown thickly in drills 9 inches apart. The subsequent treatment consists merely of surface hoeings to keep down the weeds, no thinning out being done. The Queen and Silver Skin are white and mild in flavour, while if straw-coloured bulbs are preferred, any of the White Spanish varieties may be sown.

TRIPOLI ONIONS.—These, whether autumn or spring sown, fail to keep well, and are therefore principally grown for summer and autumn use.

The pretty little Queen variety sown now bulbs very quickly, and any of the larger white-skinned varieties may also be sown if needed, these being the mildest in flavour. In addition to being bad keepers, Tripoli Onions generally are most liable to be over-run and much crippled by mildew, and for this reason it is advisable to keep them well away from the White Spanish varieties. Now is also a good time to thin out and transplant the autumn-raised Tripoli varieties. Those left in the beds are the first to mature, but those transplanted frequently form the finest bulbs. The ground for the latter may be prepared as advised for the spring-sown Onions. The plants should be carefully drawn or raised from the ground with the aid of plunging forks, as many of the roots being preserved as possible. Shallow wide drills ought to be drawn 12 inches apart, and in these the Onions should be set 6 inches apart, the roots being spread out and firmly covered with fine soil.

LEEKS.—If extra fine Leeks are required, the seed ought to be sown early in pans or boxes, placing these in heat, or the requisite number of plants may be raised with Celery in a frame on a hotbed. For ordinary purposes abundance of plants can be most readily raised on an open and rather rich border, this doing away with the necessity for pricking out. One ounce of seed will furnish sufficient plants for a large garden, and this should be sown at once thinly in drills drawn 6 inches apart.

PARSNIPS.—Very large roots of these are not desirable, medium-sized, cleanly-grown samples being the best in every respect. To avoid coarseness, and yet not go to the other extreme, it is advisable to sow the seed on land that was well manured for a preceding crop, and which has been deeply and roughly dug since the ground was last cleared. If manure is used for the Parsnip ground it ought to be buried at least 12 inches deep, as should it be mixed with the top spit the tap roots that come into contact with it will fork badly. The seed ought to be sown on the first favourable opportunity in this month, in drills drawn 1 inch deep and 15 inches apart. It may either be distributed very thinly or two or three seeds may be dropped every 9 inches, this being the distance at which the plants may finally be left apart in the rows. The Student is our favourite variety and nothing better can be recommended.

EARLY BEET.—Where there is any likelihood of the store of old roots being exhausted long before any young ones grown in the ordinary manner will be available, the attempt should be made to forward some on warm borders. When the plants, raised during March or April in gentle heat, are duly hardened off and pricked out on a warm fairly rich border, they bulb quickly, or quite a month in advance of any obtained by sowing the seed now or early in April in similar positions. The Crimson Ball, or, failing this, the older form of Turnip-rooted Beet are the best for early crops, and the seed may be sown either in pans or boxes, the warmth of an early vinery or Peach house being sufficient to ensure quick germination. From these pans or boxes, after being hardened off, the plants may be transferred direct to the borders, being dibbled out 6 inches apart in rows 12 inches apart. The first week in April is quite soon enough to sow seed in the open, and then only a portion of the crop should be got in, a month later being more suitable for the main supplies. W. I.

American Tomatoes.—"An American Subscriber" (page 205) asserts that I am wrong in describing Mikado and Turner Hybrid as two distinct varieties, but is he quite sure of his facts? They evidently originated from the same cross, but I am under the impression the true Mikado is a pale pink variety, whereas Turner Hybrid is of a deep red colour, and, as far as appearance goes, must be considered the best. According to information received from American correspondents, Turner Hybrid was selected from Mikado by Mr. Burpee in 1884, the original packet containing the two forms having been received from Mr. J. W. Turner, Iowa. The selection was sent out during the following year. If this should prove

to be incorrect, the question arises, which form is to be considered the true Mikado, synonym Turner Hybrid? In this country the pale pink form is known as Mikado, but I received my stock from New Jersey and Ontario. Among the plants grown in 1887, I found one with fruit of a deep rich red colour, the foliage not differing from that of the type. This I have fixed, and propose sending plants for trial to Chiswick this season. Shall I be justified in attaching what name I please to the undoubtedly valuable selection, or must a new name be found for the pale pink form? This (the pink form) grown in the open air in a favourable season produces very heavy crops of exceptionally large fruit which good judges pronounce of very superior quality. My selection is equally prolific in the open, does well under glass where Mikado fails, while the fruits are of better form and nearly as fine in size and quality.—W. I.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

MARCH 12.

THE meeting at the Drill Hall, Westminster, on Tuesday last, was thoroughly spring-like and worthy of the month of March. Half the pleasure of such an interesting and beautiful exhibition is thrown away by the gloom and coldness of the hall. It was a positive discomfort to remain long in it on Tuesday, although there was much to see.

First-class certificates went to the following:—

PRIMROSE BLUE GEM.—In our report of the last meeting we expressed an opinion that this Primrose ought to have received a certificate. This was given to it on the present occasion. Since then its name has been wisely changed from True Blue to Blue Gem. It is not true blue, if we take a *Nemophila* as typical of this colour, but it is the very bluest we have ever seen. It is more of an ultramarine-blue, with a distinct shade of violet, made richer and more striking by the orange centre and very thin margin of white to the whole flower. Scott Wilson is a pretty variety, but not so decided in its shade of blue as this beautiful novelty of Mr. R. Dean, the exhibitor. It is free, hardy, and apparently very robust.

AMARYLLIS JOHN RUSKIN.—A noble variety, with a flower almost as perfect, if not quite, as that of the variety *Nonpareil*. It has the breadth and firmness of petal, strength of habit, and freedom of the finest types of the florist's *Amaryllis*. The colour is of a scarlet shade. From Messrs. J. Veitch and Sons, of Chelsea.

CYMBIDIUM EBURNEO-LOWIANUM.—This is the awkward name of a garden hybrid, a cross, we presume, between *C. eburneum* and *Lowianum*. The result is a flower about the size of that of *eburneum* and of a soft buff colour, brighter and more pleasing than the somewhat dreary olive-brown of *Lowianum*, the rich colouring in the lip of which is in part retained in the variety. The tip of the column and the front of the labellum are both of a dull crimson, and two rich yellow ridges run into the throat of the lip. The spike bore three blooms, and a well-flowered specimen should be unusually showy. The growth is similar to that of *eburneum*. From Messrs. Veitch and Sons.

CLIVIA LADY WOLVERTON.—This strikingly handsome variety should prove a valuable stove plant. The specimen shown had two immense umbels containing a number of well-shaped, spreading and light scarlet flowers, each of which was unusually large. From Mr. Davidson, Iwerne Minster House Gardens, Salisbury.

CHINESE PRIMULA IMPERIAL WHITE.—An excellent variety of the Chinese *Primula*, as far as can be judged from two or three plants, and more useful even than the old double white. It is just as free, has large flowers, which are pure white save a suspicion of blush, and of perfect shape. The growth is robust, though not at the expense of flowers. From Mr. Owen, of Maidenhead.

CYPRIPEDIUM ROTHSCHILDIANUM.—This magnificent Lady's Slipper is finer than the more recently

introduced *Elliottianum*, to which it may be compared, though the flowers are much larger and handsomer. It first flowered, we believe, last year in the nursery of Mr. Sander, who imported it. A descriptive note was given in THE GARDEN of March 17, 1888. The plant shown has leathery, deep green leaves and an erect scape bearing bold showy flowers, in which the dorsal sepal is fully 2 inches across, broader than in *Elliottianum*, and banded with comparatively wide lines of rich chocolate from base to apex on an almost transparent greenish-yellow ground. The lower sepal is similar in colour, but smaller. The petals stand out rigidly, almost at right angles, and are broad at the base, but taper gradually to a point. They are yellowish in the centre, passing to pale lilac at the margin, which is sparsely edged with hairs. The deep crimson lip is like that of *C. Stonei*, but the most peculiar portion of the flower is the staminode, which is like a bird's beak and quite bent down, being bifid at the apex and covered over with a fur of bluish-grey. It is a striking companion to *C. Elliottianum*. From Mr. Hill, gardener to Lord Rothschild, Tring Park.

IRIS ROSENBAACHIANA.—A coloured plate of this and three other spring-blooming Irises was given in THE GARDEN of June 16, 1888. Albert Von Regel found the beautiful bulbous *I. Rosenbachiana* one or two years ago in Turkestan, where it grows on the mountains at an elevation of 6000 feet to 7000 feet. There are two varieties of it, we believe, one having blue and the other violet flowers. The lip is very rich in colour. From Mr. J. Douglas and Messrs. Barr & Son, Covent Garden.

Awards of merit went to the under-mentioned:—

PRIMULA PETIOLARIS.—A beautiful Himalayan *Primula*, of which several synonyms and varieties are given in Mr. Dewar's carefully compiled synonymic list of *Primulas*. It is a rare gem, quite dwarf, and has large rose-pink flowers of a delightful shade. From Prof. Michael Foster, F.R.S., Shelford, Cambridge.

AMARYLLIS ACQUISITION.—A showy variety, scarlet, with a central band of white down each of the segments. From Messrs. J. Veitch and Sons.

CYCLAMEN PRINCE OF WALES STRAIN.—This we have before described as one of the finest strains of *Cyclamen* in the trade. The flowers are large, robust, and freely produced.

Messrs. J. Veitch and Sons sent a group of *Nepenthes*, mostly hybrids, such as *Chelsoni*, the rich-coloured *Mastersiana*, and the new *Dicksoniana*, a hybrid between *Veitchi* and *Rafflesiana*, the pitchers large, freely spotted and mottled with red. *Dendrobium Schneiderianum* is a beautiful cross between *aureum* and *Findleyanum*. The sepals and petals are tipped and shaded with rose-magenta, the upper portion of the lip orange, the front margin magenta. We have several beautiful hybrids in which *aureum* is one of the parents. The *Amaryllids* from Messrs. Veitch promise well for the season, the two best shown receiving awards. A silver medal was awarded for the *Nepenthes*. *Cypripedium Elliottianum* was exhibited by Mr. Whillans, gardener to the Duke of Marlborough, Blenheim. Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, had an interesting group, comprising the white form of *Lycaste Skinneri*, double-flowered variety of *Sparmannia africana*, *Lælia albidula bella*, *Cypripedium Measuresianum*, and *C. hirsutissimum*. There were also exhibited *Odontoglossum baphicanthum*, yellow, spotted with chocolate; *O. Humeanum*, *O. facetum*, the white *Cœlogyne cristata alba*, and *Ochna multiflora*. The best thing was the lovely *Azalea Princess of Wales*, a double-flowered variety with large, full flowers of great substance, and white, with just a tint of rose. Mr. Williams also showed a fine pan of the perpetual flowering *Primula floribunda*. Japanese *Camellia* blooms and *Azaleas* came from Mr. Gordon, of Twickenham. The variously coloured flowers of the *Camellias* are exceedingly quaint and showy. A large specimen of *Dendrobium nobile Wallichii*, a brightly coloured form of the type, was exhibited by Mr. C. Beckett, gardener to Mr. T. B. Bryant, Juniper Hill, Dorking. It was a mass of bloom and 4 feet across. The

flowers are brighter than those of the type. A silver medal was given. A well-grown plant of *Odontoglossum luteo-purpureum cristatum*, a rather poor form of the type, came from Messrs. Heath and Son, of Cheltenham, who also showed a hybrid *Masdevallia*. Mr. Ross brought from the Pendell Court Gardens flowers of the pretty *Hardenbergia Comptoniana*, *Mutisia Clematis*, and *Canarina campanula*, a greenhouse perennial, with yellowish purple or orange flowers, veined inside with red. It is from the Canary Islands, and introduced as far back as 1696. Mr. Ross also showed flowers of the Brazilian *Calliandra Tweediana*, which has beautiful bunches of long, silky, rich crimson anthers. It is a beautiful warm house plant. A stem of *Aralia Veitchii*, to show the advantages of planting out and a cool temperature, was interesting. It is evident that this graceful plant is spoilt by stove heat.

Hardy flowers, principally *Daffodils*, were shown plentifully. A most interesting group came from Messrs. Paul and Son, The Old Nurseries, Cheshunt. It comprised the early-flowering *Saxifragas* in several varieties, *Chionodoxa sardensis*, the tiny *Androsace Laggeri*, *Ranunculus anemonoides*, and *Saxifraga Frederici-Augusti*. Messrs. Paul also showed *Roses The Bride*, *Puritan*, *Colonel Felix Breton*, and *Lady Alice*. There were several varieties of the charming *Polyantha Roses* and standard specimens of such delightful and well-known kinds as *Paquerette* and *Mignonette*. A silver medal was awarded. Messrs. Barr and Son, of Covent Garden, had a number of *Daffodils* in pots, principally of the trumpet kinds, and pans of *Crocuses*, the kinds comprising such gems as *biflorus*, *Weldeni alba* (pure white), *Imperati*, *aureus*, *Olivieri* (orange), *bannaticus* (deep purple), and *Sieberi* (lilac) (bronze medal). Mr. T. S. Ware, Tottenham, had an excellent collection of *Daffodils* and *Anemone fulgens*; *N. Horsfieldi*, *maximus*, *spurius*, *Ard-Righ*, *Leedsii*, *Golden Spur*, and *triandrus albus* were exceptionally fine. A silver medal was awarded. *Polyanthuses* in baskets were shown by Mr. May, Edmonton; the plants were strong, well flowered, and rich in colour. Mr. Owen, of Maidenhead, had flowers of *Pelargonium* (*Ivy-leaved*) *Victorious*, a rich salmon-rose single variety; *Genista Oweniana*, very rich yellow; and *Chrysanthemum Mrs. J. N. Gerard*, an American variety. If it flowers now, it is not wanted. The beautiful *Hyacinthus azureus* came from Mr. Douglas; it is quite a gem. Mr. Manning showed plants of his fine strain of Chinese *Primula*, to which we referred in "Notes of the Week" of March 2. Two or three boxes of *Violet* flowers were shown by Mr. W. C. Leach, Albury Park Gardens, Guildford. There were the true *Parma*, a very sweet double *Violet* of rich lilac colour; *Neapolitan*, paler in colour; *Marie Louise*, deep violet, very fine; and *Swanley White*, white. Mr. Hay, gardener to Mr. J. Nicholay, Iver, Bucks, showed a seedling *Cineraria* of bright colour. Mr. E. Coleman, Dorking, had a sport from the old double white *Primula*, but we could not discover the distinction. Mr. R. Dean showed, besides *Primrose Blue Gem*, a rich lake-crimson-coloured self named *Cardinal*, the eye deep yellow; and *Lady Pandhurst*, a purplish magenta variety. *Saxifraga Burseriana* came from the Royal Horticultural Society's Gardens at Chiswick. Mr. Foreman, Eskbank Nursery, Dalkeith, showed a plant in bud of *Skimmia macrophylla*. A bronze medal was awarded to the St. George's Nursery Company for their group of *Cyclamens*.

The finest feature of the show was the boxes of *Camellia* blooms from Messrs. Wm. Paul and Sons, of Waltham Cross. The collection of this firm is unique, and one can judge from it of the splendour of some of the Italian kinds, and the two American varieties *C. H. Hovey* and *C. M. Hovey*, while Mr. Chandler's seedlings well hold their own. *Augustine superba*, rose-pink; *centifolia alba*, pure white; *elegans*, fine carmine; *candidissima*, one of the finest of the whites; *conspicua*, scarlet; *imbri-cata*, rich crimson; *Il Commadore Betti*, fine salmon, one of the best of the Italian *Camellias*; the single *Donckelaari*, *Marchioness of Exeter*, and *Adelina Benvenuti* are exceptionally beautiful. A silver medal was awarded. Mr. A. J. Manda, Barry Road, East Dulwich, agent to the United States

Nurseries, showed a coloured drawing of the new *Chrysanthemum* Mrs. Alpheus Hardy. We must see flowers before we give a definite opinion regarding this apparently surprising novelty.

There was little fruit. Mr. Blair, of the Trent-ham Gardens, showed fruits of Apple Calville Blanche, and a small collection also came from Mr. Divers, Maidstone. Ribston Pippin, Winter Hawthornden, and Stone Pippin were in excellent condition for the season.

Lecture on Saxifrages.—In the course of the afternoon Mr. J. G. Baker, of Kew, read a paper on Saxifrages, followed by cultural hints on the family by Mr. George Paul, of Cheshunt. A paper, written by Mr. Reuthe, was taken as read. A large number of visitors were present to hear Mr. Baker's remarks.

NOTES OF THE WEEK.

Muscari azureum.—A very pretty and curious blue species, brought by Mr. Douglas; in flower this week.

Iris Rosenbachiana.—A delicately pretty early Iris from Mr. Douglas, grown in a pot in a cool house. It is a hardy kind.

Crocuses, comprising the finest of the species with many of their varieties, were a mass of bloom in the open in Messrs. Barr and Son's Tooting Nursery a few days ago.

Golden Valerian (*Valeriana Phu aurea*) has bright yellow foliage when young, but it gradually deepens to a normal green colour. It is very showy in January, and useful for giving colour to the garden in winter.

Centaurea Clementei, though not in flower, is yet worth a note for its strikingly silvery foliage, quite Thistle-like in character, and covered with a soft down. A few clumps in the garden would look very rich and bright during the winter.

Dendrobium crassinode album.—The white form of *D. crassinode* is a plant seldom met with. I recently had an opportunity of seeing it in flower at Percy Lodge, Winchmore Hill. An imported plant was blooming for the first time.—JAMES BROWN.

Snowdrops from Northumberland.—Here-with I enclose you a gathering of double Snowdrops. I think them very large.—R. ELLIOTT, *Harbottle Castle, Rothbury, Northumberland.*

*** Very plump, and large, and pretty.—Ed.

Blue Winter Windflower (*Anemone blanda*) is a gem amongst Windflowers. A patch in the Tooting Nursery the other day was delightful. Clumps of this in the garden would make a thoroughly spring picture. The flowers vary much in density of colour; the deepest of all are the best.

Lycaste Skinneri xanthoglossa.—This is a novelty which we recently noted in bloom; the flower is of fair size; the sepals and petals are pure white, but the tongue-like lip is quite yellow in the front. It affords a charming variety among the pure white and highly coloured forms which are now very gay.

Acineta Humboldtii.—This plant was in flower recently at Percy Lodge, Winchmore Hill, its pendulous flower-scape bearing a dozen fine flowers, which are, unfortunately, very short-lived. Mr. Craig, the gardener, tells me he has had thirteen on a scape on the same plant. *Cattleya Triana* was well represented, as was also *Dendrobium nobile* and *D. Wardianum*.—JAMES BROWN.

Galanthus octobrensis.—In one of his valued letters the Rev. Mr. Harper Crowe stated that *Galanthus octobrensis* was an accidental sport, and search at the place where it was collected was in vain. No more could be obtained. On the other hand, I have the decided assertion of an excellent authority that this variety is identical with *G. Olge* Regime of Orphanides. MAX LEICHTLIN, *Baden-Baden.*

Nepenthes Dicksoniana.—One of the most handsome examples of the tropical Pitcher Plants is this recent acquisition. It is a hybrid raised by Mr. Lindsay in the Edinburgh Botanic Garden between *N. Veitchii* and *N. Rafflesiana*. The pitchers are the largest of any at present to be seen in Messrs. Veitch's nursery at Chelsea. They are also of handsome form, beautifully spotted and mottled with deep red.—J. D.

Primula denticulata.—This has flowered earlier with us this year than we have ever known it. The

plant in question was in the open air, although in a somewhat sheltered spot, but even where the plants are fully exposed their coming into bloom is only a question of a week's good weather, as already the flower-stems are 2 inches above ground. The white variety of this species is a great novelty, and although we do not like it so well as the type it is a decided gain to our early spring-flowering Primulas.—K.

Lachenalia pendula.—A number of panfuls of this old favourite just coming into flower is a feature at Gunnersbury House. The bulbs are kept in frames through the winter and brought into a cool house to flower. Those who want cut flowers of a lasting character will find this *Lachenalia* useful.

Hepatica triloba and its several varieties were very beautiful on Wednesday last in Messrs. Barr and Son's Tooting Nursery. They are planted under a hedge and in large masses. It is a delightful surprise to come suddenly upon a mass of this blue flower. The larger *H. angulosa* was also very fine. They are generally too much "cultivated" in gardens to grow well.

A specimen Dracæna Lindenii.—One of the largest plants we know of this noble *Dracæna* is in the conservatory at Manor House, Gunnersbury. It stands fully 6 feet high, is of excellent proportions, and has plenty of fine healthy leaves, which are yellowish green, except down the centre, where the colour is more pronounced. Small plants are also exceedingly handsome.

Hardy Cyclamens are very beautiful just now in the nursery of Messrs. Barr and Son at Tooting. *C. Atkinsi* and its forms roseum and rubrum are very rich in colour against the mottled leaves. One form has very dark-coloured flowers. *C. coum* is also in bloom. This has plain green foliage. Hardy Cyclamens are lovely flowers for naturalising, and especially should the autumn-blooming kinds be made a note of.

Chionodoxas are amongst the best features of interest in Messrs. Barr and Son's Tooting Nursery. There are five beds of the deeply-coloured *C. sardensis* and three of *Lucilæ*, each 100 feet long and about 4 feet wide. At a distance this shimmering mass of blue is like a breadth of Bluebells, especially when lit up by the sun. *C. Lucilæ* varies much in its flowers, some being larger than others and a few white. Though a white variety may be considered rare, it is weak. Both *C. Lucilæ* and *sardensis* are equally as hardy and free, the former perhaps the most vigorous. *C. gigantea* is also in bloom, but there are only a few flowers on not well-established plants, so it is unfair to judge yet. Hard by was also the new *C. Timolusi*, a native of Mount Timolusis, in Asia Minor. Both are described in glowing terms in the catalogues, but they will have to be surprisingly good to eclipse *C. Lucilæ* and *sardensis*. *Chionodoxas*, like the earlier flowering *Scilla bifolia* and other early bulbous flowers, might well be planted in masses in the London parks.

Early spring flowers.—Those who lay out part of their garden for early spring flowers are well rewarded for doing so. At Oakwood we have a number of beautiful flowers in bloom notwithstanding the late very trying weather. Early Cyclamens have been in great beauty, but are past their best. I am now sure that they thrive best in full sun. *Narcissus minimus* has been out for more than a month; a large Hoop-petticoat, I believe *Corbularia sulphurea*, is in fine flower, and also a smaller pretty one. Hybrid Hellebores of many shades of colour are finer than we ever had them before; these have a rough shelter in hard frost and in very rough weather. Some *Helleborus niger* I had from Bath, and planted late, continue to throw up good flowers. Scillas are beginning to bloom; also *Chionodoxas*. Some species of Snowdrops are out; *Galanthus plicatus*, *G. Imperati*, *G. Redoutei*, *G. Elwesi*, and some others. Some varieties I had given me before I knew the best places to grow them in are lost. Many of the species of *Crocus* are most beautiful; one a purple, much richer in colour than any of the garden varieties I know. Hepaticas are coming out well; some of our best are on a mossy bank, which adds to their beauty; the single pink and blue have endless

shades of colour. Primroses of all shades have been beautiful; many of the descendants of "Scott Wilson" have beautiful shades of plum, blue, and blue-purple, and some are of a pale greyish blue, more like the colour of the old blue Primrose. Iris reticulata cærulea, a gem, is nearly over, but the type is in beauty. A few hardy Heaths, both pink and white, are out, and large plants of *Andromeda floribunda*. Petasites have not much beauty, but look well in a mass. Snowflakes also are especially beautiful in large clumps. Anemone buds are slow in coming out. I have enumerated all the flowers I remember, but not writing on the spot some may have been left out.—GEORGE F. WILSON, *Heatherbank, Weybridge.*

Useful Epacris.—The Epacris were finely in flower the other day at Gunnersbury Park, and it would be difficult to find now-a-days such a collection as is to be seen here. *Alba odorata*, the flowers white, with narrow tubes, and very sweet; *Impressa*, rich rose-red, compact in growth; *Lady Panmure*, white; and *Devoniana*, rich scarlet, were a few of the handsomest of the many kinds.

Rhododendron balsamæflorum album is a double-flowered greenhouse Rhododendron with white blooms, which in shape resemble those of a Balsam or Gardenia. From the same pod of seed as produced this also came double yellow, rose, salmon, and flesh-coloured varieties. The double white is very free-blooming and ought to be generally grown, especially for cut flowers. It is in bloom at Messrs. Veitch's, being one of Mr. Heal's raising.

Daffodils show the mildness of the season not only in Ireland, but in England, by flowering freely at the present time in the open air. The fairy *N. minimus*, *N. Bulbocodium* and its variety *citrinus*, *N. cyclamineus*, *pallidus præcox*, *Johnstoni*, *Ard-Righ*, *Golden Plover*, *nobilis* and *minor* are in full bloom in the open. Messrs. Barr and Son have had *Narcissi* in flower for the past six weeks in their Tooting Nursery, which is exposed and on a cold soil. Such miniature Daffodils as *N. cyclamineus* and *minimus* should have, however, a little shelter if possible.

Iris reticulata.—This charming early-flowering variety is now in bloom in the open air with Crocuses, Hepaticas, and Squills. Anyone having a warm sunny nook under his windows should plant a few bulbs of this Iris and allow them to remain permanently in the ground. They soon increase to good-sized clumps, and when in bloom at this early date they give an interest to the garden that few other plants can do. Three years ago I put in a few bulbs in a vinery border close up to the front lights, and they have now formed good-sized clumps and come up stronger every year.—J. G. H.

Saxifraga oppositifolia alba.—This variety is this year almost a fortnight earlier than the purple varieties, which are only now showing bud. We are not certain that we do not like the white form even better than the large-flowered splendens, maxima, and pyrenaica. The starry white flowers in a setting of the darkest green leaves are very charming, the more so as the plant is of a compact habit, and blooms rather more freely than those mentioned above. *S. Burseriana* is now in full flower in the open air, the loveliest of its group, and second to none of the early spring-flowering species. When birds are troublesome and the owners too merciful, the chances are all against *S. Burseriana* making a show. Birds seem to be very fond of the buds, and unless we net the plants over the pleasure of seeing perfect flowers would be a very rare one. The Megaseas are beginning now to flower, and if the weather remains mild we are promised a fine sight in a fortnight or so. As a rule, they are destroyed when at their best.

The blue Primrose.—I cannot conceive why "A. D." should in his reference to this or any other Primrose make something in the nature of a personal attack upon me. The reason for his rather ill-natured remarks seems to be a supposition on his part that I said when his Primrose was exhibited that "I had as good at home." As a matter of fact, I never made any remark of the kind.

either in the Drill Hall or anywhere else. I expressed my belief that the bluish tint in Primroses that flowered very early in the year lost this bluish shade when the flowers opened in April. I found from my experience last year that this was so. This was an interesting and important query, but perhaps "A. D." did not notice it. At all events, if it had not been from my experience with these Primulas, I would not have thought it worth while to have noticed "A. D.'s" remarks at all; as it is, they have not elicited any useful information.—J. DOUGLAS, *Ilford*.

Phalænopsis Stuartiana is one of the best of all Phalænopsids. It is sturdier than *P. Schilleriana*, its nearest ally, it blooms at a time of year when fogs are not dangerous, and it lasts a long time. There are several fine examples now in flower at Kew, one arching spike bearing over fifty flowers, each 2 inches in diameter, full, pure white, spotted on the lower sepals and lip with cinnamon-red. The leaves vary in colour, some being spotted as in *P. Schilleriana*, others being wholly dark green. As a winter-flowering plant this is certainly the best *Phalænopsis*, *P. grandiflora* being equally good as a summer-flowering kind.

Millia uniflora.—This lovely plant is surely deserving of more notice than it appears at present to receive. Although it may be called hardy, we have never seen it do so well in the open air as we saw it the other day in the alpine house at Kew in pots. The flowers were large, clean, and prettily shaded with pale blue. We believe that when grown in the open air, the result would be much more satisfactory if planted in positions where the leaves and young flower-stems could be protected from cold winds. The best lot we ever saw were growing on the south side of a large dense clump of shrubs, and here they had been for a number of years undisturbed. However it may appeal to growers of hardy bulbs, there can be no question of its claim as a subject for cool conservatories, corridors, &c. If grown in much heat the flowers become washy, and the plant is altogether out of character.

Crocus biflorus.—This is perhaps the most prolific in varieties of all the lesser-known species of *Crocus*. From a bed of the typical form I have selected several forms well worth garden names, and notably one with pure white flowers minus the usual yellow base and tube. It most nearly resembles the var. *Pestalozzei*, a sub-variety of *nubigenus* from Constantinople, but that form is much larger, and has the yellow throat showing through the base of the segments. Another form which comes very near *micranthus*, not cited by Maw in his monograph, is about half the size of typical *biflorus*; the segments are bright lilac, the three outer feathered or pencilled with brown on the outside. Another has blunt segments more distinctly marked on the outside than *biflorus*, and may be pusillus of Tenore, which Maw has included in the species. No species, says that authority, has a wider range of variation in size and flower-colouring. Perhaps the most beautiful of them all, however, is *C. b. Weldenii*; the segments are white, freckled or tinged with bright purple on the outside. A native of Trieste and Dalmatia.—K.

Pessimism and grafting!—I do not know why Mr. Crump should call me a *pessimist* because I object to a common wild Plum coming up and killing my pretty *Prunus triloba* that I bought in a Surrey nursery of the highest class! Rather surely an optimist, because I am looking to a world happy with trees on their own roots and that never "sucker." The place for a pessimist is surely a garden full of suckers, where every good thing is choked and killed by hungry wild suckers, as my little double Chinese Plum is being killed by many suckers of a wretched common Plum. So many of them indeed are round every bush, that it is hopeless to fight against them. In any case if I buy beautiful distinct trees from the best nurseries in England, and in three years find them dead or dying, I will continue to cry out at the risk of being called by hard names; I will do more, and call selling me such trees a fraudulent transaction. I am now speaking of ornamental trees only, such as those I

name. Until I made a plantation of the finest flowering shrubs myself, I had no just idea of the degree to which our gardens are injured by this practice, and I maintain that that which mars our gardens is injurious to the trade also.—SROCK.

Broughtonia lilacina.—This interesting Orchid is now in flower at Kew. It is identical with the plant known as *Læliopsis domingensis*, which Lindley described and Paxton figured in his "Flower Garden" (t. 105). The latter stated that "It is a *Cattleya* in all respects, except that the flowers are membranous and the veins of the lip bearded." It may be called a large edition of *B. sanguinea* with large, rosy-lilac flowers. The pseudobulbs are ovate, 2 inches long, and they bear at the apex two leathery leaves 8 inches long by $1\frac{1}{2}$ inches wide. The scape is 1 foot long, erect, wiry, with a cluster of nine flowers at the end. Each flower has a stalk 1 inch long, narrow sepals, broader petals 1 inch long, and a folded, funnel-shaped lip, the front margin recurved and slightly toothed, colour rosy-lilac, with darker lines and deep red veins on the front of the lip, whilst the throat is white. This species is a native of the West Indies, no doubt the island of St. Domingo being one locality. It is rare in gardens. The late Mr. John Day flowered it at Tottenham a few years ago.

Narcissus cyclamineus.—Last autumn I planted a number of these charming little *Narcissi* which had been collected in Spain, and alongside them an equal number of those collected in Portugal, covering them during severe weather with a frame, although they have been proved to be quite hardy. I have also noticed that the bulbs were stronger after a year's growth in this country. It has been interesting to watch their development, and on closely examining them, I find that in every case those from Spain are smaller in size, and have also the trumpet more after the form of that of *N. muticus*, viz., a straight tube of equal width throughout and cut off clean at the end; whilst all those from Portugal have a trumpet much broader, varying in outline, and also reflexed at the mouth. It is also remarkable that the edge of the trumpet is divided into six projecting parts as regularly as the perianth. I have not as yet seen any observations of these variations of form in *N. cyclamineus*, and should be glad to know if any of your correspondents have had a similar experience.—J. T. Poë, *Riverston*.

Spring flowers from a Dutch garden.—Herewith I have much pleasure in forwarding for your inspection some choice spring flowers which are now in bloom here. From the open I gathered the following: *Narcissus cyclamineus* and *minimus*.—The former, though found in such a warm country as Portugal is, proves to be quite hardy here, and did not suffer in the least from the extraordinarily cold and inclement weather we have had here during the last three weeks. It unfolded its curiously formed blossoms a few days ago, when the weather changed and became a little milder. *Anemone blanda* and *Muscari azureum* are also first-rate spring flowers. I had them in bloom here more than four weeks ago, and they have continued flowering till now in spite of cutting winds and sharp frost. *Iris Rosenbachiana* and *reticulata* major are splendid novelties. None of the spring-flowering kinds are so powerfully fragrant, so brightly coloured, and so beautiful as the one first named. When it becomes more plentiful and better known, no *Iris* will be more highly valued than this one. You will perceive the flower of *I. reticulata* major to be a good deal larger than that of the ordinary variety; the foliage also is very strong, and the whole plant much superior to the type. *Korolkowia discolor* cannot be termed a showy plant, yet the fact of its being perfectly hardy and opening its flowers so early in spring will give it a place in any collection of spring bulbs. *Merendera ruthenica* is a pretty bulb, resembling the well-known *Bulbocodium vernum*; the flower is broader in the petal and more deeply coloured. *Colchicum luteum* and *crociflorum* are very interesting, being spring-flowering Meadow Saffrons. The strong spike of *Orchis Robertiana* has been cut

from a lot of plants standing in an unheated cold frame; the foliage is bright green and luxuriant; the spike large and well set with its quaint brown and white flowers. *Lachenalia pendula*.—This most beautiful species, with its bright coral flowers and strong flower-scapes, is now one glowing mass of bloom in one of the frames, and presents a unique sight at this time of the year. A few spikes of this arranged loosely in a vase with some *Snowdrops* form a charming bouquet that cannot be excelled for grace and beauty, the pure white of the *Snowdrops* and the rich red of the *Lachenalia* setting off one another in an extremely elegant way. I also enclose an early flower of *Tecophylaea cyanocrocus*, the deep blue of which is almost unique among flowering plants at this time of the year.—C. G. VAN TUBERGEN, JR., *Zwanenburg, Haarlem*.

* A brilliant little crowd, for which we thank the sender. The *Iris*es are lovely, and so are the fairy *Narcissi*.—ED.

Saxifraga luteo-purpurea.—With a few exceptions, the loveliest of the *Saxifragas* in flower now is the hybrid between *aretoides* and *media*, called *luteo-purpurea*. It was introduced by Messrs. Paul, of Broxbourne, under the erroneous name of *S. Frederici-Augusti*, and as such received a first-class certificate from the Royal Horticultural Society last year. It has a freer and more robust habit than either of its parents, and produces flowers all through the early spring months in the greatest profusion. The flowers are produced in sub-corymbose heads twice the size of those of *S. sancta*, and of a very rich primrose-yellow. This plant clearly leans to *aretoides*, which was probably the seed-bearing parent. It is the easiest of this group to increase. Cuttings put in early in autumn strike readily, and, if properly cared for, will make nice flowering plants for the following spring. The slugs are very fond of it, and if not closely watched will strip the plants of all there is above ground. The only remedy we find is standing the pots on coke broken up into pieces the size of marbles. Since adopting this we have never seen a slug. It is now in flower in the alpine house at Kew.

Crocus Balansæ.—This is a charming and unique little species, comparatively new to cultivation. It is limited in its distribution to Western Bithynia, in the neighbourhood of Smyrna, flowering in cultivation from the beginning of March, a month later than *C. vitellinus*, under which Mr. Baker placed it in his monograph of the genus. The flowers are smaller than those of *C. susianus*, the segments bright orange, entirely suffused on the outside of the three outer segments with bronze or brown, and forming a perfect little picture when just a little more than half open. The leaves, unusually persistent, often remain green until the middle of July. Unlike such species as *parviflorus*, *Fleischeri*, *Danfordiæ*, this is easily increased, and does well in the ordinary garden soil, but it is all the better for protection from east winds, &c. *C. Malyi*, producing numerous large white flowers, is very beautiful, and should become a great favourite when better known. It was discovered by Herr Maly in the mountains above Cattaro, Dalmatia, and under cultivation begins to flower about the beginning of March.

BOOKS RECEIVED.

"Bulletin of Miscellaneous Information." No. 27. March. Royal Gardens, Kew.

"The Cruise of the *Marchesa*: Kamtschatka, New Guinea, &c." By F. H. H. Guillemard. Second edition. London: John Murray, Albemarle Street.

"A Handbook of Cryptogamic Botany." By Alfred W. Bennett, M.A., F.L.S., Lecturer on Botany at St. Thomas's Hospital, and George Murray, F.R.S.L., Senior Assistant, Department of Botany, British Museum. London: Longmans, Green and Co.

Names of plants.—*H. Ward*.—*Imantophyllum minutum*.—*W. Tamplin*.—*Ageratum mexicanum album*.—*W. D. S.*.—1. *Dendrobium primulinum*; 2. *Dendrobium primulinum giganteum*; 3. form of *Cypripedium barbatum*.—*W. Sams*.—*Muhlenbeckia* various.

WOODS & FORESTS.

THE AMERICAN ROCK ELM.

(ULMUS RACEMOSA.)

THIS tree (says Professor Sargent in "Notes on Trees and Tree Planting") is found growing with the common American Elm, and in situations similar to those selected by that tree, from the south-western county of Vermont westward to Illinois, and from the Ohio northward into Canada. It is common in New York, along the banks of the Mohawk and its tributaries, in Yates County, near Penn Yan, and occurs in many parts of Ohio and Illinois; but it is in the southern peninsula of Michigan, Wisconsin, and the province of Ontario that the Rock Elm is most frequently met with. This species will be readily distinguished by the disposition of the flowers, which, unlike those of other Elms, are borne in racemes 1 inch to 2 inches long, and composed of several clusters of from two to four flowers together. It may be distinguished also from the common American Elm, at all seasons of the year, by the thick corky ridges which extend along the young branches.

The wood, too, will be found to be very dissimilar from that of the American Elm. Its specific gravity is '832, while that of the American Elm is but '649, or 22 per cent. lighter. It is almost as heavy as the best Eastern Hickory, 4 per cent. heavier than the best San Domingo Mahogany, and 26 per cent. heavier than second growth Eastern White Oak. The wood is fine grained, compact, and shows but little of that inclination to splinter which renders the wood of the American Elm unfit for many purposes of construction. The heart-wood, which is of a buff colour with reddish tints, is susceptible of high polish, and is warm and agreeable in tone. Architects and cabinet-makers, to whom specimens have been submitted, speak of it with unqualified praise for furniture-making and interior decoration, for which purposes its hardness, strength, and beauty seem to particularly adapt it. The wood of this tree is unknown in the Eastern markets, but considerable quantities of what is called Canada Rock Elm are annually exported into Great Britain from Canada; but, judging from the descriptions of it, I am inclined to think that this is nothing but American Elm, or perhaps a mixture of the two, as lumbermen do not well distinguish this species, calling all Elms grown on high and dry land Rock Elm, and all that are produced along the river banks and in damp situations Bastard Elm.

Although still unknown in the East, the wood of *Ulmus racemosa* is highly valued in those portions of the Western States where it is abundant enough to form an article of commerce. It is very largely employed in the manufacture of heavy agricultural implements, such as ploughs, mowing and threshing machines, and similar articles, in the construction of which the best White Oak is used in the East. In spite of its weight and strength, this wood is very flexible, and, when properly seasoned, retains any shape into which it has been bent, a quality which finds for it important employment. In some parts of Michigan, Rock Elm is largely used for the frame-work of chairs, and for the hubs of wheels, while for the heavy beams of stump pullers it has no equal. It is used for the slats of stock-cars, and for this and many other purposes large quantities are annually consumed. Indeed, the wood of this tree is generally employed wherever it can be procured, and where a material combining at once strength, toughness, and solidity is

required. Should it reach the Eastern markets, the qualities which have caused it to be eagerly employed wherever it is known will find for Rock Elm a ready sale here; while, unless the opinion of those experts to whom specimens have been submitted is a mistaken one, it will be one of the most valuable, as it is one of the most beautiful, of American woods for the architect and cabinet-maker.

Taking the standard of weight as the best test of the heat-giving quality of any wood, and of the length of time it will continue to burn, Rock Elm is barely surpassed as fuel by Hickory itself. The specific gravity of Eastern second-growth Hickory is '838, that of Rock Elm '832, and that of second-growth Eastern White Oak '662; so that, applying the test of weight, Rock Elm as fuel is worth only 1 per cent. less than Hickory, while it is worth 26 per cent. more than White Oak, the best fuel which now ever reaches this market in any quantity. Actual experiments show that this wood burns slowly, with a bright, steady flame, and without snapping; ash equal to sixty-seven hundredths of 1 per cent. of the dry wood consumed is left after burning. As is to be expected of a tree yielding such heavy, close-grained wood, the Rock Elm grows very slowly. Never a common tree, the Rock Elm is fast disappearing from even those parts of the country where formerly it was most abundant, and steps should be at once taken to propagate and plant it.

SCHOOL OF FORESTRY.

THIS is a very important subject, and there can be no doubt that foresters as well as others have yet a great deal to learn. In illustration of this, I may refer to an article in *THE GARDEN*, Feb. 9 (p. 134) on the forestry of Hampshire, where the writer exposes the conflicting Acts of Parliament regarding the management, or rather mismanagement, of the Crown lands in the New Forest. Here we are told that many thousands of young trees are choked and killed for want of judicious and timely thinning, but as things are conducted and regulated by recent Acts of Parliament, no one, however well versed in forestry and tree culture, has the power to manage things in a rational and practical manner; consequently, according to the information contained in the article referred to, the trees are being gradually destroyed by the acts of those who should see to their proper care and culture. Now, if Parliament is to continue to direct things in this way, it would be a matter of no great moment if the forester or person in charge had no practical knowledge whatever of tree culture, seeing that he must follow the directions of his superiors, whether right or wrong. It is clear that there is great room for improvement and a better system of management, and if the establishment of a school of forestry can meet the requirements of the case, the sooner it is established the better. It is very proper and necessary that landed proprietors should have a knowledge of tree culture and rural affairs generally.

The fact is that the great majority of estates in Great Britain and Ireland are of such a size that the proprietor cannot afford to keep a first-class forester to look after his plantations, and this of itself accounts for the neglected state in which many of the plantations throughout the country are to be found. In order to remedy this state of things, I think a school of forestry should embrace the teaching of agriculture as well, so that young men would have an opportunity of acquiring a knowledge of both branches, and thus by their training be enabled to meet the requirements of the country. A great many plantations are laid out in such a way as to surround the farms, &c., under the management of the steward, and thus they may be said to be under his eye in every-day life, and can therefore be looked after and attended to without inconvenience. A good many country gentlemen are already working their estates upon these lines, and some of our leading agricultural societies, notably

the Highland and Agricultural Society of Scotland, encourage the system by offering premiums for reports on a variety of subjects in connection with the planting and management of woods in all their details, as well as general estate improvement and farm produce of every description. As these premiums are open to competitors from all parts of Great Britain and Ireland, it may justly be said that a school of forestry combined with agriculture is in actual existence already. This society also grants first and second-class certificates in forestry to candidates who pass an examination on the management of woods and kindred subjects. Now in view of these facts, it may be questioned whether a school of forestry was so urgently wanted as some writers on the subject would have us believe. As a general rule I have always found that woods and plantations were best managed where the proprietor himself took a personal interest in their culture.

J. B. WEBSTER.

Home-grown timber.—Your various correspondents find fault with the non-use of home-grown timber, but in doing this they do not specify what kind, and by their remarks leave it to be inferred that it is that from Fir trees, and if so, it is no wonder that there is little or no demand for it, as everyone knows how much superior foreign deals are to any that are grown here, and builders are not foolish enough to use timber that will cost them as much as fine foreign wood that is seasoned and ready for use. Of what value, I would ask, are Spruce and Silver Firs that are only too common on most estates? But if *Abies Douglasi* were planted, we may by-and-by have timber that will successfully compete with that brought from abroad. Oak, Ash, Sweet Chestnut, and Beech command a ready sale in most places and fetch good prices, but then, except for church work and other like uses, Oak and Chestnut are too heavy for roofing, but they come in for so many other purposes, that the market seems never overdone with one or the other. Of course, the use of iron for shipbuilding has made a vast difference in the demand for Oak, and yet good prices may be obtained now. Oak bark, again, is not so valuable as it was, as it is not so much used for tanning purposes.—J. SHEPPARD.

Tree guards, whether made of wood or iron, should be close enough to prevent damage being done to the trees by mischievous persons. Circular guards are handsomer than angular ones; they should be ample, and not less than 7 feet out of the ground. I may add that the expense of planting is, of course, materially diminished where the soil is sufficiently good not to necessitate further excavation than that which is needed for the trees. In such cases the soil should be removed to a fair depth, say at least 3 feet, and in every instance good drainage must be assured. The after-management appears to be a disputed matter, authorities disagreeing as to how far pruning and thinning should go, and in what manner they should be done. Trees, however, do not, as a rule, grow with any extraordinary vigour in London, and therefore it is, perhaps, best to leave them very much to themselves, unless someone thoroughly conversant with the matter is consulted.—C. D.

The woods most prized for machinery and mill work are classed as follows: Frames—Ash, Beech, Birch, Pine, Elm, Mahogany, and Oak; rollers, &c.—Box, Lignum-vite, Mahogany, and Service tree; teeth of wheels—Drab tree, Hornbeam, Locust, and Service tree; foundry patterns—Alder, Pine, Poplar, Walnut, and Mahogany.

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No. 905. SATURDAY, March 23, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NEW OR RARE HARDY PLANTS.

THERE are several plants mentioned in THE GARDEN of March 10 in which I am interested.

PRIMULA PETIOLARIS.—This, shown by Prof. Michael Foster at the Royal Horticultural Society's meeting, is a winter-flowering plant in Sikkim, and will require some care to keep it, which I think it well deserves. I found it first on the Singalclah range at about 11,000 feet, where sharp frost prevailed at night, in March, 1876. I found it again with ripe seed (from which Prof. Foster's plant came) in June and July, 1886, on the same range of hills at from 9000 to 11,000 feet, always in shaded places with an eastern aspect. From May to October it must be kept damp and shaded, and seed should certainly be sown as soon as ripe. It is a very free-flowering and variable species.

ASTER DIPLOSTEPHIOIDES, with the introduction of which I am also credited, was really first raised, I think, by Herr Max Leichtlin, to whom I sent seeds some five or six years ago. As I have failed to grow it myself and have not seen it in flower, I should be glad to obtain a plant from anyone who has it, and also to know how to grow it.

IRIS ROSENBACHIANA is mentioned as being in flower with Messrs. Douglas and Van Tubergen. Is it really as hardy as *Iris reticulata*? My plant in a frame is gone, but this may be owing to want of sun rather than cold, as *Iris reticulata cyanea* has shared the same fate.

GALANTHUS OCTOBRENSIS.—This is one of the most valued legacies I have from my deceased friend Mr. Harpur Crewe, but it seems a tender plant, and does not increase at all. I am certainly inclined to think Max Leichtlin is right in supposing it to be a Greek form. I have another small *Snowdrop*, sent to Mr. Harpur Crewe from Corfu, I think, by Lord Walsingham, which flowers, when the frost allows it, between *octobrensis* and *nivalis*, generally about Christmas. G. Elwesi seems to diminish rather than increase with me. Have others found the same, and is it owing to the absence of summer and extremely bad spring of last year, or has it really a tender constitution?

I should also like to know what is the authority for the name of *Chionodoxa Timolusi* in the "Notes of the Week." Is such a thing described? Is it distinct from *C. Luciliae*? Is there such a place as Mount Timolusis? I doubt all three statements, and I expect it is a name given by a trade collector in order to sell *C. Luciliae*, which is abundant on the Bozdagh, above Sardis, of which the ancient name was Mons Tmolus. It is just this sort of loose, unscientific use of Latin names which gives rise to confusion and disappointment, and I should not advise their use in any trade catalogue until the plants are properly described by a competent authority. According to Boissier ("Flora Orientalis," vol. v., p. 311), there are but two or perhaps three species of *Chionodoxa*, namely, *C. Luciliae*, of which *sardensis*, *Forbesi*, *cretica*, and *gigantea* are, I believe, inconstant varieties or synonyms; and *C. nana*, from Crete, which I introduced and lost, but which was at Kew when I last looked for it.

SHORTIA GALACIFOLIA, from the Alleghany Mountains, is now flowering with me for the

first time in Europe, I think. I can strongly recommend it as a very distinct and pretty plant for a cold frame.

H. J. ELWES.

Preston, Cirencester.

THE COTTON WOOL NUISANCE.

THE editor of THE GARDEN has done well in opening its pages to a discussion as to the merits of various packing materials and the different methods of packing in vogue, as this cannot fail to be most instructive to numerous readers. It is not my intention to condemn the use of cotton wool, as I consider it is the abuse and not an intelligent use of this material that needs correcting. One of the greatest secrets of success in packing either flowers or fruit to travel either by post or rail to any part of the United Kingdom lies, not so much in the choice of packing materials as in the absolute necessity for firm fixing of the contents, so that rough usage, which they are certain to experience, will not unduly shake them about. It is also equally important that the boxes be sufficiently strong to withstand pressure, and yet not too heavy, or the cost of transit will be materially and unnecessarily increased. The use of boxes much larger than is needed is also another blunder often committed. In this case either not nearly enough packing material is used, or else if sufficient is employed to well fill the box, it unduly presses against the delicate contents. Horticultural sundriesmen supply light yet strong paper boxes in various sizes, these being the best in the long run for packing flowers, and capable, if duly returned, of making several journeys. We also occasionally see advertisements of cheap, light wooden boxes suitable for sending fruit in. While on this portion of my subject, I venture to express surprise that these boxes are not more advertised than they are, seeing how largely the Parcel Post arrangement has increased the number of persons who frequently avail themselves of this boon.

I have repeatedly sent Peaches, Strawberries, and other soft fruit, as well as choice flowers, to various parts of the country, and during a portion of the season almost daily to London, a distance of 120 miles, and as often by post as by rail, and not a single complaint concerning the packing has been made. We use more cotton wool for fruit especially than any other material, for the simple reason that it is clean, light, and, on the whole, fairly sweet. Clean soft Moss is not nearly so plentiful as some people imagine. It may be procured in some districts readily enough, but generally it is very difficult to find, only those who have the range of a well-wooded estate being able to get it. The best kind of Moss we can procure is that obtained by raking a mossy lawn with an iron-toothed rake. This when dried is suitable for packing both fruit and flowers, and we use it in most cases where the boxes or packing material will not be returned. Rough dirty Moss is not at all suitable for packing, as if either delicate flowers or soft fruit come into contact with it they are sure to be bruised. The common *Lycopodium* or *Selaginella Kraussiana* is frequently used for packing purposes, but the stems of this are too hard and damage tender flowers. Nor is it wise to wet the packing material, especially when paper boxes are used. Postmasters can give numerous instances of the arrival at their respective offices of a portion of a box and the label, the rest having melted away—thanks to the mistaken notion that much moisture was necessary for the contents of the box.

Some judgment must also be exercised in the choice of flowers to be packed. For instance, it is simply a waste of time and money to pack full-blown Roses, as these, if not actually fallen to pieces when they arrive at their destination, are of little real service. Half-opened blooms are what should be cut, and before they are hot and dry. Other flowers, such as Violets, Lilies of the Valley, *Eucharises*, *Gardenias*, and *Stephanotis*, are best cut directly they are nearly or quite fully expanded. As a rule double flowers travel best, the single *Primulas*, *Cinerarias*, *Pelargoniums*, and *Azaleas* especially being useless for packing purposes. In

any case, I believe flowers keep fresher when cut and placed in pans of water in a cool room for a few hours prior to being packed. When packing, all that is necessary at this season is to place a thin layer of either Moss or cotton wool over the bottom of the box, this being well covered and the sides of the box lined with soft tissue paper. A layer of greenery, such as Fern fronds, young *Asparagus*, *Spirea* leaves, or sprays of *Cupressus*, may be laid in the bottom, on this being closely packed a layer of the heaviest or best travelling flowers; then another layer of greenery if this is plentiful or required, and finally a layer of choicer or lighter flowers. These we cover with tissue paper and finish off with a layer of cotton wool, on which the lid presses down rather tightly. If we are sending *Eucharises*, *Pancratiums*, or *Stephanotis* in quantity shallow boxes are used, in these being placed a thick layer of fairly moist Moss covered with paper. The stalks are pushed through into the Moss and the flowers, with the exception of the *Pancratiums*, packed closely and upright, covered with thin paper, and finally with cotton wool. The lid closing tight on the latter, the box may be thrown about without damaging the contents. It is the bold, not nervous packer that succeeds best, too much room and consequent friction doing most harm. The packing ought to be varied somewhat in hot weather, a mass of flowers being liable to become heated, and a body of Moss with them aggravates rather than prevents the evil. In cool and moderately warm weather close packing is best, there being little or no evaporation going on, and the flowers keep each other fresh much as they do in a bouquet. Cotton wool certainly should not come into contact with either flowers or fruit, and this all experienced packers will admit, but if comparatively dear, it is yet the best packing material generally available, and ought not therefore, to be wholly condemned. It is the faulty methods of using it that are to blame for many failures.—W. I. M.

—Having read with interest in THE GARDEN the notes on "The cotton wool nuisance," it may be interesting to some of your readers to know the mode of packing flowers here. I find that blotting-paper made damp and placed at the bottom of the tin or wooden box is far before green Moss. Fill the box with flowers as closely and as firmly as possible, place another piece of thoroughly wetted blotting-paper over the flowers, and close the lid. I believe you can send them any distance and the flowers will turn out almost as fresh as when cut. This plan I consider better than using green Moss, which "C." in THE GARDEN (p. 209) advocates, as Moss is often dirty and would spoil good white blooms, and it often gets dry and dusty before reaching its destination; and as to dried Moss, I should think no right-minded gardener would think of using it for either packing flowers or ripe fruit.—N. FULLEGAR, *Eastbury Manor, near Guildford.*

* * The flowers referred to in THE GARDEN, March 16 (p. 251), as having come from Holland, were packed in damp Moss, and they came to hand quite fresh and clean and not in the least bruised. We have tried wetted blotting-paper, as in your case, and failed, while by using the common white packing paper in the same condition the flowers all reached their destination quite fresh. For packing tender fruit, we consider nothing so good as well-beaten elastic Moss. Wool should certainly be avoided, as it is liable to sweat, preference being given to short, well-dried Grass from the mowing machine.—ED.

The white Chionodoxa.—In THE GARDEN, March 16 (p. 250), you speak of this *Chionodoxa* being weak. Such is not my experience. Some four years ago I was so fortunate as to find a flower of the white form amongst some collected roots which I had bought. This I at once transplanted, labelling it carefully, and every spring since I have been gladdened by its most lovely flowers, which always call forth remarks and questions from visitors to my garden. The outside of the flower is tinted with pale blue, but the inside at pure white, and the habit of growth is all this

could be desired. Many of the Chionodoxas are worthless, being poor in colour and of sprawling habit, and it may be that some of the white forms belong to this class. I can only speak of my own variety, which I consider perfect. Seedlings from it, so far, have not come true.—JAY AYE.

ROSE GARDEN.

T. W. GIRDLESTONE.

HARDINESS OF TEA ROSES.

It will require very much stronger evidence than that quoted on p. 185 by "J. C. C." to shake the firmly-established truth that Tea Roses may be grown out of doors with complete success anywhere in England except in the immediate vicinity of large manufacturing towns.

The absence of any details renders comment impossible on the case given by "J. C. C.," but it certainly will not go far against the experience and constantly expressed opinion of all the best known growers, both amateur and professional, throughout the country, north, south, east, and west.

The midlands, generally the coldest part of the country, have frequently been described as the least favourable districts for the cultivation of the Tea-scented Roses out of doors; but only so recently as last August the president of the National Rose Society wrote in the columns of THE GARDEN as follows:—

As one of the first who grew (the Tea-scented) the most beautiful of all Roses exclusively out of doors, and this for years in the clay soil of a midland county, without any loss whatever even in the terrible winters of 1880-1-2, I would assure the amateur novice that Tea Roses, budded low on the Brier and well covered with farmyard manure during the time of frost, will bloom as abundantly as other Roses, having the advantages which all Roses ought to have of situation and of culture.

Such being the evidence of the Dean of Rochester as to the practicability of the successful culture of Tea Roses out of doors in that part of England which is admittedly least well adapted in climate for the purpose, the proof of the proposition for the whole country follows naturally. Nevertheless, there is abundant evidence of other good growers that Tea-scented Roses may be well grown out of doors from Lancashire northwards; excellent Teas may be seen in Scotland planted out on Brier seedling or cutting stocks, and thriving admirably in Stirlingshire and many other parts as far north, at any rate, as Aberdeen; while the success with which Tea Roses are cultivated throughout the west, south, and especially east of England is notorious.

"J. C. C." admits that, "as a rule, it is not the severity of the frost that injures these Roses, but the cruel, piercing winds of spring just as the young growth begins to start." Now there is little doubt that anyone disliking what is unpleasant might be very willing, if possible, to dispense altogether with east winds in spring, but that these are sufficient to cause the Tea-scented Roses to "refuse to grow" seems rather difficult to reconcile with the fact that the home of the Tea Roses, namely, the eastern counties, is likewise the home of the east wind. In his article in the "Rosarian's Year-Book" this year on "Tea Roses in East Anglia," Mr. Page-Roberts expressly contests the prevalent, but mistaken notion that the east wind is particularly injurious to the Tea-scented Roses, and he also makes it clear that their hardiness and welfare are not dependent upon light soil, the Teas growing well in Norfolk in either "sand with a gravelly subsoil, or clay with a clayey subsoil."

In East Berkshire, precisely the same thing

is experienced, namely, that whether grown on sand or clay, exposed not only to the east wind, but to every wind that blows, the Tea-scented Roses continue to thrive entirely without protection. In the winter of 1886-87 several hundred dwarf Teas on Brier seedling and cutting stocks growing on a piece of strong clay soil were left wholly unprotected in any way, the plants being neither covered with Fern, nor earthed up, nor mulched. The winter was a cold one, 25° of frost being registered 4 feet from the ground on two successive nights, yet in the following summer those plants carried as fine blooms, and as many, as any of the Teas in the garden, and in the whole bed the only plants killed were four or five of Mme. Bravy. It is further worthy of note that not one of the Roses in the bed was planted with the junction of stock and scion below the surface, so that the Tea scions had not even the protection of a covering of soil at their base.

All risk of damage to the young growth of Tea-scented Roses by cold winds in spring may generally be obviated by deferring the pruning of the plants until the middle of April, and then cutting them back to a dormant eye in every case. Thus treated, the young growth will not be sufficiently advanced to be liable to injury much before the end of May, and by that time in an average season all serious risk of damage from cold is past. Although growers who have not tried the experiment of pruning dwarf Teas late in the spring—as late even in the south as the third week in April—might be inclined to think that the plants so treated would be very late in flower, yet as a matter of fact the growth of Teas when they once start is so rapid, that it is a common and probably a general thing for the plants to be in bloom before the hybrids that were pruned a month sooner.

Mr. Douglas records on page 232 the success which he has found to attend the employment of the plan advocated by Mr. George Paul, of growing dwarf plants of Tea Roses on raised beds, and there is little doubt that the arrangement is an admirable one, especially in low-lying situations or in districts where the rainfall is exceptionally heavy, as it is very desirable that the plants should lie as high and dry as possible during winter.

Perhaps the garden to which "J. C. C." refers lies low or beside water—the situation most inimical to Tea Roses, as to the majority of plants, in case of unseasonable cold; yet there are many gardens where, in spite of such disadvantages of position, Tea Roses are grown with complete success out of doors, and one instance in particular, not far from Stratford-on-Avon, may be cited as an example, in which the garden slopes towards the water's edge, being actually bounded by the river. Nevertheless, in this garden may be seen, cared for with affectionate zeal by a genial rosarian, admirable examples of all the most beautiful Teas, including as fine a bush of Marie Van Houtte as could probably be found in the country flourishing exceedingly, though only protected in winter by a few fronds of Bracken or a little dry straw.

Of course, after a wet and sunless summer like that of 1888 numbers of ill-ripened shoots of Tea Roses will be found presently to have been killed back half their length and more by the winter; but the early and longest ripened wood will be found to have suffered comparatively little, and all the plants will throw up strongly from the base next month. It will not be contested that the Tea-scented Roses are

hardest when grown as dwarfs, whether on Brier seedling or cutting, on light soil in a dry situation; but it is also the case that they may be cultivated out of doors with complete success in practically any soil or open situation, and if the pruning of the plants (cutting back each shoot to a dormant eye) be deferred till the second or third week in April, there need not be much fear of the young growth being injured by the bitter east winds of spring.

ROSE MME. GABRIEL LUIZET.

I HAVE much pleasure in answering your questions concerning the above Rose.

1. *What have you found to be the distinctive excellences of this Rose both as a plant and as a flower?*

Nearly always comes good and is a hardy grower.

2. *On the other hand, what do you find to be its defects?*

The only defect I know of is, if caught by early frosts (being a forward Rose to make growth), the long buds snap off short when the blooms try to expand. I lost one year nearly all my buds.

3. *As compared with others of its class, have you found it hardy, moderately hardy, or tender?*

Very hardy, and will grow in almost any part of my garden.

4. *In what soil or situation have you grown it with most success?*

Both in a sunny situation and also in a bed where the Rose trees are shaded part of the day. In both positions the flowers are equally good. My soil is rather stiff, but well drained.

5. *What stock do you find suits it best, or does it do better on its own roots?*

Some on Brier, Manetti, and own roots; all do equally well.

6. *By means of what system of pruning have you succeeded in obtaining (1) exceptionally fine flowers, (2) the most effective general display in the garden?*

The stronger you can get your wood, the better the flowers. Always cut back rather hard, say to two or three eyes, except shoots from the base of your tree. These should be cut to about the sixth or seventh eye.

7. *Have you found it to grow well in pots, and may it be forced easily?*

Never tried it in pots, but have seen it grown well, but with rather small blooms.

8. *Have you observed any peculiarity of character in this Rose, or any alteration in character as an autumnal since it was first distributed?*

If a sunny autumn, you get finely-shaped flowers very late in a sunny dry spot, but they rarely come to perfection if the season is at all wet.—R. E. WEST, Firth Dene, Reigate.

— In reply to the queries about Mme. Gabriel Luizet H.P. Rose, I reply—

1. Beauty of colour, vigorous growth, excellence as a show flower, and free blooming.

2. Its defects are not being sufficiently free-blooming in autumn. Still it continues until November. It is too subject to mildew, though either from invincible ignorance or rank heresy I think mildew does little or no permanent injury. After pruning hard in spring I find Mme. Gabriel Luizet blooms just as freely and beautifully as in the previous year before mildew appeared.

3. I find it perfectly hardy. The two Roses which made the most vigorous wood with me last year and appear unharmed by the last winter are Ulrich Brunner and Mme. G. Luizet.

4. My Rose garden formerly consisted of forty poles of the Hitchin Sewage Farm. The soil was loamy clay, but the situation was too cold and wet, from the trenches beside the Rose border being kept full of sewage water. The bed, however, was so well drained that the water was never stagnant about the roots. The situation was, further, too exposed to the north, and the railway embankment made the wind pour down as through a funnel. Still

Gabriel Luizet grew vigorously and gave good show blooms.

5. With me it does equally well as a dwarf or a standard on Brier.

6. As a rule I prune hard.

7. I grow no Roses in pots.

8. I have observed no alteration in its character as an autumnal since I first possessed Mme. Gabriel Luizet.

My Roses were all moved in the autumn of 1887 to my present rosetry, part of an old nursery garden. The ground was trenched 3 feet deep, yellow loamy clay, turfy loam and manure by cartloads being also added. The plants being now well established, I hope to have better blooms this summer than ever.—F. H. GALE, *Hitchin, Herts.*

— I send you the following brief answers to the queries put relative to this Rose:—

1. As a plant, it is here decidedly free growing; as a flower, a good blooming Rose, and one hardly ever absent from the exhibition box.

2. It is particularly subject to mildew, more so than any Rose in my collection.

3. It is very hardy. I have never lost a plant.

5. I have always grown it on the seedling Brier.

6. My rule is to prune it hard back.

8. It is not here a good autumn bloomer, chiefly on account of mildew.—C. FULLER, *The Vicarage, Beawley, Kent.*

— In reply to the questions about the Rose Mme. Gabriel Luizet, I beg to state—

1. Its splendid colour, fine form, and easy cultivation.

2. Subject to mildew.

3. One of the most hardy.

4. I grow it in rather heavy soil on a very open high situation.

5. It grows well on both the Manetti and Brier cutting stocks.

6. By severe pruning I obtain the finest flowers.

7. I have not found it a good variety to force.

8. The first two years I had this Rose I did not find it bloom a second time, but since that time it has produced an abundance of autumn flowers.—F. N. FLIGHT, *Comstiles, Twyford, near Winchester.*

— 1. Mme. Gabriel Luizet here is one of the "always-good-alike" Roses. As a plant it is hardy, with great vigour and very free-flowering, while the flower at its best is of magnificent globular shape, with high centre and very sweetly scented. The colour is a distinct shade of silvery pink.

2. Its great defect is its liability to mildew in all seasons, while it is essentially a summer Rose.

3. It is perfectly hardy.

4. It has done equally well in garden soil and broken up meadow, in south and east borders, and in the open.

5. Seedling Brier is requisite here as a stock to get bloom from maiden plants.

6. It is so free-flowering that, notwithstanding the vigorous growth, very close pruning should be resorted to for exhibition purposes. For garden decoration light pruning and thinning out as for a pillar Rose would be preferable.

8. By a careful selection of buds from the top of flower-bearing shoots, this Rose will now flower as a maiden on seedling Brier, but all efforts have failed to induce it to bloom in the autumn. It is a magnificent summer Rose, but nothing more, and the more favoured, or probably more skilful, growers who can convert Gabriel Luizet into an autumnal bloomer are much to be envied.—E. B. LINDSELL, *Bearton, Hitchin.*

SHORT NOTES.—ROSES.

A beautiful Rose when forced is Sultan of Zanzibar. It preserves its splendid colour and sweet fragrance well when subjected to heat.

Roses in winter.—Two of the best Roses for the winter are Cheshunt Hybrid and Bouquet d'Or. Mr. Roberts, Gunnersbury Park, finds these two very useful for winter work.

Rose Blanche Rebatel is a new Polyantha variety of quite a distinct purple-crimson shade, almost as deep as in the H.P. Sultan of Zanzibar. It is very free, sweet, and showy, but the semi-double

character of the flowers does not increase their beauty. It is one of Messrs. Paul and Son's new acquisitions in this section.

Gloire de Polyantha is one of the best of the Polyantha Roses. Its flowers are of a delightful shade, similar to those of Mignonette, double, and produced freely. In any selection of Polyantha Roses we should include this, though some might regard it as too close in tint to the charming Mignonette. It has been well exhibited this season by Messrs. Paul and Son, of Cheshunt.

Roses in March.—A delightful exhibit at the March meeting of the Royal Horticultural Society was the Roses from Messrs. Paul & Son, of Cheshunt. The soft coloured flowers of The Bride and the purer white of The Puritan were fresh and welcome. Colonel Felix Breton is a strikingly handsome Rose, the colour velvety red, while the variety Lady Alice, Mr. Paul's sport from Lady Mary Fitzwilliam, was well shown. The beautiful Paul's Single White, R. rugosa and its white variety, the tiny Golden Fairy Roses, and such lovely Polyantha kinds as Gloire de Polyantha, Marie de Montravel, pure white, very free, and beautiful; Paquerette, double white, very lovely; and Mignonette, a perfect rosette, small, pretty, and of a delightful shade of soft rose, made a beautiful gathering for March.

NOTES OF THE WEEK.

Gardeners' Orphan Fund.—Mr. Barron informs us that from the concert recently held at Edmonton under the direction of H. B. May and his brother florists, a sum of £51 0s. 6d. has been handed over to the Gardeners' Orphan Fund.

Narcissus maximus is exceptionally fine this season. The flowers are large, rich in colour, and robust. This and bicolor Horsfield are two of the best Daffodils for early flowering, and there is always a good show of them in the market.

Heuchera sanguinea and **Lily of the Valley.**—These make a rich display in the greenhouse at Kew, the scarlet flowers of the Heuchera contrasting well with the pure white bells of the Lily of the Valley. In the greenhouse many such arrangements may be made at this season.

Phalænopsis Schilleriana.—This is proverbially a very free-flowering Phalænopsis. A plant in a basket at Messrs. J. Veitch and Sons' Chelsea nursery was bearing a panicle of 180 flowers, and one spike accidentally broken off had forty-two flowers. This is a very respectable number of flowers for one plant.

Narcissus Emperor in pots.—This is now particularly fine in the greenhouse at Kew, and well shows its adaptability for flowering in pots. The pots, which contain three bulbs each, bear flowers of rich colour and large size. The foliage is remarkably healthy, which is not always the case with forced bulbs.

Acacias in Guernsey.—I am sending you a spray of *Acacia asparagoides* in flower. It is now in full bloom, but has had flowers on it since the beginning of February in the open air. With it are some sprays of Heath.—J. A. SAUMAREZ, *Guernsey.*

. The *Acacia* is very beautiful. Two pretty kinds of tall Heath and other flowers also came.—ED.

Primula denticulata is very showy, flowering profusely, unaffected apparently by the past wet season. The heads are large, well formed, and the flowers bright and clean. We saw the other day a fine specimen of the white variety, which, we believe, is a rare plant as yet. Large bunches of snowy white flowers in March will certainly be an acquisition, especially if borne in the same profusion as the purple ones are.

The Melon Pear.—Thinking a fruit of the Melon Pear would be of some interest to you, I enclose one herewith. I have been getting fruit from my plants during the last two months. You will readily perceive the flavour of the Melon, and will also, I think, agree with me that it somewhat resembles that of the Pear.—R. H. VERTEGANS.

. The fruit has a delicate smell, but in flavour is simply watery rubbish. If cultivated, it ought to have a distinct name.—ED.

Primula petiolaris.—This is one of the loveliest of the Himalayan species we have seen for a long time, flowered for the first time in cultivation, and only given an award of merit. The large bunches of lovely rich pink flowers with white centre formed a picture one does not often see. The leaves are spatulate, the margins being sharply and irregularly serrated. It is

said to be one of the most variable of the Himalayan species. The seed, we believe, was sent to this country by Mr. Elwes.

Hyacinthus azureus.—This lovely early spring bulb is now at its best, and a more beautiful sight we have rarely seen in the border in early March. The heads are larger than those of the Muscari, which they very much resemble, but the individual flowers, instead of being contracted at the mouth, are open, as seen in the ordinary Hyacinth. The heads are bright azure blue, tinged violet-purple as they get old, making a charming picture. This is the first of this class of bulb to bloom outside, and it is perfectly hardy.

Phalænopsids.—These plants appear to be exceedingly well done at Hutton Park, Brentwood, the residence of Mr. G. H. Baxter. One plant of *P. Schilleriana* in particular was exceptionally beautiful. It had four large and massive leaves, and bore two spikes, which together carried 140 blossoms of large size and beautifully coloured. The plant in question bore out my previous assertions that very little soil or Moss is necessary, as it was growing in a small basket, and had quite a mass of roots on the outside. When seen in such condition this species is at once a lovely and marvellous object and well deserves notice.—H.

Boronia heterophylla.—A batch of this beautiful plant was in full flower the other day in Messrs. J. Veitch and Sons' Chelsea Nursery. It is very easily grown, and is smothered with rich purple bells, that are produced in twos, even from the very lowest shoots. The plants do better in the country, as the flowers frequently open very badly in a London atmosphere; *B. tetrandra* and the graceful *megastigma* are also beautiful, but *heterophylla* is vastly superior. It does not require many plants in a house to make a show. A coloured plate appeared in THE GARDEN of November 12, 1887.

Persian Cyclamens have been very fine this season, but there is a strong tendency to infuse a kind of ashy grey, or what, perhaps, some would call a shade of purple into the flower. It is no improvement, the flowers looking as if singed by fire. We have a similar instance in the self *Auricula*. Those flowers that are of one decided colour, or some beautiful shade, are far more showy in the greenhouse than dusky tints as grey, or something akin to it. The Persian Cyclamen has, however, undergone great changes. We have now strong sturdy flowers, of handsome shape, excellent colours, and a robust, free-blooming plant, qualities of no mean value in a florist's flower.

Amorphophallus Rivieri was shown at the recent show of the Royal Botanic Society by Messrs. J. Veitch and Sons, of Chelsea. It is an interesting Aroid with a scape about a yard in height, and a large spathe and spadix, the latter projecting several inches. It bears a resemblance to *Arum Dracunculoides*, especially in the colour of the spathe and spadix. The scape appears before the leaves, and a few small Ferns grown in the pot help to hide its bareness. The outside of the spathe is blotched with green on a greyish white ground. The decomposed leaves are about 4 feet across. It is synonymous with *Proteophallus Rivieri*. A truly giant *Amorphophallus* is *A. Rivieri*. It is a remarkable plant, and its huge stem a perfect study in colouring. It is the same as *Conophallus Titanum*.

Clivias, or *Imantophyllums* as they used to be called, are now in full flower, and it would be difficult to find handsomer stove plants. *C. miniata* used to be grown exceptionally well in the Royal Horticultural Society's Gardens at Chiswick, and at the present time there is a great display both in the nurseries of Mr. B. S. Williams, of Holloway, and Messrs. J. Veitch and Sons, Chelsea. There are many named varieties, but it only creates unnecessary confusion to name every kind that shows a variation from the type. Many we see now under varietal names are simply the type well grown, or with flowers with a little more colour in them than usual. Two good varieties in bloom at Chelsea are *Mme. Van Houtte*, which has a large truss of bright flowers, and *Excelsior*, another fine type. Mr. Williams had excellent specimens of *splendens*, one of the best of the varieties of *C.*

miniata. It is not only for the huge trusses of flowers that the plants are invaluable, but also for the abundance of foliage, which is as handsome as that of *Agapanthus umbellatus*.

Useful Ericas.—There are a few *Ericas* of great use for the greenhouse in the spring months, and these are *E. ventricosa coccinea* minor, a dwarf, bushy variety, with rosy flowers; *v. perspicua*, which has tall, slender stems wreathed with flowers; and *perspicua nana*, a dwarf form, the flowers pinkish white. *E. Cavendishiana* is also very handsome as a pot plant.

Ceologyne cristata.—A grand display of this fine Orchid (most of the plants being of the large-flowered section) has adorned the Orchid houses of Mr. Crawley at Waddon House, Croydon, nearly 800 spikes of bloom being open at one time. This Orchid is well grown by Mr. King, as the numerous spikes of bloom upon plants in small pots amply testify. It is a charming plant, and it is not to be wondered that it is so highly appreciated.—G.

Impatiens Hookeri.—A large plant of this *Impatiens* is in flower at Manor House, Gunnersbury. Although its flowers are both large and rich in colour they are less freely borne, and the plant is also of more straggling habit than the beautiful *I. Sultani*. If we had to choose between the two, our choice would be *Sultani*. We believe the floral committee of the Royal Horticultural Society refused to certificate this now popular plant until the fourth time it was shown before them.

Dendrobium mesochlorum.—From Mr. Bonny, of the Hextable Nursery, Swanley, comes flowers of a plant under this name. They do not well accord with the description of the Messrs. Veitch, as the flowers are pure white, except the disc of the lip, which is pale green, but they possess the pleasant fragrance of Violets peculiar to the typical plant. The plant was originally discovered by Thomas Lobb some forty years ago, but has not been in cultivation until lately. It very much resembles *D. moniliforme* (japonicum) in general appearance.

Late Chrysanthemums.—I send you six Chrysanthemum blooms, similar to what we are at present cutting here. Will you kindly give me your opinion of them? I am decidedly of opinion myself that they are well worth a little extra care even for spring use, when other flowers are more plentiful than in the winter months. Here they are at all times appreciated.—JAMES JEFFREY, *The Gardens, Cyfarthfa Castle*.

* * * Very fresh and beautiful, but scarcely wanted now.—ED.

Narcissus cyclamineus.—Last year I noticed that there were two distinct strains in *N. cyclamineus*, and this season I have a dozen each of the Portuguese and Spanish roots planted in a box, and the difference between the two lots is very marked. The former are much larger and stronger in growth, besides possessing the distinct form of trumpet noticed by Mr. Poë. One of the Spanish roots has given me a very peculiar flower, the trumpet being only three-sixteenths of an inch in diameter. The Portuguese variety seems to be as hardy as the common form, and defies frost, snow, and wind, but my present impression is that the Spanish form is somewhat delicate and will be useless for outdoor purposes. Seedlings may perhaps develop a hardier constitution. One great recommendation of the Portuguese variety is that it is quite as early as *N. minimus*, which heretofore has been our first Daffodil to flower.—JAY AYE.

Galanthus octobrensis.—I think my old friend Herr Max Leichtlin must have somewhat misunderstood the late Rev. Harpur Crewe's account of the way in which *G. octobrensis* came into his possession. In December, 1880, at my request, Mr. Harpur Crewe wrote to Lord Walsingham asking for full particulars as to the spot where the bulb was found, and he very kindly sent me his lordship's reply, which was as follows: "I am glad that my insignificant contributions to your garden have by accident included something of value. It must have been in March that I gathered the bulbs,

not in October, and in taking up things which showed some leaves or flowers I may have taken up several which did not. The bulbs, as far as I remember, came from Scrofizza and Conchi, in Albania, from 40 to 60 miles north of Corfu, one day's march inland. I cannot give exact localities, but they are from the first high range of mountains near the Albanian coast north-east of Corfu. I fear the country is scarcely safe for botanists any longer. I will try to get more if possible." (December 30, 1880.) Besides this, we have record of another autumnal Snowdrop found on Mount Taygetos by Orphanides (*G. Olgae Reginæ*), which is, unfortunately, lost, and yet another found on Mount Hymettus by Dr. Mahaffy, of Trinity College, Dublin. Through the kindness of a friend I am the fortunate possessor of a root of this. In the first and last cases only single bulbs were found, and these quite by accident. I do not know whether it was the same with *G. Reginæ Olgae*. Whether these three findings belong to the same variety or not I cannot say. One thing is pretty evident, and that is that in the mountains of Greece and the neighbouring countries there are to be found early flowering Snowdrops. *G. corymbosus*, flowering in December, comes from Corfu. All these autumnal *Galanthi* seem to be somewhat delicate in constitution.—JAMES ALLEN, *Park House, Shepton Mallet*.

Solanum jasminoides.—In THE GARDEN, March 16 (p. 235), "J. C. C." writes on the thriving and flourishing character of this beautiful climber in Devon, and he says that it is not very particular about soil, if only the climate be sufficiently warm. He, and probably others, may be interested to learn that on the old walls at Kew, some years ago, there were two splendid examples, which did as well as any in Devon or elsewhere. They were killed one severe winter, but were of good size and full development when I first knew them, and they must have passed a number of winters with the moderate protection that was afforded them. It is thus clear that it does thrive near London, and is well worth planting. A mat over the top, with some ashes over the roots, will carry it safely through all but the most severe winters.—R. IRWIN LYNCH.

Iris stylosa alba is a most charming plant, and a great rarity in the open air at this time of year. The flowers are as large as those of the type, pure white, with a small yellow blotch on the fall, and were it not for their fugacious nature would doubtless be in request as subjects for cut flowers. There seems to be something antagonistic in the London climate to this species, as one rarely sees either the type or variety flowering as they do elsewhere. It is a really desirable hardy plant, and should be tried in every conceivable way until success be obtained. We have seen it in several gardens in a south aspect growing very well, and although flowers were rather scarce, the luxuriance of foliage in a measure compensated for this.

Iris Rosenbachiana.—This appears to be extremely variable, and in the hands of one of our florists may turn out as charming a plant as the old favourite *I. reticulata*. The variety with the dark lilac falls and the bright purple blotch was the most admired; while the other was of a very pale washy lilac, and not by any means beautiful. *I. reticulata* varieties are about played out, if we are to look in future for descendants from that dingy, ugly variety called *purpurea* shown at the Drill Hall last Tuesday. It is a pity that such a form should be allowed to exist, especially when we have such beautiful kinds as *Krelagei*, *cyanea*, *sophonensis*, &c., all emitting the fragrance of Violets, and charming as cool greenhouse or out-of-door bulbs.—D.

A climbing Bamboo (*Chusquea abietifolia*).—Healthy examples of this interesting plant are in the Kew collection, having been introduced from Jamaica, where it is confined to the mountains, climbing the loftiest trees, upon which its pendulous branches form feathery masses of great beauty. The stems are very thin, wiry, much-branched; the branchlets clustered, from 4 inches to 8 inches long, drooping, and clothed with small pale-green leaves,

scarcely an inch long and about one-twelfth of an inch wide. The grace and elegance of the branches are certain to win favour for this species as an appropriate plant for covering pillars, &c., in large conservatories. It will thrive in an ordinary greenhouse almost as well as in a stove. Its only drawback is, that like many of the Bamboo family, it dies after flowering; still, as this does not occur until the plant is many years old, this character has not much significance. A plant of it flowered at Kew in 1884; the flowers are very small, in racemes, yellowish, with purple bracts.

National Chrysanthemum Society.—On Monday evening last a meeting of the general committee of this society was held at Anderton's Hotel, Fleet Street, under the presidency of Mr. R. Ballantine. After the usual opening formalities, the hon. sec. announced that Sir Louis Pelly had consented to act as a vice-president of the society. It having been arranged that special prominence be given to exhibits of horticultural sundries, and that a certain number of the society's medals be granted to meritorious articles coming under that head, Mr. Herbst was elected judge for the purpose. With regard to the suggested co-operation of the National Chrysanthemum Society with the Royal Horticultural Society on the occasion of the conference at Chiswick in November next, a letter was read from Mr. Veitch expressing regret at the decision arrived at by the National Chrysanthemum Society not to entertain the proposal. Mr. Holmes informed the meeting that a conference would be held at the society's provincial show at Hull. A few new members having been elected, applications were then received from the Derby Chrysanthemum Association and the Green Street District Cottage Gardeners' Association for affiliation, both of which were acceded to. The schedule sub-committee submitted their report to the meeting, which, after much discussion on several points, was passed. The Hull schedule, which will be incorporated in that of the National Chrysanthemum Society, was also laid before the members. Resolutions were passed as to conferences to be held at the society's exhibitions in September and January next. The question of issuing a supplement to the official catalogue, thus bringing that work up to date, was considered, but as some little difference of opinion existed, the hon. sec. moved that the matter be left to the discretion of the catalogue committee. With regard to the proposed centenary show and conference to be held in 1890 by the National Chrysanthemum Society, the hon. sec. proposed that a sub-committee be elected to arrange a scheme and submit the same to the next general committee meeting. Mr. Holmes was requested to make the necessary arrangements for the annual summer outing of the members. A vote of thanks was accorded to Mr. Owen for a pretty collection of Primulas, and also to Mr. Kipling for an excellent display of late-flowering Chrysanthemums, which were clean, bright, and very attractive.

Destroying woodlice.—In answer to "A Subscriber" (GARDEN, March 9, p. 229), I have used phosphorus paste with the greatest success for destroying woodlice. I have a small pit, which was built for the purpose of supplying Cucumbers during the winter, but they completely failed this season owing to these pests. After trying every means I could think or read of, I tried the phosphorus paste a few times, spread in hollowed-out pieces of Potato, and have exterminated the woodlice.—W. G.

Earwigs in garden.—My small garden in Liverpool was last year entirely ruined by earwigs, which literally ate up everything. I destroyed them as much as I could, but find this spring, on digging it over, that the soil is perfectly swarming with their young. Can you tell me what to do to get rid of them? It is perfectly hopeless endeavouring to have any flowers where these pests exist in such numbers. It has been suggested to me that diluted paraffin, if poured over the ground with a rose, would kill them; but it seems that in any event this would take an immense amount of paraffin, and also only kill those on the very surface. On digging they are to be found at a depth of up to a foot below the surface. I have very few perennials.—BORDER.

TREES AND SHRUBS.

THE ASH.

(FRAXINUS EXCELSIOR.)

WHETHER as regards its form or the emerald green of its ample foliage, the common Ash can well hold its own with any other of our forest trees; indeed, when all its merits are justly weighed, I question much whether any other, excepting perhaps the Oak, is of greater value. It is a tree of very rapid growth, one that succeeds on a great diversity of soils and at varying elevations, a valuable timber-producer, and when suitably placed imparts during the summer a richness and beauty to the sylvan scene such as no other tree can if we except the Walnut and one or two others. Usually the Ash attains to giant proportions, specimens of fully 20 feet in girth and containing upwards of 200 feet of timber being not at all uncommon. The accompanying illustration shows well the huge size to which this tree attains, and likewise clearly points out the spreading nature of the massive limbs, the well-rounded, slightly fluted trunk, and gracefully pendent branches. It is growing on the Herenden Hall estate, Tenterden, and is certainly a conspicuous and noble object, the well-rounded stem girthing at the smallest part exactly 18 feet, while the branches cover a spread of 105 feet in diameter. Many other trees of equal and a few of larger dimensions might be pointed out, notably one that was felled at Aber, not far from the old castle, which was once the residence of Prince Llewellyn. This tree girthed at 3 feet and 5 feet, 16 feet 6 inches and 15 feet 5 inches, and its stem contained a little over 200 feet of timber. Contrary to what is usually expected in the Ash, the stem of this fine tree was clean and straight, while the head at a considerable distance from the ground ramified to a great extent, although destitute of what might be described as heavy or unwieldy limbs. Another Ash on the same property as the former (Penrhyn Castle) is 26 feet in girth at 3 feet up, but the stem is short, and at no great distance from the ground is divided into several large limbs, thus forming a head of unusual size and singular beauty. In Scotland, at Darnaway Castle, there was until lately a specimen whose dimensions almost equalled that of the one here figured. If we except the Oak, perhaps no other of our British forest trees attains to so large proportions as the Ash, while for the value of the timber it produces it is certainly second to none.

Amongst forms of the Ash that are well worth looking after I would mention *angustifolia*, with very narrow leaves, which give to well-developed specimens a very distinct and pleasing appearance. *F. heterophylla laciniata* has the leaves beautifully cut up and is a most interesting and desirable variety; while in *F. heterophylla variegata* the major portion of the leaflets are united so as to form one large leaf. Who does not know the Weeping Ash (*F. excelsior pendula*)? When suitably placed it is an object of general admiration, but how often do we find this the case? There is a curious, though not very ornamental form called *cristata*, with fasciated or Cockscomb-like branches; but it does not usually attain to large proportions, although a tree near Saltburn, in Yorkshire, is of goodly size, and seems to attract considerable attention. Then there are golden and irregularly variegated forms, some of which, particularly *luteo* and *aureo-variegata*, can ill be spared from our list of handsome specimen trees.

Invariably amongst giants we find dwarfs, and such is the case with the Ash, to wit, that

curiously depauperate shrub *dimorpha*, and the prettier, but equally low-growing weeping form of *F. lentiscifolia* that has been sent to us from Asia Minor.

A. D. WEBSTER.

Abies numidica.—This Algerian form of the Silver Fir will succeed in a light gravelly soil better than most of its class, and it does not start into growth till all danger from spring frosts is over. It is a bold, free-growing species, generally pushing up a vigorous leader, and when allowed space for its full development, it usually forms a broadish pyramid of rather a dense character. The leaves are about an inch long and of a rich deep green

varying charm of light and shade which add much to the beauty of gardens generally. A group of Lawson's Cypress, judiciously placed, is one of the prettiest features to be found in a garden; but when we see them and a few others only slightly different in habit scattered over the lawn, fringing the walks and roads, and dwarf forms filling huge beds, the result is a poor one. The collection may be interesting and comprehensive, but to furnish a garden with this class of tree only shows a disregard for natural beauty. A careful use of such trees as these near the house improves the winter aspect, and seems to add warmth and shelter to the garden; but to use them exclusively, paying no regard to summer leafing trees, is to deprive our gar-



An old Ash tree on the Herenden Hall Estate, Tenterden. Reproduced for THE GARDEN from a photograph by F. Skinner, Tenterden.

colour. Though, as above noted, it will succeed in a gravelly soil better than most of its class, a good well-drained loam is, of course, more conducive to success in its culture. The tree, said to reach a height of 45 feet to 60 feet, was first introduced into France in 1864, but it is not much cultivated in this country. It is also known under the name of *Abies baborensis*.—H. P.

Conifers misused.—Among the Conifers are some striking and beautiful trees, but their use in the adornment of the garden and pleasure grounds needs some careful consideration. There are places quite overdone with trees of this kind. All the grounds are dark and sombre, and have none of the

dens of one of their greatest charms—the changes of the seasons, as seen in the budding and falling of the leaves. I recall to mind a nice house in a pretty country where Oak woods abound, and the landscape is beautiful. The drive leading to the house is between an avenue of Wellingtonias whose branches interlace. The trees are unchanging the whole year through. Beyond the drive the grounds are studded with groups and specimens of other Conifers, which, whilst themselves monotonous, conceal the true beauty. Such a mistake as this arises simply from want of consideration as to after effect. Another way in which Conifers are frequently misused is to dot them along the roads or walks fringing the natural woods. In such posi-

tions the effect cannot be otherwise but bad. They impart a foreign aspect which belongs more to the mountains than to our richly wooded plains. Where Oaks and Elms abound, there can be no objection to grouping near by some of the best new or improved kinds of Conifers now to be had. To put Wellingtonias in such a position is a sure way to spoil natural beauty. Meadows and parks are also disfigured by the unwise dotting about of Conifers. The marked contrast between their dense spiral habit and the free branching forms of native trees is too great. The whole system of dotting trees in pastures is wrong, but the bad results arising from it increase with the use of coniferous trees.—*The Field*.

Psychotria jasminiflora.—This is a beautiful flowering shrub that blooms during the winter and early spring months, but it is quite a rare plant in gardens, doubtless owing to the fact that it is more particular in its requirements than many other stove plants. It forms a neat-growing evergreen bush, while the flowers, which are borne in clusters, greatly resemble those of a very pure white-flowered Bouvardia. The plant blooms very freely, and lasts in beauty for a considerable time. It is also known under the name of *Glonera jasminiflora*. The most successful way of inducing it to flower is to encourage the plant to grow freely during the season, then after that allow it to rest a little.—*T*.

Scarlet-berried Elder (*Sambucus racemosus*).—This differs from our common Elder (*Sambucus nigra*), especially in the colour of the berries, which instead of the purplish black colour of our British species are scarlet, and consequently make a goodly show when a specimen is laden with them, as may be seen throughout a considerable district of the Alps, of which it is a native. In this country it rarely produces its fruit in quantity. Conditions most favourable to fruiting are a cool, rather moist soil and a sunny position, as where the soil is at all dry and sandy, berries may be sought for in vain. In general appearance it resembles the common Elder, differing, however, besides its berries in the flowers being borne in a more racemose manner, in the bark being smoother, and the leaflets more serrated. There is a variety of this (*laciniata*) in which the leaflets are quite jagged.—*H. P.*

Buffhorn-wood (*Burchellia capensis*).—This South African shrub is by no means a novelty; indeed it was at one time more cultivated than it is at the present day, when it is but rarely met with, though its merits as a flowering shrub are superior to many subjects for which a place is found in most gardens. Its general habit is that of a freely branching bush, clothed with oblong leathery leaves of a dark green hue. The flowers, which are borne in clusters on the ends of the branches, are about an inch long, urn-shaped, and bright scarlet in colour. They are fleshy in texture, reminding one to a certain extent of those of some of the *Vacciniums*. It is a plant of easy culture, succeeding well in a mixture of loam, leaf-mould, and sand, but it is by no means a vigorous rooting subject. The cool end of the stove or the temperature of an intermediate house will suit it perfectly, and it flowers best when encouraged to grow freely, and then induced to rest somewhat when the growth is maturing.—*H. P.*

The Larch as a lawn tree.—Taking the whole season through, I doubt if there is a more interesting or beautiful tree in the whole family of those which bear cones. It is not evergreen, otherwise we should lose one of its greatest charms. Few trees are so beautiful as this when budding, and the fresh green leaves are quickly followed by numerous rosy red cones, which last in beauty for some time. The graceful form, however, is the greatest recommendation of this tree. The stem shoots up straight and clear, and the branches grow out horizontally and slightly depend. Although a wood of Larch is beautiful, a single well-developed tree is much more so. A grove of noble specimens somewhere near the pleasure grounds would be a most delightful feature. It is the fate of the most useful fruit-bearing or timber trees to be overlooked when planting for ornament alone is under consideration; but because the Larch grows into a marketable

tree, or the Apple produces a crop of most useful fruits, that is no reason why each should not have due attention as ornamental trees in the truest sense. There are two distinct kinds of Larch, known respectively as the common and the Tyrolese. The Tyrolese is claimed to be hardier, but it is certainly more graceful, as all the twigs hang from the under side of the branches, appearing in a full-grown tree as a tangled cluster a yard in length, suspended in the air. When the Larch is bare in winter, those who love beauty of form will find in this tree something to study, and the pretty colour of the wood is then most noticeable.—*Field*.

THE LARGER COTONEASTERS.

NEARLY all the Cotoneasters are natives of the Himalayan region, and while the low-growing *C. microphylla* and its numerous forms are strictly evergreen, the larger species are either deciduous or under very favourable conditions sub-evergreen. The most ornamental of the whole are undoubtedly the two allied kinds, *C. frigida* and *C. affinis*, whose large clusters of bright-coloured fruits form such a conspicuous feature during the winter. None of them are at all fastidious as to soil or situation; in fact, they will thrive in sandy spots better than many other shrubs, and will also grow well in soil largely composed of clay. Though some of them attain the dimensions of a medium-sized tree they are seldom confined to a single stem, and the habit of the plant is therefore that of a large shrub rather than a tree. The principal larger-growing Cotoneasters are *C. frigida*, which forms a vigorous growing, much-branched specimen, reaching a height of about 20 feet. The habit of the plant is rather loose and open, while the smaller branches are pushed out nearly at right angles with the stem, thus forming two marked points of difference between it and *C. affinis*, with which it is often confounded. There is a considerable variation in the shape of the leaves, but those of *C. frigida* are generally smaller than those of the other, and consequently more numerous. Its most showy stage is when laden with fruit, but still its flowers are not without merit, for about the early part of May when laden with panicles of small white blossoms it is certainly very ornamental. The flowers are succeeded by berries which ripen in the autumn, and when in this state they are of a bright crimson colour. Sometimes the birds quickly rob this of its berries. According to Loudon, this Cotoneaster was introduced in 1824. *C. affinis* is so called from its affinity to the last-named, but it forms altogether a more sturdy specimen, with fewer branches, and is more tree-like in habit. The leaves are also larger, but the flowers and fruit are much the same as in *C. frigida*. As in the last, the birds sometimes take a great fancy to its berries; indeed it has been recommended for extensive planting in game preserves, pheasants, it is supposed, being fond of its fruits. *C. acuminata* is very different from either of the preceding, being more like an enlarged form of the well-known *C. Simonsi*, and, as in that kind, the berries are of a bright orange-red colour. This species assumes the character of a stiff, upright growing shrub, which reaches a height of about a dozen feet. The leaves are, as its name implies, sharp-pointed. This species retains its foliage till late in the year, but it becomes then totally deciduous. *C. bacillaris* has berries dull in colour compared with those of any of the preceding. This species is a bold, free-growing kind, generally pushing up several stems from the base, which at first have a somewhat erect tendency, but after a time the upper part of the plant assumes an open character. The flowers of this kind are of a whitish

hue, and though individually by no means showy, they are borne in such profusion that the whole specimen appears to be a mass of blossom. It is just as free, too, in the production of berries, which are rather small and brown in colour, but the whole tree is frequently so densely laden with them, as at a little distance to appear entirely of a brown hue. The leaves are ovate in shape, while those of *C. nummularia* are almost round. The merits of this last as a flowering or fruiting specimen do not rank high, for the blooms are not large, nor particularly numerous, while the berries are when ripe almost black. This species forms a large bush of an open spreading habit of growth, the long slender arching twigs being, when clothed with foliage, very light and frond-like in appearance, as the leaves, which are from 1 inch to 1½ inches in diameter, are alternately arranged on either sides of the stem at regular distances from each other. It is easily distinguished from all the others by its more spreading habit and smaller almost round leaves. A part of the foliage of this is retained occasionally throughout the winter. While this completes the list of large-growing Cotoneasters, the small evergreen ones form a very interesting and highly ornamental class. They consist of *C. buxifolia*, *C. microphylla*, *C. rotundifolia*, with *C. thymifolia* and its variety *congesta*, as well as other less clearly defined forms. The European *C. vulgaris* is not often seen; indeed it is less desirable than any of the preceding. *T*.

The red-leaved Peach.—Within the last few years *Prunus Pissardi* has monopolised nearly all the attention bestowed upon purple-leaved shrubs, and very beautiful it is, but the season when its distinctive features are most strongly marked is towards the end of the summer, as the leaves when first expanded are by no means purple. On the other hand, the Peach is seen at its best when the leaves are young. The Peach is a free, vigorous grower, and on the strong bold shoots the leaves are richer in colour than on the weaker ones. This particular variety originated in America, where it is said to have been found wild on, or near the battlefield of Fort Donelson, in Kentucky. It is propagated either by means of budding or from cuttings, this last being the best, though the other is usually practised.—*T*.

Lilac Charles X.—The list of Lilacs offered in different catalogues is a long one, but this old variety is still one of the best, either for forcing into bloom or for growing as a garden shrub. When forced early in the season the blooms are pure white, but out of doors it is among the darkest tinted varieties, and is remarkable for the dense massive appearance of its clusters of blossoms. It is largely grown for supplying neat little plants for forcing, as dwarf bushes not more than 2 feet high will flower freely. To obtain these dwarf plants they may be potted and plunged outside during the summer, or if planted in the open ground (which is far less trouble), a sunny spot must be chosen for the purpose and plenty of room allowed between the plants, otherwise they will grow up tall. In the shrubby border, Charles X. is as vigorous as any of the Lilacs.—*H. P.*

SHORT NOTES.—TREES AND SHRUBS.

Rhododendron Nobileanum.—The one great drawback to this early-flowering *Rhododendron* out of doors is that it is so liable to be cut off by frost. A large bush of it in our garden was covered with flowers during the last week in January. The flowers were as fresh and good as if opened in May, but the severe weather in the early part of February destroyed every flower, and also a few unopened buds. The safest way with small plants is to pot them and put them under cover.—*E. B. L.*

Leptospermum scoparium.—The *Leptospermums* are members of the great Australian Myrtle family, to which the Gum trees (*Eucalyptus*) also

belong. A coloured plate of *Leptospermum lanigerum* was given in THE GARDEN, January 8, 1881, and between this kind and the species under notice there exists a general resemblance, both being of a much-branched, twiggy habit of growth, and both bear their small white flowers in the greatest profusion. *L. scoparium* is also known as Captain Cook's Tea plant, the leaves of this being sometimes used for making tea. It flowers very freely even in the shape of small bushes, and forms a very pretty object in the greenhouse just now. It is, however, along our southern and western coasts that the *Leptospermums* are seen to the greatest advantage, as being there quite hardy they form large bushes.—T.

Pyrus Malus floribunda.—This is a shrub that bears forcing well, for when thus treated the shoots are simply long wreaths of blossoms, which when fully expanded are almost white, but coral-tinted when in the bud. It is very distinct from most subjects employed for greenhouse or conservatory decoration, and retains its beauty a considerable time if gently forced. It is, however, as a hardy shrub that it is seen at its best, for where room is allowed for its full development this *Pyrus* forms a most beautiful and graceful specimen, the smaller branches having all a drooping tendency. In the open ground the flowers, both when expanded and in the bud state, are very much deeper in colour than in the case of specimens flowered under glass. This *Pyrus* can be increased by cuttings of the roots, but, besides this, it is readily propagated by cuttings of the ripened shoots put firmly into the open ground during the autumn or early winter months.—T.

CHRYSANTHEMUMS.

E. MOLYNEUX.

NOTES ON CULTURE.

POMPON, Anemone Pompon, and single varieties, the cuttings of which were inserted singly at the end of January or early in February, will now be rooted and ready for potting off. Let the operation be performed as carefully as possible. The object in not disturbing the cuttings more than is absolutely necessary is to encourage a quick, but firm growth at this time of the year. It is not wise to repot the plants into larger pots than need be. Those which will accommodate the roots comfortably are the best, for the reason that were a larger size used, the soil would not be entirely filled with roots. It often happens at this time of the year that cuttings of the kinds named are struck in vineries which have just been started. In this position the cuttings obtain some warmth, and consequently grow more quickly. After the plants are potted they should be returned to the same position as previously held, giving them as much light as possible, but on no account should they be allowed to remain in heat longer than is requisite for the formation of new roots. After this the plants must have cooler quarters, which will prevent their becoming drawn up weakly and otherwise crippled. Plants like those in question need more care when removed to frames or cool houses from heat than do those which have been growing under cool treatment all through their existence, as they are more liable to receive checks which would render the growth of a stunted character; therefore avoid draughts of cold air blowing over the plants. When the plants have grown 4 inches or 5 inches high, which may be before they were placed in single pots or afterwards, is the time to determine the method they shall be grown under, whether it be for the production of large individual blooms or for the quantity each plant shall develop. It is only in the case of being required for exhibition that the first-named method should be adopted. Certainly the two objects are

widely different. Even with Pompons and single varieties it is useless to expect to compete with blooms which have been procured from plants grown with the object of supplying cut blooms in quantity against those which are had from plants specially grown for exhibition. Cultivators have the remedy in their own hands, viz., either to grow the plants with a full intention of being successful or give up the idea of exhibiting. Where plants for exhibition are intended, two plants of each variety will be ample to provide blooms sufficient for the largest requirements in that direction, especially where a goodly number of sorts are cultivated. These plants should be grown on without stopping, restricting them to the single stem which they had as cuttings until the plants break into additional growth, which they do when forming their first flower-bud. It is at that stage when the number of blooms each plant is intended to carry must be determined, because then the energy of the plant should be restricted to the number of shoots retained. It is proposed to treat the whole three sections in the same manner, as the same details of culture are applicable to one and all. The most useful way to cultivate these sections of *Chrysanthemums* is as bushes, keeping them as dwarf as possible, as in this manner they are so much more useful for conservatory decoration. The plants for this purpose should be stopped by pinching out the point of each at the height previously named. When the shoots have grown another 4 inches long, they should be again topped to produce more growths if large plants are wished for. The flowers of single varieties are increasing in favour, so useful are they in a cut state for filling vases. For producing late flowers the single-flowered varieties are especially valuable, as the plants throw out side growths very freely after the blooms from the points have been cut. At the end of January I saw neat blooms of Mrs. Langtry, one of the best of the single varieties. At that late date the blooms were, of course, highly prized.

In the northern counties of England these sections of *Chrysanthemums* are not nearly so much cultivated as they are about the metropolis and the more southern parts, the attention of the cultivators being more centred upon the incurved and Japanese sections. We have just completed the potting of the rooted plants which were struck in cold frames. Owing to the weakly cuttings of some sorts and the absence of sun since their insertion, roots have been but slowly made, the foliage, too, for the same reason being pale in colour. The plants have been returned to the cold frame, which will be kept rather close for a time until the roots have taken possession of the new soil.

Cuttings of Scur Melanie may now be put in. These, if flowered in 7-inch pots, form a capital edging to groups of the larger kinds, or for the production of suitable plants for room decoration. Indeed, in any form this variety is appreciated. With nothing but ordinary treatment, the foliage is at all times good, while the flowers are of the purest white, rendering it one of the most useful varieties for decoration that we have.

In some parts the early-flowering varieties, such as Mme. Desgrange and its yellow sport (G. Wermig), nanum, Mignon, Mme. Jolivat, &c., are much appreciated for bedding, either by themselves or mixing with other plants, such as *Lobelia cardinalis* or *Aster Amellus bessarabicus*. With both these plants the first-named *Chrysanthemum* gives a capital effect. Now is a good time to insert cuttings for the purpose named. It is necessary, even in this case, to

grow the plants well before planting them out. Stout cuttings should be inserted in sandy soil three or four together for convenience, placing the pots under handlights in a cool house, or in a partly spent hotbed will do. Directly they are well rooted, pot them off singly, returning them to the frame to obtain a stout growth, and when 4 inches high top them to induce strong bushy plants available for planting out in May.

In some places beds are entirely occupied with these early types of *Chrysanthemums* year after year. To produce yearly a good effect the plants need some support, which is best given by annual replanting. Now is a good time to set about this work. Commence by taking up the old roots, removing nearly all the soil from them and trenching the bed to a depth of 2 feet, adding plenty of spent Mushroom bed manure as the work goes on. If the plants show any signs of weakness in the centre they had better be divided before being replanted. A thin mulching of manure may be laid on the bed with advantage.

Manures for Chrysanthemums.—I notice that Mr. Molyneux, in a paper on "Manures for Chrysanthemums," published in THE GARDEN for Feb. 25, recommends that Standen's manure should be used at the rate of 1 lb. to 1 bushel of soil. Surely this must be a misprint for 1 oz., and even then the dose would be excessive. A concentrated artificial manure, to produce the best results, is never applied to land by agriculturists who have had the greatest experience in the use of such manures in larger proportions than 10 cwt. to the acre, and such a large dose is rarely given. Assuming a bushel of soil to be equal to a square foot of surface, 1 lb. per foot would represent more than 19 tons to the acre. We must suppose, from its high price, that Standen's manure is as concentrated as any manure used by agriculturists; therefore the application of a dressing more than thirty-eight times the strength of that which experience has shown to produce the best results must, considering the energetic action of artificial manures, be destructive to any plant to which it was applied. Then as to the economy of the use of Standen's manures in such proportions, considering the retail price is 42s. per cwt., but assuming it would be sold for much less per ton, say £30, then a dressing of 19 tons to the acre would cost £570.—EDMUND TONKS, *Packwood*.

* * We submitted the above to Mr. Molyneux, and in answer to it he says that there is no misprint; and he also informs us that the blooms of *Chrysanthemum* E. Molyneux, shown by him at the Aquarium, were grown in the mixture in which 1 lb. of Standen's manure to 1 bushel of soil was used.—ED.

Chrysanthemum sports.—The subject of *Chrysanthemums* sporting must always be an interesting one, and as the variety Ralph Brocklebank (noted in THE GARDEN, pp. 123-167) originated here, a word or two from me will, I trust, be permitted. The plant of Meg Merrilies on which it showed was one of three. It was allowed to carry three blooms—two were of the normal colour and one yellow. This was in the blooming season of 1885. I propagated all the cuttings I could get both from the sported branch and from the others, as well as from the base, but was careful to label each one, as I was anxious to see whether any other part of the plant was affected. When the flowering season of 1886 came round, I found that all the cuttings taken from the sported stem produced yellow flowers, while all from the other parts were of exactly the same colour as those of Meg Merrilies. When taking the cuttings from the old plant, I took care to leave some breaks on all the three branches, as well as some on the single stem (for I may say that the three branches sprung from a single stem about 2 feet from the pot). I kept the plant two years longer—that is, until it had flowered in 1887, but as the sported branch was the only

part affected, and as the old tree-like stems were getting weak and feeble, I discarded it. Mr. Kipling wishes to know (GARDEN, Feb. 23, p. 169) whether the variety Ralph Brocklebank has sported again. I am glad to tell him it did so in 1887, this time to a bright golden yellow, which I have named Mrs. B. Edwards, and which I hope to distribute next season. It was not on the old plant of which I have written that the sport appeared, but on one of about twenty plants, which were growing in 6-inch and 7-inch pots, each plant being only allowed to carry one flower. As all were propagated from our own stock of Ralph Brocklebank, I cannot say whether it was a root cutting or one from a stem. If from a stem, it must have been from one which did not flower in 1886, or I should have noticed the flower, as I quite expected that sooner or later the primrose-yellow bloom would develop into a golden colour, Mr. Bunn and Golden George Glenny being examples of deeper developments of colour from Golden Beverley and Mr. G. Glenny respectively. With respect to flowers reverting to their original colour, I may say that not a single instance has come under my notice of Ralph Brocklebank doing so, and up to date the same remark applies to its new departure, Mrs. Bevan Edwards.—THOMAS WINKWORTH, *Childwall Hall, Liverpool*.

FRUIT GARDEN.

W. COLEMAN.

THE PLUM AS A POT PLANT.

WHEN well grown and carefully finished, that is, with perfect bloom, the Plum, like the Cherry, forms a much appreciated addition to the dessert. Like its companion—for fruit forcers generally run the two together—it requires very little forcing; indeed, as compared with Grapes and Figs, it succeeds best where incessant attention is devoted to preventing it from becoming too warm. Early in flower, even in the open air, all that is needed in the Plum house is a temperature ranging a few degrees above freezing as a minimum and temperate, 56° as a maximum from the time the trees are introduced until the fruit is stoned. The owner of every orchard house for the last thirty or forty years has cultivated pot Plums most successfully, and a few gardeners have forced them; but, barring these two classes of fruit growers, hardly anyone has thought of introducing these cheap fertile trees which only require shelter from extremes of heat and cold, and accommodate themselves to any light, airy glass structure, always provided they are allowed to breathe freely. For planting out in corridors and lobbies, wherever a cubic foot of earth can be given to them, Plums are deliciously fragrant, ornamental, and useful; for greenhouse or conservatory decoration, as dwarf bushes or pyramids, but more especially as standards established in pots and tubs for filling space first with bloom, then with fruit, they are equal to Deutzias and other deciduous shrubs now forced by the thousand; and last, but not least important, for supplying the dessert-table with delicious bags of juice known as Golden Drops when other stone fruits have passed away. The grand English seedling which has immortalised the name of Coe should be grown by the houseful. This and Coe's Late Red, which is not so good, Rivers' Late, a good Plum, and Ickworth Impératrice require a summer above the average to give them the true finish on open walls, but established in pots, tubs, or narrow borders in well-ventilated glass houses they fruit profusely and furnish perfect sweetmeats. These, aided by 21-oz. glass, do not really require fire-heat, as they have the whole of the summer in which to perform their work; but there are two periods over which the grower

should have command of dry hot-water pipes, not necessarily to raise the temperature, but to prevent an accumulation of stagnant moisture. The first of these is the flowering stage, naturally early, when raw fogs and morning frosts prevail and the low temperature condenses moisture on the thin petals of the flowers, and, unchecked by gentle fire heat, reduces the pollen to a pasty mass quite unfit for the performance of its delicate office. A spell of bright, genial weather during the time the trees are in flower renders fire heat a superfluity, but north of London the flow and return pipe attached to a small boiler should be provided for use when absolutely necessary. When this fertilising period is bridged over ordinary solar heat will carry the fruit on to maturity. Then, like late Grapes, the Plums will require a modicum of dry fire heat, not always, but under certain climatal conditions from the beginning of September until the end of their season.

SELECTION.—In the selection of trees for forcing early or coming in late, none but the very best sorts should be chosen, such, for instance, as the Gages, Jefferson, Kirke's, Huling's Superb, Denniston's Superb, and the October varieties mentioned above. Trees established in pots can be bought ready for fruiting, or root-pruned pyramids, bushes, and standards studded with blossom-buds may be selected, potted at home, and plunged the first year in the open ground or a cold house, where most likely they will set plenty of fruit the first season. Duplicates of these to any extent may be grown, but those who would establish a Plum house divided into early and late sections might safely select the following score of dessert sorts for following each other in their order of ripening. 1, Early Green Gage; 2, July Green Gage; 3, Rivers' Early Prolific, or Early Apricot; 4, De Montfort; 5, Oullin's Golden Gage; 6, Denniston's Superb; 7, Mommelonne; 8, Old Green Gage; 9, Huling's Superb; 10, McLaughlin's; 11, Transparent Gage; 12, Jefferson; 13, Kirke's; 14, Angelina Burdett; 15, Washington; 16, Coe's Golden Drop; 17, Coe's Late Red; 18, Reine Claude de Bavay; 19, Ickworth Impératrice; 20, Late Rivers.

CULTURE.—A good start being important, the trees and pots should be well washed, the first with soap and warm water, before they are introduced. Each pot, placed upon two bricks on the raised centre bed or floor, must then be well top-dressed with rich compost and properly watered with pure tepid water from the internal tank. The earliest trees in the forcing section must be kept at 45° on cold nights, 50° when mild, and 56° to 65° by day, with gentle warmth on the pipes and a free circulation of air. Under these temperatures, aided by steady syringing with warm water, the flower-buds will swell very fast, and when they begin to show the colour of their petals, the time will have arrived for fumigation to ensure freedom from aphids until after the fruit is set. When in full flower the trees will present a most charming sight, but fruit after the fragrant bloom being the object, they must be fertilised in the usual way on fine days. When the fruit is set, it will be necessary to syringe the trees every morning when the temperature is rising to or a little above 50°, and again in the afternoon when sun-heat favours a moist, genial, growing heat of 60° to 65°. This does not sound like a high temperature, but for these excitable trees it is quite high enough, and this must be tempered by plenty of fresh air. As Plums fruit best upon spurs, disbudding, or, properly speaking, pinching, must be commenced and followed up with the view to keeping the shoots well fur-

nished and to let in light and air. If a heavy crop of fruit has set, thinning and pinching may be carried on together, care being devoted to the retention of the best fruit where there are plenty of leaves. Should black fly—a gratuity from many a nursery—put in an appearance, no time must be lost in dipping the parts affected over-night in tobacco water and syringing early the following morning. Grub, too, will require watching from the time the fruit attains the size of small peas. A closely folded leaf is its home, and this must be pinched or removed before the young fruits are pierced and made the home of the next generation.

The late section intended to come on under the influence of solar heat only may have air night and day until the trees come into flower, when gentle fire-heat, as suggested at the commencement of this paper, if only for a fortnight, may be the means of securing a crop of fruit. Ordinary attention to watering, syringing, and ventilation, to thinning and disbudding, and last, but not least, to the destruction of grub and aphids, will form the summer routine, and a crop of delicious late Plums will well repay the trouble.

PRUNING AND TRAINING PEACHES IN THE OPEN AIR.

THE pruning should be done as soon as the wood-buds can be distinguished from the blossom-buds, the blossom-buds being round and the wood-buds pointed, these characteristics becoming more marked with the first upward movement of the sap. Sometimes the buds form in triplets, a wood-bud in the centre and a blossom-bud on each side. There need never be any hesitation in cutting to these at any time, as the wood-bud invariably breaks away strongly; in fact, when three buds form in a cluster it is a sign of well-ripened wood. It is necessary to prune to a wood-bud, for without a leader the fruits on that branch would not grow and ripen. Some varieties, especially if a little out of health, are sometimes deficient in wood-buds. The Noblesse and Walburton's Late Admirable are of this class, and in some cases it may be necessary to leave these trees to the last to be quite sure of having the requisite number of leaders. Before the trees are pruned, all the nails should be drawn out if nails and shreds are used, or the ties cut away if the trees are trained to wires. The old shreds are regular hiding-places for insects, and though it takes a little more time than if the trees are only thinned and the shoots nailed or tied in, I am sure the time is much more than saved by the less labour required to keep down insects in spring and summer if the trees do not get as clean a start as possible. Besides, there is no waste of material, as all the sound shreds may do again if scalded with boiling water. I generally use new shreds at this season; the old ones, having been sorted over and scalded when there is leisure, come in for training in the young wood in summer. When the trees are unloosed from the wall, if it is necessary (as it is sometimes) to cut out an old branch to encourage the production of young wood in the middle of the tree to keep all parts furnished with bearing wood, it is a very easy matter indeed to give the proper balance to the branches to encourage the even flow of sap to all parts. There is a good deal in this in keeping the wall well furnished. More and better Peaches would be obtained from a given surface of wall if the branches were not so crowded. This refers not only to Peach trees, but all fruits would be more fertile if the branches were trained far enough apart for the sunbeams to get through the foliage to warm the wall behind. The wall will absorb the warmth during the day and give it off again when the temperature falls at night, and this will be of immense advantage in ripening the wood in autumn. If the young shoots are trained say 6 inches apart, instead of half that distance, or sometimes even less, the wood will be stouter and shorter-jointed and the foliage of thicker texture, denoting that better

work is being done, and the result will be stronger buds and more perfect flowers, and there would be fewer complaints of frost destroying the blossoms. Less covering is needed to protect a vigorous, well-ripened blossom-bud than one that is puny and the petals thin and weak.

After the pruning is finished, the wood should be washed with insecticide. Gishurst compound is still largely used, 3 ozs. to the gallon dissolved in soft water and applied with a sponge to the young branches, drawing it towards the ends, so as not to disturb the buds. A brush may be used for the trunk and the old branches. Where the trees are in perfect health and free from insects, perhaps a good syringing after the training is completed with home-made soap-suds, with some sulphur and a wineglassful of paraffin oil added, and frequently stirred when being used. In cold districts it may be advisable to leave the trees untrained till the blossoms are on the point of expanding in order to retard their blooming as long as possible. In training, leave room enough in ties and shreds for the branches to swell, and there is no necessity to use so many nails as is commonly done. Avoid injuring the branches with the hammer or by placing the nails too near them. E. H.

APHIDES ON FRUIT TREES.

THE annual battle with these destructive pests has commenced in our fruit houses, and the time is close at hand when its appearance outside must be watched for. I do not mean to say that our efforts to combat this enemy should cease at any period of the year, but I refer now more particularly to the insect in its perfect or active state. I do not think the destructive power of this insect is realised in many instances, especially by amateurs, or if it is, only when too late to avert the mischief it causes. What I wish, therefore, to impress upon all fruit growers is the importance of adopting preventive measures or else attacking and exterminating the vanguard upon its first appearance, instead of waiting until the enemy has obtained a firm footing before attacking it, for no insect causes such sure and rapid destruction.

There can be but one opinion as to its baneful effect upon the young shoots of the Peach, Plum, Cherry, and other fruits when we observe the crippled state of the leaves and shoots, resulting from the presence, if only for a few days, of these insects. The points of the shoots suddenly stop growing and curl round, the leaves become distorted, and in the short space of a week the whole growth of the trees is arrested, just at the very time when uninterrupted growth is most desirable.

I believe I should not be far off the mark when I say that more failures with the Peach outside in this country are attributed to aphides than to climate, grafting, or any other cause. Under glass we have an effectual remedy in fumigation. This operation, if performed once or twice immediately before the flowers expand, again repeating it gently as occasion may require after the fruit is set, will generally make all secure for the season, unless where black fly is troublesome. Fumigation strong enough to kill black fly often proves injurious to the trees when the leaves are young and tender; therefore in this case it is better to rely upon tobacco powder or tobacco water for destroying it. Outside, however, other means must be employed for combating it. Amongst them winter dressings and washings form no unimportant part. The eggs having been laid in the autumn upon or near to the trees, if not destroyed during the winter are hatched with the warm spring sunshine. By means, then, of winter dressings we destroy great numbers of these eggs, and are thus better able to cope with those which escape and develop, for some are sure to escape; at least I have not yet been fortunate enough to pass a season without discovering the enemy upon the tender shoots about the time the trees are passing out of bloom.

At this stage a diligent search should be made every few days, with the object of discovering the small colonies which rapidly spring into existence as soon as the eggs are hatched. A sharp eye will

soon detect their presence, and wherever a curling shoot or crumpled leaf is observed they may be taken as a sure indication of the fly, and the spot should be at once attacked, either with tobacco water or tobacco powder. I prefer the latter, because it is always ready to hand, and is, moreover, very effective. Dust the affected part thoroughly; the evening is the best time; the following morning a forcible application of water will remove the insects and the powder. These attentions may take up some time at a busy season when perhaps it can be ill-spared, but it is well spent, and compared with what is required to cleanse the trees when the fly is allowed to become general, it, indeed, bears but a small comparison, not to mention the advantage to the trees.

Black fly sometimes attacks the Peach, although the Cherry seems to be its especial favourite. It attacks this fruit with such virulence that irreparable injury quickly follows, and the trees often succumb after two or three visitations. This kind is more hardy than the green one, and consequently more difficult to kill, and it is only by taking prompt action upon its first appearance that it can be successfully resisted. I have found individuals alive outside during all the winter months; consequently I am led to believe that the black fly often passes the winter in a perfect state; therefore, where trees are subject to its attacks, winter dressings are particularly needed. Black fly usually makes its appearance upon the ends of the shoots, and if these are then long enough to be bent down and immersed in tobacco water contained in a shallow saucer, this is, no doubt, the best means of destroying it. It is not often possible to devote so much time to the Plum as is given to the Peach; nevertheless, it is particularly subject to aphides, and when left unchecked the crop is often ruined and the trees much damaged. The Plum, however, resists its attacks better than most fruits, this fact often leading to its comparative neglect. Where this fruit is valued for dessert, much superior fruit in every way is produced upon trees free from green-fly. The mode of training the Plum facilitates the destruction of the insect, as it is removed in great numbers with the points of the shoots upon the first stopping. If this is then followed by a good washing with the hose a great check is given to the pest, but in most seasons other washings will be required to keep the trees clean, as the fly is very persistent in its attacks on the Plum. Soft soap and Quassia chips, 1 lb. of each to a 4-gallon can of soft water—the Quassia chips will require boiling to extract the strength—make an excellent wash for syringing on the trees. Soap-suds from the laundry are also very serviceable when their nature is well known, as where much soda or other bleaching substances so much used now are present, they become dangerous and require using with caution. Apricots, Apples, and other fruits often affected with aphides require the same treatment as the Plum. A. BARKER.

Small nuts.—Our nut bushes have had a rough time of it so far as the bloom is concerned. The precociousness of character which causes the tiny red flowers to display themselves during the ordinarily ungenial month of February can hardly be helpful to fertilisation. It is true we get during that month some fine days, but how many cold, cheerless ones, with frost, rain or snow? After the ordeal to which the trees have been subjected, it will be a matter for surprise, indeed, if any nuts should result in the summer. No doubt small nut culture would be much more popular in ordinary gardens could greater fertility be ensured. Garden culture is usually of a primitive order. The hard thinning, which is really pruning, indulged in by the Kentish growers has a very practical basis, and, it may be, tends to check too early blooming. In gardens nuts are regarded almost invariably as a baphazard crop, and we hardly honour them with a garden place. Possibly they are planted to make a break or a summer shade beside a walk, or in some out-of-the-way corner beneath orchard or other trees and left very much to shift for themselves; and thus it happens that now and again a crop re-

sults, and far more often there are none to gather. Such results would hardly do under market treatment, and as that seems to be pretty successful, it is obvious that if we want small nuts in private gardens we must prune to produce them. All the same, it does seem as if later blooming kinds would be very helpful. We have not so many varieties as it is, about a dozen composing those that may be considered good. A couple of the best of each, such as the Kentish and Prolific Filberts and the Kentish and Webb's Prize Cobs, will satisfy all ordinary requirements.—A. D.

PEACH MIGNONETTE.

THE name "Mignonette," indicative of the small size of the fruit, has been very appropriately given to this variety, which undoubtedly is the smallest of all known Peaches, in which respect it may be considered analagous to the



Peach Mignonette; natural size.

Brugnon Cerise or Cherry Nectarine. It may be described as follows: The tree is of moderately vigorous growth, with somewhat slender branches, which are covered with pale green, or even yellowish bark, very seldom slightly shaded. Leaves narrowly elliptical, usually curved from the mid-rib to the sides, thin in texture, of a glistening green colour, and faintly serrated on the margin. Glands reniform, very small, generally situated on the leaf-stalk at the base of the leaf, and occasionally on the edge of the leaf. Flowers bell-shaped, very rosy coloured. Fruit spherical or nearly so in shape, about 1½ inches in diameter, scarcely furrowed, pointless, or having a very short point at the apex; cavity around the stalk broad and regularly round in outline, and of comparatively large size; skin covered with very short down, red, greyish, and having a mealy appearance on the part which is fully exposed to the sun, and of a dull white or slightly tinged with pink on the part which is more or less in the shade. The

flesh, not adhering to the stone, is of an opaline white colour, delicate, melting, slightly wavy in texture, and of an agreeable, although not very pronounced flavour. Stone elliptical in shape, appreciably pointed at the end, convex on the sides, and deeply jagged or furrowed. The fruit ripens in the beginning of August.

The Peach Mignonette (see illustration) was raised from seed by M. Lahaye-Mathurin at least thirty years ago. It has always been very rare in cultivation, and at present, so far as we know, is only to be found in the hands of the raiser, M. Lahaye-Mathurin, and with M. Henin, a private gentleman living on the Boulevard de l'Hôtel de Ville, Montreuil. The fruit is of pretty good quality, and although it is of very small size, the variety is one that should be grown by amateurs, and should be included in all collections of any importance, in which it is quite as worthy of a place as the Cherry Nectarine, which it so closely resembles in the singularity of the diminutive size of the fruit.—*Revue Horticole*.

Fruit prospects.—"I am very well satisfied with the general promise of the trees," said one of my neighbour market growers the other day, and certainly the outlook in his large orchard was excellent. In almost every direction the buds were stout and plump, full of promise, and looking as well as in any previous season. The soil of the orchard is rather stiff and perhaps cold, but everything looks wonderfully healthy. Intending planters of fruit orchards would do well to take stock of this example of market fruit culture for bushes beneath and trees above. Some planted over twenty years can hardly be excelled in the district. The whole area is now covered with bushes and standard trees. There is no room even for Violets. All the pruning has been done, all the bushes manured, and the whole of the soil lightly forked over. Presently when the surface becomes dry and weeds show, the hoe will be applied, and that implement alone will suffice for the summer cultivation. The top trees comprise Wellington, Manks Codlin, Lord Suffield, Yellow Ingestrie, King Pippin, Cox's Orange, Blenheim, Cockle Pippin, Duchess' Favourite, Worcester Pearmain, and other Apples; also Williams, Calabasse, Hesse, and other market Pears, with various Plums, sweet Cherries, &c.; and of bushes nearly all Lancashire Lad Gooseberries, Raby Castle Red, Lee's Prolific, and Black Naples Currants of various ages, but all full of promise so far as buds are concerned. If this one orchard be a sample of the promise of the district, then that promise is great. Some Pears have begun to show the white buds, but development is happily slow.—A. D.

Fruit prospects in Hants.—Although we have had a very mild winter, the bloom buds on fruit trees are by no means forward; in fact, present appearances indicate a late rather than an early spring. Some few Pear trees showed an inclination to expand their bloom very early, but the majority have made very little progress even yet, and, thanks to the change to colder weather in February, those that had then made a start have kept nearly dormant ever since, and we shall have April here before there are any expanded blooms even on walls. Unless we get exceptionally severe weather late in spring we ought to get a good fruit crop, as after the very light crop of last year the trees are full of healthy young wood and strong flower-buds, all kinds of stone fruit being exceptionally promising. Bush fruits, where they have not suffered from birds, are looking well. We do not cut our bushes at all until the buds are bursting. Strawberries, which are largely grown in this part of the kingdom, are looking very promising.—J. G., *Hants*.

The Blenheim Orange Apple.—In the *Gardener's Magazine* it is stated that:

That slowest of Apples, the famous Blenheim Pippin, is largely propagated from seeds, and innumerable own-root trees of it are scattered about in the gardens of the midlands. It is the custom with cottagers to sow the plump pips and wait for the trees to fruit

and the first stage of the affair is therefore a fine exercise of patience. It may properly be contended by any thick-and-thin advocate of grafting that the seedling trees are not "true," and it must be admitted they are not. The quicker and scarcely less valuable Dumelow's Seedling is much grown in the same way, and proves very serviceable by reason of the health and vigour, and fruitfulness of the own-root trees. And it is observed by experts in these fruits that they vary much in different places, and are often so far removed from the familiar types as to be difficult of identification. This is just what might be expected, and is a fact of much interest. But it is of much more interest that the differences are of no practical consequence, for the more important characters remain. Like has produced like, and the fruits that differ are not much unlike and are every way serviceable, and acceptable for domestic use, and for market profit. Mr. Loudon proposed in the first volume of his *Gardener's Magazine*, published in 1828, the sowing of the stout pips of Apples and Pears as a safe business, the thin pips being untrustworthy; and it was no new thing in his day.

* * Will any reader of THE GARDEN say if this is the case?—Ed.

MELON CULTURE ON MANURE BEDS.

THIS is an economical way of growing Melons when horses are kept on the place, as virtually the heat costs nothing beyond the time taken in turning and mixing the manure during its fermentation. But in many places tree leaves can be had for the raking up, and these added to the manure, to the extent of from one-third to one-half, will do away with the necessity for much turning or mixing. If the heap is thrown together and left for a few days till it gets warm and then turned over and well shaken, the beds may be made up at once. To make up a hotbed that will retain the heat for some time requires a little experience. The great thing is to give just the requisite amount of pressure in building the bed up, which should be done in layers of 1 foot or so at a time, and then trampled sufficiently to give it the necessary firmness, but not more. Beds made up say by the middle of March should not be less than $4\frac{1}{2}$ feet high at the back and about 1 foot less at the front, as the frame will have an inclination from back to front, and there should be a margin of 1 foot wide outside the frame, so that a frame 5 feet wide would require a bed 7 feet across, while the same allowance should be made in the length. It is important that the plants should be strong and healthy. I would rather insert two or three seeds in each hill of soil as soon as the warmth from the bed below had penetrated it, and pull up the weakest, than set out plants that had been starved and injured by standing about in small pots. I have often planted seeds in a frame for late work, and have had the plants up in less than a week, but at this early season it is better to raise the plants in a warm pit or house and get them ready or nearly so before the fruiting beds are built up. One plant is enough in each light unless the frame is more than the usual width, then two will be better. Sometimes it may be desirable to make up a small bed for raising the plants three weeks or so before the fruiting bed is prepared, and this bed will be useful for raising other things as well, as one never has too many hotbeds at this season. The best soil for Melons is a good sound loam, heavy rather than light, at least so far as regards the bed in which the plants are intended to fruit. Soil of rather a lighter character will do for raising the plants, though very rich light soil even for this work will be better avoided, as the firmer the growth is built up, even in the seedling state, the earlier they will show fruit, and the fruit will set better than if the growth is soft and gross. From the first, Melons should be grown in the full sunshine, so that the foliage may be vigorous and yet firm of texture. Pinch out the terminal bud of each plant when a couple of rough leaves have been made and select four of the shoots which start away after the leader has been removed and leave one to each corner of the frame, stopping each shoot when about 6 inches or 8 inches from the boundary. Top-dressings of loam may be given during growth when necessary, but the final earthing up should be done when the main shoots have made some progress. These main

shoots should be pegged down on the bed as soon as the earth has been made firm. Melons like a firm root-run; it gives solidity to the growth and makes the plants more fruitful. The plants should be set out on the fruiting bed as soon as the heat has become steady at about 80° to 85°, and if at any time the heat declines through cold winds or any other cause, a lining of warm manure should be placed along the back. If at any future time more warmth is required, put a similar lining along the front and round the ends, but if the bed has been properly made at the first it is not often that the lining will be required all round the bed at the same time. The Melon beds should occupy a sheltered situation. Cold winds blowing against the back or front at any time will lower the temperature.

Never use cold water to damp either foliage or the surface of the bed. Even in summer this is better avoided by standing the water for the afternoon damping in the sunshine a day before using it. Of course damping or sprinkling should only be done on bright, warm days early in the afternoon. This requires some judgment, and unless the heat is properly kept up it should be omitted. Give a little ventilation early in the morning; it hardens the foliage and strengthens the plants against the attacks of red spider. If the frame is kept close till the sun is high in the heavens it has an injurious effect in more ways than one, and if it does not actually lead to the presence of gangrene on the stems, it certainly aggravates the attack when it does appear. A fresh, sweet, buoyant atmosphere is necessary to obtain the best results in Melon culture. It is better not to set the first female blossom which opens unless others are ready to expand within the next day or two, as to secure a good crop of well-developed fruits the whole should be set nearly together; if one fruit is set several days before the next blossom opens the chances are others will not set in consequence of the first fruit obtaining such an ascendancy over the plant as to monopolise the nourishment. After the crop is set and fairly swelling, remove all laterals and male blossoms. Melons require a good deal of moisture at the root, especially when the fruits are set and swelling, but when they begin to ripen discontinue watering, or the flavour may be injured. As regards varieties, Eastnor Castle and Gilbert's Victory of Bath are good examples of green-fleshed Melons, while Scarlet Gem and Read's Scarlet Flesh are excellent varieties. E. H.

A catalogue of Apples and Pears.—The degree to which the injurious mode of cultivating too many kinds now prevails is well shown by a catalogue which has just come into our hands. It is a foreign one, of a house of high standing, in which 858 kinds of Pears are enumerated and described. Probably so many do not exist in England, where very much fewer are wanted. If on the Continent of Europe there is so much variation of climate, and so many climates better than our own—for the Pear at least—a greater variety of kinds may be indulged in, or may indeed be necessary; but anything like the number here mentioned is ridiculous. In the next section of the same catalogue there are 558 kinds of Apples. English people, unfortunately, get hold of these catalogues, and often select from them not only too many kinds for their own comfort, but kinds unsuited for our country. Our own really standard Apples are swamped in the mass of rubbish which is brought out as new, and imported from all parts of the world. People have no time to attend to the cultivation of the really best English kinds. Of course, there is no end of curiosity and interest about such a development as this. One may go on for ever grouping them into classes, and raising and christening new kinds. But to cultivate one-fiftieth of them in any one district is madness. It is the very opposite way—that of cultivating one, two, or three really well—that is the source of all success in market fruit culture. Fruits that are not known should be banished altogether, unless their quality is very high. That many kinds of which no one knows the name should be grown in

a garden is ridiculous; but this is very frequently the case. It would be better to risk the rejection of a very good kind than to incur the penalty of having a great number of inferior sorts. We receive every year in the fruit season hundreds of applications to name fruits, often of the most ordinary and inferior kinds, so that we have the best proof of the misuse people make of their gardens in this way. What is not worth knowing is not worth growing.—*Field*.

HARDY FRUITS.

THE low temperature which prevailed through the early part of March having retarded the opening of the blossoms, Apricots and Peaches are later than usual, a point possibly in favour of a good set of fruit, provided the wood buds do not become robbed by getting too forward. When this happens one often hears the remark that the leaves will protect the flowers, but this, I think, is a mistake, as our hardiest fruits, including the Apple, never come out well when a bold blossom—the best indication of ripe wood—does not run in advance of the foliage. Flower-buds generally, some choice Pears excepted, seem pretty plentiful, and fruit in good localities may be plentiful, but knowing how seriously a cold, wet, sunless summer affects the next year's crop, I feel bound to say those who live in unfavourable localities must not be too sanguine. The check has been favourable to pulling up arrears, and now, with the exception of unceasing attention to protection, a short rest in the fruit department is given to the most tardy operator. Disbudding, however, will soon be upon us, and when it is borne in mind that the formation of handsome trees depends upon the way in which this work is performed, young ones not bearing fruit should receive the earliest attention. Peaches, Apricots, Plums, and Cherries are specially adapted to fan training, and should be disbudded with the view to the maintenance of an even balance of main shoots or leaders running at all angles, save the perpendicular. All foreright shoots should be rubbed off first, then, where they can be spared, those which start from the lower sides of the leading and sub-leading shoots, as advised in my notes on house Peach trees. Fruit-bearing trees must be treated in a similar way, but disbudding here should be deferred until the fruit is well advanced, and then, to avoid a check, it should be performed piecemeal. Strong foreright growths upon gross shoots, of course, may be taken off before they gain the lead, but the body and lower parts of the trees are best left intact until the bad weather has passed away and the sap is flowing freely. Sudden alternations from bright sun by day to sharp frosts at night not unfrequently result in severe checks in early spring, and when these are intensified by haphazard disbudding in all weathers the cultivator handicaps his trees by unwittingly increasing their burden.

FIGS

on open walls at present are quiet enough, and, judging from appearances, they are likely to remain so for some time to come. This dormant condition, no doubt, is favourable to the safety of the crop, that is, where fruit in embryo is waiting for Nature's signal to advance into active life. When this move is perceptible, be it early or late, the trees must be pruned or thinned, and trained or left untrained in accordance with the taste and experience of the owner. In high and dry and warm districts a great number of successful growers do not protect their trees in winter; they thin out the inferior shoots in April, and leave those best furnished with young figlets growing at right angles from the walls. Others less favoured protect with straw and Fern and gradually inure their trees to light and air when they think and hope severe weather has passed away. Where the first succeed in securing good crops of fruit they may be congratulated; where the second score well, they may be complimented. Having myself lived in protecting and non-protecting districts, whilst taking part with neither, for of course the Fig forms the foundation of a friendly feud, I am inclined to say the exponent of each system is right. The great secret of success in either case in my opinion lies more

beneath than above the surface of the border, for if this is not well drained, moderately poor, and the root-run limited, the ripening of the wood and the preservation of the points of the shoots are extremely doubtful. The past summer, cold, wet, and sunless, was most unfavourable, but the early part of the winter, fortunately, was mild, and the few sharp frosts which ushered in March were dry. Under these conditions, the wood, ripe or unripe, fertile or infertile, so far is safe, and the best step that can be taken is root-pruning where this work has been neglected, the arrangement of the shoots where they will obtain most solar heat, and systematic cutting back to a single bud all superfluous shoots to secure a relay of young growths for another year. Members of the protecting school should draw out the covering bit by bit, and when the trees are clear they may ward off sharp morning frosts by keeping them dry under a broad coping of rough boards or glass. The most unsuitable position for Fig trees is a low wall in a fruit garden where the borders are deep and rich, the best, a lofty wall or building, forming a dry, hot cover facing south and west.

FORCED FRUITS.

CUCUMBERS.

Where a range devoted to Cucumbers and Melons is divided into several small compartments and spring-sown plants are coming into bearing, the oldest batch of Cucumbers, recently fed up to the production of a heavy flush of fruit, may now be cleared away to make room for a successional crop of Melons. We always adopt this plan of ringing the changes by following winter Cucumbers with Melons, of which we take two and sometimes three crops off pot plants during the summer and early autumn. Under this arrangement the pits become vacant twice a year, when advantage is taken of these favourable opportunities for a thorough clearance, cleansing, and painting, if the latter is considered necessary. Independently of cockroaches and crickets, which descend to the lowest depths of the pits, red spider, green fly, and fungoid growth or mildew, more or less, in the best regulated houses are met with. These, as a matter of course, everyone at these times professes to annihilate, and the very fact of scalding and scrubbing no doubt produces the desired effect, but the great advantage does not end here, as the compost and fermenting material, rich, sweet, and fresh, are as acceptable to the occupants as a spring-cleaned house is to paterfamilias on his return from a fortnight's holiday. The main factors in express culture are heat, moisture, good turfy loam, old lime rubble, and fermenting materials, plenty of light, of course, and skill on the part of the cultivator. With these items to his hand, spring plants grow into fertility so quickly, that it is hardly worth while to trouble about renovation; but lacking these, or, more fatal still, the several small compartments, his only course lies in patching up his old winter fruiter. In cases of this kind it matters little whether the roots or tops are taken in hand first, but, provided they are fairly clean and healthy, I would advise the removal of the old fermenting material and a good quantity of the sour, inert soil, which should be replaced with fresh, the latter in a thoroughly warm condition. When the roots have taken to it, the plants may be divested of all their fruit, the worst of the old foliage and vines, also, as a matter of course, of insects, not so much by the use of insecticides as by high culture, when they will give excellent fruit for a long time, certainly until frame Cucumbers are plentiful.

Spring plants.—As these mount the trellis they should be manipulated at least three times a week, but the cheapest and quickest method is a run over them every morning. Wasted growth and bleeding take a great deal out of neglected plants, but this never happens where every point is pinched at the earliest moment and superfluous fruits are taken off before they open into flower. Light cropping, as I have so often pointed out, is equally important, and on no account should the fruit attain its fullest size, a fresh young fruit of Telegraph 15 inches long with

bloom attached being more useful and valuable than older fruits more or less seedy.

Plants in pits and frames now growing freely must be earthed little and often as the roots protrude. The compost for these may be somewhat heavier than that used in the formation of the original hills or ridges, but Cucumbers in all stages like an intermediate fibry loam, not too fine, whilst old lime rubble is a host in itself, not only for keeping the compost open, but also as a top-dressing for fruit-bearing plants. If fermenting material is the only source of heat, the linings (back and front) should be renovated every week. The alternate system answers best, as fluctuations of heat and sudden depressions by this means are avoided. Covering at night throughout the season is an advantage, and for the next two months is imperative. Oiled canvas, which throws off rain and snow and can be secured by means of strings passed through eyelet holes, is excellent for pits and frames, but it is not so warm as dry mats, an older, rather littery, but withal invaluable non-conducting covering. As the plants grow away from the centre of each light they must be regularly pinched and trained, not too thickly, as crowding in these close places fosters canker, damping off, and the production of crooked fruit. If possible, the heat of the bed should be maintained at 80°, and the air temperature of the frame from 68° to 70° at night, 80° by day, and as much higher as it will go after closing with sun heat and moisture, not later than 3 p.m. on the brightest afternoons. When the London market gardeners adopted this mode of culture the glass lights only could be seen, every particle of woodwork being buried in fermenting manure. Each light was tilted through the early part of the day, but by 3 o'clock the plants were shut up in a hot vapour bath, and by 5 o'clock they were tucked up under comfortable dry mats for the night, where the temperature would range quite 75° the following morning.

POT VINES.

If the old and new Grapes are to shake hands, the latter will now be safely through the stoning and taking the last swelling, if not actually colouring, and proving by the size and density of the berries how grateful they can be for moderate cropping. The best test of this in permanent vineries, as I recently stated, is the persistent production of laterals, but with pot Vines whose roots are confined to a cubic foot of soil this growth may be very weak, and yet the foliage being healthy, they may finish well. It is now too late to do much good by cutting off superfluous bunches; not so to go over them with a pair of finely pointed scissors with the view to giving relief where the berries show signs of binding. As every new leaf assists the roots and black Grapes colour best under the shade of healthy foliage, laterals should still be allowed to grow so long as space can be found for tying them down to the wires. The top-dressing for some time to come must be regularly supplied and well washed in with warm diluted liquid guano and soot water alternately, but when the Grapes get further advanced these stimulants must give place to pure water, atmospheric moisture must be reduced and fresh air increased whenever the elements favour free ventilation. When perfectly coloured and approaching ripeness water may be given less frequently, but on no account must the foliage be allowed to suffer, and the temperature must gradually be lowered by an increased circulation of dry, warm air. If Madresfield Court Muscats are amongst these pot Vines and cracking is dreaded, the attendant must guard against allowing the roots to feel the want of water before the berries have attained their full size, as a check from drought followed by a flush is almost sure to result in the loss of some of the finest Grapes.

Cut-backs which were shaken out and placed in 6-inch or 8-inch pots last month should now be 2 feet in height, and fit for the final shift into others about 12 inches in diameter. As the roots they will make must remain sound and healthy until the Grapes are ripe, too much care cannot be devoted to the performance of every operation forming part and parcel of the transfer. Pots and

cracks, for instance, should be quite clean and thoroughly dry, and the latter, placed convex-side upwards and covered with finely crushed bones or broken oyster shells, whilst allowing water to escape freely, should be impervious to the entry of worms. The compost—good rough turfy loam of a fibry and slightly sandy nature, crushed bones and rough charcoal or old lime rubble—also should be dry, as it will require firm ramming with the potting stick, and if mixed a fortnight in advance of use so much the better. No animal manure should be used, as it encourages, if it does not breed, worms, and in due course under constant watering becomes sour and objectionable to the roots. Bone meal, on the other hand, rather freely used will improve the compost, as it dissolves and is absorbed by the lumps of turf through which the roots will force their way and remain sound when liquid stimulants are administered. When this compost has been thoroughly warmed through by artificial heat, if not by natural fermentation, the young Vines should be carefully watered to ensure moist balls at the time of repotting, otherwise no amount of after-watering, whilst washing the virtue out of the compost, will restore them to a healthy growing condition. As each Vine is turned out of its pot, the whole of the compost being new, care must be taken that the ball, only a few weeks old, does not fall to pieces, but all roots visible must be liberated with a pointed stick and it will be ready for its final position, which should be just deep enough for the base of the young cane to be covered with soil when repotting is finished. If a close warm potting shed is not available, this work should be performed in the pit, and the Vines should be at once plunged in bottom-heat to give them a good start. But little water will be needed at first, especially if the plunging bed is moist and the young canes are lightly syringed once or twice a day. Shading, if possible, should be avoided, certainly after the roots have taken to the new soil, the main points being a short-jointed quick growth and firm leathery leaves on short foot-stalks. The trade train their pot Vines in an upright position, but the best plan with private gardeners is plunging near the front of the house and training to the wires of the trellis precisely as they train young rods in ordinary vineries. As growth proceeds, each lateral must be pinched at the first joint, but on no account must the main leaf be injured, and when the canes are 6 feet to 8 feet in length, they will require stopping to throw strength into the lower parts and plump up the buds. The Vines, once the roots touch the sides of the pots, will take liberal supplies of weak, clear liquid guano and soot water, and the latter may be used once or twice a week for syringing purposes. At other times pure warm water must be pretty freely used about the walls and floors in the morning, and overhead when the house is shut up warm in the afternoon. When the pots are well filled with roots and the canes are formed, renovation of the plunging material may be discontinued, and that which has done good service may be drawn away by degrees from the sides of the pots.

Yearlings.—Single eyes put into small pots or squares of turf early in February and plunged in bottom-heat in a close compact pit should now be fit for a shift into 6-inch or 7-inch pots. It is not, however, well to be in too great a hurry, as the exhaustion of the sap stored in the small piece of wood is followed by a dead stand, and any disturbance or check from declining heat at this critical stage is sure to put an end to their existence. This stand is more apparent than real, as roots during the whole of the period are working steadily away from the eye, and when they touch the sides of the pots the tiny canes begin to elongate, joints and leaves form, and they are fit for potting. An air temperature ranging from 70° to 85° is not too high, especially where good plants are wanted for turning out into new borders in May and June, but the prime factor in the propagating pit, and the one in which private gardeners most frequently fall short, is a steady bottom-heat of 75° to 80°. When the eyes for planting are struck in thin sods of turf resting on the top of a sharp bottom-heat, they are best kept out of pots until the border is

ready for them. For growing into good stores either for cutting down or planting the following spring 7-inch pots are quite large enough. The soil for these, like that recommended for fruiters, should be rather dry and thoroughly warm, and the pots should be plunged to the rims in bottom-heat to give the Vines a good start. Once this is secured and the roots begin to coil, they may be drawn out of the bed and placed thinly on the surface. W. C.

PROPAGATING.

THE PROPAGATING HOUSE.—As the sun gets more powerful, it is necessary to be careful that a moist atmosphere is maintained, especially while the cases remain open. On all favourable occasions a little ventilation should be given early in the morning, and if the top ventilators are opened only for a short time it will sweeten the atmosphere and be generally beneficial. Of course, cold winds and draughts must be avoided. In giving ventilation, &c., a great deal will depend upon circumstances. I like to avoid all extremes and to keep everything as clean and sweet as possible, more depending on this than is at first apparent. Another important point connected with propagating is that in propagating such things as are liable to suffer if allowed to get withered, the cuttings should be taken early in the morning while the plants are fresh and full of sap. In most cases it is much better to keep cuttings fresh, and avoid using water directly the cuttings are made.

TECOMA CAPENSIS.—This may be used as a climber or it will form a neat compact pot plant, and the terminal racemes of bright orange-scarlet flowers are very showy. This species, though not often met with in really good condition, deserves to be extensively cultivated, and when properly treated it is one of the most attractive plants that can be grown for the cool conservatory during the autumn. Cuttings from young shoots taken off close to the older wood will root freely in a cool part of the propagating house. To form dwarf compact pot plants they must be grown on in a cool open position, but if subjected to a dry atmosphere red spider will be troublesome.

DIPLOCLADUS GLUTINOSUS.—This is a very desirable plant for greenhouse culture. Although now included in the genus *Mimulus*, it is very distinct in appearance from the ordinary *Mimulus* of gardens, being of a shrubby habit with narrow leaves. The flowers are of a peculiar bronzy yellow or buff shade of colour. When well cared for, it forms a very pretty pot plant, and in a light sunny position flowers freely. It may be readily propagated from the young shoots in the spring. Cuttings will succeed best if taken off before they have made too much new growth. As soon as well rooted the cuttings may be potted off singly or grown three in a pot, and if stopped once or twice they will make nice plants for flowering late in the summer.

CHOISYA TERNATA.—This very pretty Mexican evergreen flowering shrub is a very desirable plant for the cool conservatory, or in sheltered positions it succeeds well out of doors and produces its pure white blossoms in great abundance, these being shown off to great advantage by the pretty bright green foliage. Cuttings from young shoots fairly firm at the base will strike freely in the ordinary propagating pit. The cuttings should be selected from shoots that are not too vigorous and put in sandy peat. The plants may be grown on in good mellow loam, to which may be added a little peat and sand, or some leaf-mould may be used. The plants should be grown on in a cool position and where the atmosphere is not too dry.

CASSIA CORYMBOSA.—This pretty flowering shrub is a useful subject for the cool conservatory. It may also be used in the flower garden during the summer, and succeeds well if planted in a warm sunny position, the bright green foliage and pretty yellow flowers being very attractive. It may be propagated from cuttings during the spring. The cuttings should be taken after the plants have made a little new growth, selecting

those that are not too vigorous. The plants should be potted in good loamy soil, and may be grown on in an intermediate temperature, but to flower them well they should have a light, airy position. When properly treated, bushy flowering plants may be obtained which will be found very useful for various purposes. A.

GARDEN FLORA.

PLATE 693.

THE BARBERIES.

(WITH A COLOURED PLATE OF BERBERIS ASPERMA.*)

IN scarcely any other genus of garden plants is there such complete confusion in nomenclature as in *Berberis*. A large number of so-called species have been described—doubtless from individuals—and apparently without their authors having taken the trouble to study the genus as a whole. The natural variability has not been taken into account, neither has the aptitude of the plants for hybridisation been considered. Under these circumstances it will not be found strange that catalogues and books are crowded with a host of useless names. Even after studying the original type specimens of Schrader's monograph, and also living plants received direct from the Göttingen Garden, the late Karl Koch in his "Dendrologie" states that it would have been better had the monograph in question never been printed, and that he, for his part, considers it well to ignore the work altogether.

According to some books, there are upwards of 100 species of *Berberis*, but in all probability there are less than fifty which have good claims to specific rank. The genus is distributed throughout all north temperate regions and extends to sub-tropical Asia and almost the whole length of the Andes. Indeed, no less than thirty species are enumerated in the "Catalogus Plantarum Vascularum Chilensium" by Philippi, whose name is familiar to English gardeners through the handsome and free-flowering *Escallonia Philippiana*, figured and described some years ago in these columns.

As the space available is insufficient to enable me to give an account of all the Barberies, the evergreen ones (of which *B. Darwini* may be taken as a representative) and the pinnate-leaved ones (*Mahonias*) are omitted. This paper is therefore confined to *B. vulgaris* and its numerous forms, together with a few nearly allied members of that group.

Many of the plants mentioned in these notes are amongst the most handsome of hardy ornamental shrubs, and are worth a place in the shrubbery or pleasure ground for the beauty of their flowers. What splendid objects some are when laden with fruit, a glance at the accompanying coloured plate will sufficiently prove. *B. vulgaris* makes an excellent hedge, but, says Loudon, "there exists a prejudice against it among agriculturists, from its supposed influence in producing blight or mildew on the corn adjoining it. This opinion is of unknown antiquity, but it is now considered to be an erroneous prejudice." Duhamel in his fine work expresses himself in a similar strain. "We very unjustly accuse it of being the cause of that *nielle funeste* which infects cereal crops. We do not allow it in hedges by one of those prejudices which a study of Nature would easily dissipate." Similar statements could be quoted to an almost indefinite extent, but in spite of all, the farmers who maintained the connection

* Drawn for THE GARDEN by H. G. Moon, October 12, 1888, from specimens sent by Mrs. Robb, Liphook. Lithographed and printed by Guillaume Severeys.



BERBERIS AQUIFOLIUM

between the Barberry Cluster Cups—the bright red spots so frequent on the leaves, stalks, and fruits of the Barberry in the spring and summer months—and the Corn mildew which attacked their Corn crops in autumn, and ruthlessly destroyed the Barberry bushes in the hedges surrounding their cornfields in consequence of that belief, are now admitted by the best authorities to have been thoroughly right. The Cluster Cups are merely the spring condition of the dreaded mildew; the life history of the fungus and figures of its various stages are given in Bennett and Murray's recently published "Handbook of Cryptogamic Botany."

B. VULGARIS.—This species, our native Barberry, is too well known to need description. It is found in a wild state throughout Europe, North Africa, and temperate Asia, and varies very materially in aspect in different countries. The readiest mode of propagation is by seeds, but those forms which do not come true when increased by this method can be readily grown from cuttings or layers. Loudon states in his "Encyclopædia of Trees and Shrubs" that the common Barberry will live for two or three centuries without increasing much in size. The wood is hard and brittle, of a yellow colour, and but little used except for dyeing. The rate of growth when the plant is young is rapid, and in consequence in five or six years it will attain the height of 7 feet or 8 feet, but it grows slowly afterwards unless the suckers are removed from it as they are produced. It is seldom seen above 10 feet high, but there are examples of trees of it 30 feet high probably of thirty years' growth. The leaves are agreeably acid, and, according to Gérard, were used in his time to season meat with and instead of a salad like Sorrel. The berries are so acid that birds seldom touch them. They are not eaten raw, but are excellent when preserved with sugar in syrup or candied. They are also made into jelly and rob, both of which are not only delicious to the taste, but extremely wholesome, and they are pickled in vinegar, when green, as a substitute for capers.

The following names represent forms which are not worth characterising, and which, indeed, cannot be distinguished from the type: *B. globularis*, *B. sanguinolenta*, *B. arborescens*, *B. declinata*, *B. laxiflora*, *B. actinacantha* (the true plant of this name is a Chilean species with evergreen leaves, somewhat like *B. Darwini*), *B. lucida*, *B. elongata*, *B. crenulata*, *B. macrocarpa*, *B. chrysantha*, *B. angulizans*, *B. chinensis*, &c.

B. V. ASPERMA, which is represented by the coloured plate, is one of the most desirable forms. It has long been known in cultivation, and although common enough a century or more ago, does not now appear to be so much grown as its merits entitle it to be. It is mentioned by Philip Miller, and Duhamel gives the following account of it: "In a wild state it occurs in the neighbourhood of Rouen and in many other places in Northern France. When, however, a bush is transplanted into garden ground, it develops strong shoots and bears fine fruit, but each berry contains two seeds. In a few years it grows less vigorously, and then each berry contains but a single seed. When the bush is old the berries become seedless, as they were before the plant was removed from its wild habitat." The delicious preserve, *confitures d'épine vinette*, for which Rouen was celebrated in Duhamel's time, was, according to that author, made from the fruit of *B. vulgaris asperma*.

B. V. PURPUREA.—The leaves of this form are a deep purple, and the berries are also purple. When planted in a mass, allowed to establish itself, and cut down annually, strong shoots are developed, which when young are a fine rich red-purple. Under such conditions there is no better deciduous shrub for beautiful foliage effects. In gardens this is also known under the names of *B. sanguinea*, *B. atropurpurea*, and *B. violacea*.

B. V. ALBA.—The only real difference between this variety and the ordinary red-fruited type is in

the white fruit, which, however, is not produced very freely; consequently the white-fruited Barberry is only worth growing as a curiosity. The same remarks apply to *B. v. lutea*, a form with yellow berries. Of neither of these have I been able to ascertain the history or origin.

B. V. DULCIS.—The first account of this form I have met with is in vol. iv. of the "Transactions of the Horticultural Society," February 8, 1820. "In a letter received this day from Baron Jacquin, of Vienna, addressed to the secretary, information is communicated of a variety of the common Barberry, which may become an agreeable addition to the table fruits. It was discovered wild on a mountain bordering on the Austrian Alps by the late Mr. Henry Schott, gardener to the Emperor of Austria. Its fruit is perfectly sweet and of a pleasant flavour. A plant of it is now alive in the garden of an eminent nurseryman at Vienna, but he has not yet succeeded in propagating it." The synonyms of this form are *B. mitis*, *B. edulis*, *B. esculenta*. I am not aware whether this interesting plant is now in cultivation in this country. The plants I have met with under the names quoted had fruits just as acid as the common Barberry, but they were probably raised from seeds, and Loudon tells us that the seedlings raised from the original plant had acid fruits.

B. V. VARIEGATA.—This has roundish yellow-margined leaves otherwise similar to the type.

B. V. AMURENSIS.—The very large, somewhat papery leaves and less branched habit are the only points of difference by which to characterise this Barberry. A native of Amurland; somewhat recently introduced to this country from Russia.

B. V. ÆTNEENSIS.—The berries of this variety are oblong, bluish black when ripe. The bush is dwarf, much branched, and the zig-zag twigs are clothed with stout spines, from three to five in a cluster, as long as, or longer, than the leaves. The flowers are in very shortly-stalked, few-flowered racemes hardly longer than the leaves. In a wild state *B. ætneensis* occurs from South Europe to the Himalayas.

B. CANADENSIS.—The American Barberry is a native of the Alleghany Mountains from Virginia southward, but according to Dr. Asa Gray is not found in Canada, as would naturally be concluded from its name, nor is it mentioned by Professor Macoun in his recently finished "Catalogue of Canadian Plants." The teeth of the leaves are less bristly pointed, the racemes bear fewer flowers, with notched petals, and the berries are oval; in other respects the American Barberry is like our common European species. Now and then met with under the name of *B. caroliniana*.

B. LYCIUM.—This is a very handsome Himalayan plant with sub-persistent leaves. Even when out of flower it is readily recognised by its narrow, generally quite entire, leathery leaves, pale green above and glaucous beneath; the erect rigid branches, too, are clothed with whitish bark. The golden-yellow flowers are borne in drooping, simple or compound racemes longer than the leaves, and the flowering period is later than that of all the numerous forms of the common Barberry. The berries are violet in colour. The only drawback to this beautiful shrub is the fact that in a young state it appears to be a very shy flowerer. An old bush, 6 feet or 8 feet high, is a grand sight when laden with its deep yellow flowers, and in this state is more showy than any other member of the *B. vulgaris* group. It is, moreover, perfectly hardy. Several garden plants must be referred here, among them *B. elegans*, *B. aurahuacensis* (the true plant of this name is a Mexican species introduced long ago to the Horticultural Society's gardens, but perhaps now lost), *B. glaucescens*, and *B. aristata*. The last-mentioned name rightly represents a variable Himalayan plant very different from *B. Lycium*, a figure of which will ere long be published in the *Botanical Magazine*.

B. SINENSIS was found in Northern China during Lord Macartney's embassy to China, and was introduced into England in 1800. The true plant seems to be not so frequently cultivated as it ought to be,

by far the larger number of plants grown under the name being simply *B. vulgaris*. There is, however, no mistaking the distinctness of *B. sinensis* when once seen. The flowers—smaller than those of any of the Barberries hitherto mentioned in these notes—are borne on slender, long-stalked pendulous racemes; the somewhat small berries are bright red. The species is well figured in the *Botanical Magazine* (tab. 6573), and in the accompanying letter-press Sir Joseph Hooker says "this is the most graceful of all the numerous species of Barberry cultivated at Kew, the branchlets from the base to the crown of the plants weeping and being loaded with blossoms in the spring." In some gardens this is grown under the name of *B. monosperma*.

Kew.

GEO. NICHOLSON.

KITCHEN GARDEN.

RAISING PLANTS TOO EARLY.

WHEN plants of various kinds of vegetables are raised long before they can be finally put out, a very bad start has been made. This is discovered sooner or later by all observant gardeners, whether professional or amateur. In order that the inexperienced may not have to pay too dearly for their learning, I will endeavour to point out some errors that may be avoided.

It is no uncommon practice to sow the seed of Tomatoes intended for fruiting in the open or against sunny walls and fences during the early part of March; the consequence is the seedlings are either left much too long in the seed-pans or pots and become drawn and weakly, or else when duly potted off they have to remain so long in the pots prior to the weather being fit for transplanting them to their fruiting quarters, that they become leggy and starved, much valuable time being lost before they partially recover from this severe check. The first week in April is early enough to sow seed, the plants by ordinarily good culture growing to a good size by the end of May, or by the time it is safe to put them out. Not being raised too early, they soon recover from the temporary check given them when planted out, and the first strong bunch of bloom being preserved, there is every prospect of ripe fruit being gathered early in July.

Vegetable Marrows and ridge Cucumbers ought never to be raised long before their summer quarters are ready for their reception. In some catalogues and calendars it is advised that the seed be sown in March; in others early in April; the plants to be grown on till the end of May. These early raised and "grown on" plants prove very unsatisfactory when finally put out, and not unfrequently are eventually surpassed by others raised from seed sown on the beds early in May. If handlights or frames are available for giving Marrows a good start, then sow about the middle of April, and transfer the plants to the beds as soon as the pots are well filled with roots. When nothing but a temporary covering of some kind of protecting material can be afforded, be content to sow the seeds about the first week in May. They germinate quickly, the plants are soon of a good size, and if not badly starved will not be long in arriving at a bearing state.

Very many failures with Celery may be traced to early raising. If a row or rows are needed extra early, or say during August and September, then the plants must be raised early in the year in a rather strong heat; but such early-raised Celery is often not fit to eat, and not till October is it nearer perfection. As a rule, the first week in March is quite soon enough to sow a pinch of seed of a white Celery, and plants raised thus early in heat require to be pricked

out into frames or coddled somewhat. The bulk of the plants ought not to be subjected to much heat at any time, and it is far better to raise the required number on gentle hotbeds with or without a frame covering, sowing the seed late in March or during the first week in April. Without much trouble a sturdy lot of plants may be prepared for the trenches, and which will do well from the first, these also being the least likely to run to seed prematurely. Poor weakly plants raised early and thickly in pans or boxes are generally the most difficult to deal with, and are usually the least satisfactory in the end.

Late in March or early in April large quantities of Broccoli, Borecole, Chou de Burghley, and Savoy seeds are sown in the open borders, some of the plants thus raised being intended to succeed any that may have been raised earlier in heat. Where there is a possibility of the former being put out as soon as ready not much harm is done; indeed a longer period of growth might be a gain. But, as a rule, the plants are raised early only to remain crowded until the ground can be cleared of other crops or be prepared for them. By all means raise a good early batch of Brussels Sprouts, Eclipse and Autumn Giant Cauliflowers, Autumn Protecting and Michaelmas White Broccoli, and, if much needed, some Cabbage, but these must not be neglected in any way, or early sowing will be detrimental rather than advantageous. In late or very cold districts it may be advisable to sow seed of mid-season and late Broccoli, Borecole, Savoy, and Chou de Burghley during the first week in April, but in warmer localities from the middle to the end of the month is quite soon enough, and we not infrequently defer sowing till the first week in May. Sown at these dates the seed germinates and the plants grow quickly. Market growers who raise many thousands of plants in the open fields and on poor ground may always safely sow the seed earlier than private gardeners, as there is little or no danger of their stock becoming prematurely tall and weakly.

If the seed of Salsafy and Scorzonera is sown much before the end of April the plants are liable to run to seed prematurely, while early raised Beet is apt to attain the size of Mangold Wurtzel. The best Carrots for storing are usually obtained by sowing seed late in April. Comparatively late sowing of any of the foregoing is usually attended with a more even germination of the seeds. W. IGGULDEN.

SEAKALE FOR NEXT WINTER'S FORCING.

SEAKALE in its requirements differs from all other plants. If by good summer culture a strong crown has been formed at the top of the long underground stem, forcing this crown to make suitable growth is only a question of proper treatment in a dark house or frame. In gardens where there is a Mushroom house one or more of the bays are usually reserved for Seakale, relays of prepared crowns being planted therein somewhat closely together at suitable intervals to produce a regular succession. But though in large gardens the Mushroom house is commonly utilised for forcing Seakale in winter, any other dark place with a genial temperature and an atmosphere free from all taint of ammonia from the fermentation of manure will do. When the crowns are lifted for forcing in November or December, as the case may be, the roots are trimmed in pretty closely, the crowns, with about 8 inches of main-root stem attached, being laid in thickly together on the north side of a hedge or fence to be in readiness when required, and the pieces trimmed off, or thongs, as they are sometimes called, are sorted and the strongest and best are cut to about 4 inches in length by the removal of the thin end. They are

then laid in damp sand till March or April, when they are planted with a dibble on land that is in good heart in rows 15 inches apart, and about the same distance, or a little less, from each other in the rows. This I have found to give ample room for the production of good strong crowns. If the thongs are laid in damp sand in November or early in December, buds will probably be shooting from the thick ends in March, and when the roots are planted, these little crowns should be placed just level with the top of the soil, or, at any rate, only a little fine soil should be crumbled down over them. If they are covered they will work their way through. The one thing remarkable about Seakale is the impurity with which one may cut away its roots without injuring production. I do not trim so closely as some, but all roots are trimmed in within a couple of inches of the main stem, and thus give us a good supply of thongs for selecting cuttings from for raising a stock of roots for the following season's forcing. Seakale is a maritime plant, and a top-dressing of salt applied to the land before planting or immediately after will be beneficial. All flower-stems must be cut away, and if more than one crown forms on a root, all but the strongest should be taken away, as one strong crown is better than two weakly ones.

Where root cuttings in sufficient quantities cannot be had, seeds may be sown towards the end of March or beginning of April in drills 2 inches deep and 15 inches apart, the plants to be thinned when large enough. The best way of sowing the seeds is to drop say three seeds at intervals of a foot or so. As the seeds are somewhat expensive, this prevents all waste, and yet gives a good opportunity for selection, which it is very desirable to have. Slugs and snails are very fond of the young plants, and when they first appear through the soil a dusting of soot and lime should be given occasionally for a week or two till the plants get strong. E. H.

KITCHEN GARDEN NOTES.

POTATOES.

A CHANGE from winter weather to warmth and sunshine has tempted many to commence planting Potatoes extensively, but it is possible to be too hasty in the matter. In low-lying districts, and which are most liable to be troubled with severe late frosts, it is unwise to do much of the planting in March, nearer the middle or end of April being a more suitable time. Very much ought in all cases to depend upon the state of the ground. Potatoes should not be puddled in, and if the ground will not work freely when tested, it is advisable to delay planting till it can be done properly. The surface may be well pulverised and dry and yet immediately below, the soil be cold and wet, and this is certainly not a favourable state of affairs for planting. Where a considerable space of ground is annually cropped with Potatoes, it is frequently necessary to commence planting in March, and if the latest varieties are first got in, then the second earlies, and finally the bulk of the Ashleafs and other early sorts, not much haulm will be above the surface till it may reasonably be considered out of danger from severe frosts. We prefer to plant medium-sized sets, each cleared of all but one strong sprout, but if scarce, large tubers of all but the Ashleaf and Lapstone types may safely be cut into three or four pieces, each with one or more good eyes or sprouts attached. It is advisable to snip off the smallest ends of the Ashleaf Kidneys to ensure an early decay of the tubers, as when planted uncut these are apt to turn up sound when the crops are raised. All cut sets should have the wounds dipped in slaked lime, or otherwise grubs and insects may feed on them before they have done their work. When it is desirable to rapidly increase the stock of any scarce variety, the tubers may be placed in pans or boxes, and after being lightly covered with fine mould be placed in gentle heat to sprout. Every sound eye will push out one or more sprouts, and these when about 2 inches long may be pulled off the tuber, divided if need be, and placed singly into 3-inch pots filled with light loamy soil. Being

already furnished with roots, these shoots, if kept on a shelf in gentle heat, will soon recommence active growth and develop into strong plants. The old tubers ought to be returned to their previous quarters and covered again, a second, and if required a third crop of sprouts being thus obtained. It is really astonishing what a number of plants may be obtained in this manner from 1 pound of tubers, and if all are transferred early to cool houses or pits to harden off prior to being planted out on good ground, each, if duly protected for a time, will produce nearly or quite as heavy a crop as those sets put out in the usual manner. The days for fancy prices, however, are past, and there is now less need than formerly for this method of propagation.

METHODS OF PLANTING POTATOES.

When the ground is at all lumpy, it ought to be well stirred to a depth of about 9 inches and the lumps separated, this being done either by the aid of forks or two-tined hoes. In many districts the practice of digging in the Potatoes finds favour as being the quickest, and if the work is not "scamped" it answers well. Unfortunately, labourers are much given to study the surface of the ground rather than the state of the soil about the sets. When the drills are opened with a spade, the soil is apt to be made too close and impenetrable to the delicate tuber-bearing roots. The latter ought not to be much obstructed, the best crops being obtained from finely-divided, well-worked ground. If, therefore, the method of opening drills is followed, this should be done with forks. It is done in this way: A drill is opened across one end, the sets at once put in and carefully covered with the next spit of soil, a space of ground according to the distance to divide the rows being next dug. Then with the aid of a line stretched across, another drill is opened and planted, this being repeated till the whole breadth is finished—all the ground will be thus left in a loose condition. Drawing the drills with the aid of heavy half-mattock hoes is the surest method of well breaking up the soil that is to surround the sets, and this plan answers well when exhibition tubers are needed. The previously sprouted sets may first be carefully covered with fine light soil, brought, if necessary, from the frame ground, and the rest of the soil drawn over the rows with hoes. This is the most laborious method of all, as, in addition to the extra trouble of covering the sets, the spaces between the rows also require loosening with forks or hoes. Potatoes may be most expeditiously planted with the aid of a broad dibber, but this is recommended for light, free-working soils only. With the dibber and a line stretched across the ground, holes may be made as fast as sets can be dropped into them, these being closed again with a hoe. On medium and light soils the sets may well be buried to a depth of 6 inches, but on heavy land it is advisable to plant very much nearer the surface, the crops resulting in this case being heavier and the quality very much better than is obtained by deep planting. This holds good with all varieties, but no general rule can so easily be given as to the distances apart to arrange the rows and sets. As a rule, the strong growers, which are principally late disease-resisting sorts, ought to be not less than 3 feet apart, another 6 inches being allowed on extra good, well-manured land; while the sets may be disposed from 10 inches to 12 inches apart. Moderately strong growers, among these being included the greater portion of second early and main crop varieties, may be planted from 2 feet to 30 inches apart, a distance of 9 inches dividing the sets in the rows. The rows of Ashleaf and other comparatively short-topped varieties, grown on good open ground for producing successional supplies, ought not to be less than 2 feet apart; but on warm borders where they are usually planted early the rows may be 18 inches apart and the sets 8 inches asunder. If any kind of artificial manure is used in addition to a liberal dressing of half-rotten farmyard or stable manure duly dug in rather deeply, this should be applied in moderation, or more harm than good will result. It may be sown in the drills, and again among the rows, prior to hoeing or loosening the ground about these

the first time after the sprouts are through the surface.

POTATOES AND DOUBLE CROPPING.

Where a system of close cropping is adopted Potatoes play an important part in various economic arrangements. In the more favoured southern districts especially the earliest crops can be cleared off the ground in time to be succeeded by autumn Cauliflowers, Broccoli, Strawberries, winter Spinach, Tripoli Onions, late Carrots, and winter saladings. Some of the foregoing are not unfrequently grown in succession to the second earlies, and also late Turnips and spring Cabbage. Very few attempt to plant anything in close succession to late maturing Potatoes, nor do I much approve of the practice of planting between these, as unless the rows are very widely arranged, indeed, the haulm is liable to overrun the intermediate crops. There is much to be said in favour of planting between the varieties of moderate growth, and also for growing quick maturing varieties between the rows of runner Beans, late Peas, or other crops that do not unduly shade the ground till July or August. In the latter case the Potatoes ought to be planted somewhat early, a good space at proper intervals being allowed for the rows of Beans or other tall-growing vegetables to be sown or planted. Supposing, for instance, the rows of Beans or Peas are 6 feet apart, at least two rows of early Potatoes may be grown between them, extra good crops resulting. Winter Broccoli grown between rows of Potatoes is rarely hardy enough to be of any value, but there is no reason why all the Brussels Sprouts and Borecole, as well as autumn Cauliflowers and Broccoli, should not be planted in these positions. When it is intended to plant these crops between the Potatoes, the rows of Ashleaf or other short-topped varieties of the latter must be not less than 3 feet apart, and the rather stronger growers should receive from 6 inches to 12 inches more space, according to the strength of the ground and the known habit of the variety. After the Potatoes are finally moulded up, the other crops may be put out as soon as ready, these in their turn having soil drawn up to them after the Potatoes are cleared off the ground. Land thus closely cropped ought to be well manured prior to being dug, and any special manure sown will benefit all alike.

W. I.

Out in the market gardens.—The big areas of land now devoted to the cultivation of vegetables for the London market are rapidly assuming a barren aspect. Breadths of Brussels Sprouts, Savoy, Kales, Coleworts, &c., have either been all sent to market or, as in many cases, have furnished food for sheep or, perhaps, where fruit trees abound, have been chopped up and ploughed in as manure. Potatoes, chiefly Early Rose and Beauty of Hebron, are now rapidly being got in, although the soil is yet cold and in places wet. But where so much has to be done practically by the end of April an early start must be made. The earliest sowings of Peas are well through, but growth is very slow and not much seems to have been gained by such early sowing. The soil has, of course, in most cases run together somewhat closely, and plenty of surface stirring will be needed later on. Nearly everywhere seeds of winter stuffs have been sown, the breadths of these in the beds covering a large area. Spring Onions also have been sown. Spinach has proved to be one of the most profitable crops of the season and still yields leafage, but not equal to the demand. It is a vegetable which ordinarily sells well. Much of the Cabbage type of green stuff has been absolutely unsaleable at times, not because it was indifferent, but because the market was glutted, and yet in the suburbs of the metropolis greens of all kinds have been as dear as ever. Beds of autumn-sown Onions look very fresh and green. On the warmer soils large areas have been sown with Radish seed, the beds being protected from birds by clean litter. Greater warmth is now sadly needed to assist seeds in germinating.—A. D.

Large & small Celery.—I am greatly in favour of small Celery. It is all very well having huge sticks a yard or more in length and half that in circumference,

but when it is remembered how very little of this is really fit to use either for the table or for salads, the great waste connected with large Celery becomes apparent. In a stick weighing 6 lbs., 2 lbs. might probably be used and 4 lbs. thrown away; whereas in a small head, such as is typical of White Gem, of 3 lbs. 2 lbs. at least would be usable and not more than 1 lb. superfluous. The latter can be grown in less space, with less attention in earthing, &c. Heads of small Celery are also less disposed to become pithy or soft in the stems than those of large ones, and being compact they suffer less in winter, while nothing can be said in favour of the large ones, excepting that they appear to afford an abundance which is not necessary.—J. MUIR, *Margam Park, South Wales.*

MAKING HOTBEDS.

THE old-fashioned hotbed, where the materials for its construction can be easily obtained, still holds its own as a forcing medium. The warmth from fermenting substances is so genial, and, when the beds are rightly constructed, so regular in its action, that all plants grow vigorously in the hotbed. In large gardens the hotbed comes into use early in winter for forcing Asparagus, early Potatoes, Carrots, Radishes, Seakale, &c. Formerly, the hotbed was in many gardens the only means employed for raising the early Cucumbers, but in those days Cucumbers were not required much before Easter, and it was considered very good work to cut Cucumbers in March. Now, Cucumbers are required all the year round, and in this instance, so far as regards the winter supply, hot water has the field all to itself. But to supply Cucumbers from the end of March on through the summer the hotbed is a most economical institution. The fuel costs nothing where trees abound and horses are kept, and the worn-out hotbed forms a valuable compost for the garden or for potting purposes. The best materials are tree leaves and stable manure in something like equal parts. Later in the season, almost anything having a vegetable basis will do to mix in the heap to make hotbeds. Grass from the lawns, weeds, spent Hops from a brewery, or, in short, any kind of waste matter which ferments when laid in a heap may be usefully employed, but for the early hotbeds the best materials only should be used, and these are tree leaves, preferably from the Oak, and fresh stable manure. Mix the two together in a large heap, for the hotbed at this season must not be stinted in material; shake out all the flaky pieces, so that all may thoroughly blend together. In less than a week the heap will be getting warm, and if the leaves and manure are in something like equal quantities the beds may be made up at once. If the manure largely predominates, the heap should be turned over and shaken up again, to drive off some of the rankness which is present when much fresh stable manure is used; but the leaves, if used freely, neutralise this tendency to violent heat and absorb any noxious gases which are evolved from the manure. Set out the bed by driving down a stake at each corner. The size should be 2 feet longer and wider than the frames, so that when the frames are placed on the bed there will be a margin a foot wide all round. For Cucumbers at this season, the bed at back should not be less than 4½ feet to 5 feet high, and 3½ feet to 4 feet at front.

In building it up, place the materials in layers 1 foot or so thick, giving the requisite pressure by treading as the work proceeds. This treading or pressing together is the key to the whole business. As regards temperature, if a bed is put loosely together, the fermentation is rapid and soon spends itself, and the bed becomes cool before it has finished its allotted work. On the other hand, if the bed is trampled too much, the air, which is the main source of fermentation, is forced out, the heat rises slowly, and perhaps never can be made to do useful work. I grant it is not often a bed is trampled down so much as this. Still, if the materials are damp when put together it may be done; at any rate it is possible to do it, but the medium way is best. Give just enough pressure to prevent rapid and unequal settlement after the bed gets fairly into work, and whether used for Cucumbers or Melons, or for propagating plants

for their flowers, much useful work may be done. The sides of the bed should be built up straight and true. Inside the frame is placed or thrust a watch stick in the centre of the light, and when the heat has become steady, at about 85° to 90°, the soil, or the plunging material, may be placed inside and the plants set out, or the cuttings or seeds placed therein, as the case may be. When the drops of water which have condensed on the inside of the frame are perfectly colourless, it may be taken as a sign that the bed is perfectly safe for tender cuttings or plants to be placed therein. E. H.

STOVE AND GREENHOUSE.

WORK IN PLANT HOUSES.

LILIES.—Where there is a large greenhouse or conservatory that has to be kept attractive all the year round, Lilies should form an important feature during the spring or summer months. Where a sufficient number of plants of *L. Harrisii* are grown they will now be in bloom. *L. eximium* will come on to keep up the succession, whilst the common *L. candidum* will follow. Though this kind will bear bringing on in the same heat, it is not well to hurry it; consequently, it is better to be content with having it in bloom after the other two sorts mentioned are over. If sufficient stock of *L. candidum* is grown it may be had in flower until the first of the auratum are in bloom. With judgment in timing the blooming of this Lily, it will give a succession from the end of May until the close of summer. When the bulbs are well established they will bear gentle forcing, and some of the innumerable forms in which it appears naturally flower late in summer when kept cool. To make the most of this useful decorative Lily, the different forms, early, mid-season, and late, should be labelled to guide the grower as to the way they require to be dealt with so as to have them in bloom in a continuous succession. The imported bulbs that come to hand now do not succeed so well as those which came first. Possibly the low price which it fetches now has the effect of making both importers and growers more careless in its treatment than they used to be. *L. speciosum* will bear considerable bad usage and still thrive after a fashion, but this kind well repays for being well treated. The plants must not be kept during their early stages near other things of any kind that are at all affected with aphides; the insects are sure to get on the Lilies and destroy the bloom, and it is almost impossible to kill the aphides by fumigating, as they are down in the newly-formed flowers and hidden by the young leaves, where the smoke cannot reach them. I find nothing so effectual as dipping the tops in tobacco water and letting them remain for a moment or two in it. Through inattention to this matter I have known the flowers of some thousands of plants of *L. candidum* completely ruined. *L. speciosum* and other sorts that are now about breaking through the soil should be placed close to the glass in a pit or frame, where they can have air in the daytime and the frost be kept from them when the nights are sharp. If ever the growth of these or other Lilies is at all drawn, the leaves are sure to be so far wanting in substance as to be unable to retain their vitality until the plants have done flowering.

EARLY FORCED LILIES.—Plants of the different kinds of Lilies that have been forced should, when done flowering, be at once moved to a cold house or pit, where air and water can be regularly given, and where also care in keeping them free from aphides can be taken. Where this is done the plants will again do good service. When neglected it is useless to expect them to be of much further use.

STOVE.—ALOCASIAS.—The different species of Alocasias, such as *A. metallica*, *A. Veitchii*, *A. Lowii*, and others of like character, should be repotted annually. The best time to do this is in spring when the plants are about to make active growth. Strong examples push up their flowers about this time; it is advisable to remove them as soon as they can be got hold of, as it is a loss of strength to the plants and of time if they are allowed to come to maturity. These Alocasias require a good deal of

water during the growing season. This naturally causes the material in which they are potted to decompose quickly, and necessitates its being renewed yearly. Where this is not done it is liable to get sour. The different species named do best in a compost consisting of the best fibrous peat such as answers for Orchids, chopped Sphagnum, sand and broken crocks or charcoal. If some dry flaky manure, such as has been used for mulching a Vine border, is added it will help them. Into this the roots will push apace, and the top growth extend proportionately. Most of the old soil should be taken away. Alocasias are surface rooters and do best when the pots have a greater depth of drainage in them than is used for most things. The Alocasias in question, when strong, produce tubers underground from which they can be propagated. At the time of potting these should be taken off and either grown on singly in small pots or several together in larger ones, giving them similar material to that advised for the general stock. In potting press the soil moderately firm and at once give some water. From this time onward through the summer the plants should have a warm stove temperature, and be carefully shaded from the sun. They ought to be well syringed once a day. If this is done thoroughly it will keep the foliage free from insects, such as thrips and red spider, both of which are liable to be troublesome. These Alocasias bear dividing, and in most cases moderate-sized examples will be found more serviceable than large specimens. When well grown the distinct forms and colours of the leaves, and their metallic lustre, render them effective amongst other plants.

A. MACRORRHIZA VARIEGATA is one of the most noble and distinct of all variegated-leaved subjects. It is a quick grower, and suckers taken off last summer and that have since been growing in a warm stove will make full-sized specimens during the present season. This species does best in loam with a large quantity of dry shaly manure added; if this is used to the extent of one-third it will not be too much. A good sprinkling of sand should be mixed with the compost. In other respects the treatment recommended for the others will answer for *A. macrorrhiza variegata*.

ANTHURIUMS, FINE-LEAVED.—The ornamental foliaged section of the Anthuriums, such as *A. crystallinum*, *A. magnificum*, and *A. Warocqueanum*, rank amongst the finest and most distinct of the plants that are grown for their leaves. When well managed they form a leading feature in a collection of stove plants. They thrive in peat that is light and that contains plenty of fibre; some sand and broken crocks should be mixed with it. These also ought to be repotted each spring about this time. All the old soil that is found to be much decomposed should be removed. These Anthuriums are best for ordinary decorative use when confined to one or two crowns. Being free growers, they require a good deal of root room; the pots should be one-third filled with drainage, as the roots mostly keep near the surface. Give a plentiful supply of water as soon as growth begins to move freely, and syringe overhead once a day. To preserve the silky gloss natural to the leaves, the plants must be kept shaded in bright weather.

CROTONS.—These plants may be propagated at almost any time of the year when suitable shoots to make cuttings of are obtainable. But if struck now they will have time to make nice decorative stock before autumn. In choosing the cuttings, strong shoots that are deficient in colour must be avoided. They are best put singly into small pots half filled with a mixture of sand and loam, the surface all sand. If they can have a temperature of 75° or 80° in a propagating frame they will root in three weeks, after which gradually expose them to the air of the house. As soon as the pots are moderately full of roots move them into others about 6 inches in diameter. Good yellow loam with some sand added is the best soil for Crotons, as the foliage usually comes better coloured in it than in peat. In the case of large specimens that require their branches shortening, this should always be done early in autumn. By this means they have time to break and the young growth to

make some progress before spring, which gives a better chance of the shoots attaining the desired colour early in summer. When Crotons are cut in hard a considerable portion of the leaves that are first formed afterwards come too green, so that when the cutting in is delayed until spring, much of the summer passes before the foliage gets of the right colour. Most of the species come from the South Sea Islands; this points to the high temperature they like. To do justice to them, they should have a night temperature through the winter of not less than 65°. If 70° can be kept up all the better. They require no shade at any time, unless the glass is found to burn the leaves. The plants should also be stood well up to the roof. During the time they are growing freely they should have manure water; this likewise helps to put more yellow colour into the leaves, though at first sight stimulants of this kind might be supposed to have a contrary effect. Plants that require more room should now be repotted. To keep Crotons free from the small white thrips with which they are often so much troubled, they should be well syringed daily.

DRACÆNAS.—However well these plants are treated, in time they get bare of leaves at the bottom in which condition they do not look well.

Tremandra verticillata.—This is a remarkably pretty hard-wooded plant. It is also known as *Platythea galioides*, and is a very ornamental plant for the greenhouse, forming as it does rather a free-growing, many-branched specimen. The shoots, which are long and slender, are clothed with small narrow leaves, and thickly studded with delicately poised, drooping blossoms, about the size of a shilling and of a pleasing reddish-violet colour. A succession of bloom is kept up for a considerable period, and this, combined with the fact that it is not a difficult plant to cultivate, are all points in its favour.—H. P.

Carnations in pots.—Last year I potted a few plants, but have not been successful with them. I potted them according to the instructions of an authority on the subject, but still I did not succeed so well as I should like to have done. I think I have discovered one point at least where my instructions were at fault. I was advised to pot them very firmly. The plants all through the summer showed there was insufficient root action, and on turning the plants out of the pots after blooming I found the roots had not taken full possession of the soil. My potting compost consisted of four parts fibrous loam, one manure, and one leaf-soil, with a little sand and crushed charcoal. I used 8-inch pots. My



Miltonia vexillaria

Where in this state the present is a good time for heading them down, as when the work is done at this season the stools have all the summer in which to form new heads, and the young stock also that is propagated from the tops will make nice plants before the end of the season. Let the roots get a little drier than is usual before heading down. The heads should be severed about 6 inches above the collar; the hard portion of the stems may be cut into bits 2 inches or 3 inches long, divesting them of their leaves. Put the cuttings 2 inches apart in pots filled with sand. The tops, consisting of three or four leaves, should be put singly in 3-inch or 4-inch pots and treated in the way that answers for ordinary cuttings; these will soon form roots, and will make nice young plants before the end of the year. The cuttings made from the harder wood will take longer to root and to push their buds. When two or three small leaves have been formed the plants should be moved singly into pots and encouraged to make growth in a brisk stove heat. Shade when the sun is powerful. Syringe freely so as to keep the foliage quite free from red spider, thrips, or aphides. When the old plants have started, turn them out of the pots and remove the stout terminal root, which if treated as a cutting will soon make a plant; repot in peat with some sand in it.

T. B.

opinion is that where the loam is inclined to be heavy (as mine is) the compost should have more lighter material added and not be rammed so firmly. Any information on the subject will be very acceptable; also, would the plants do better in larger or smaller pots?—YORKSHIRE.

SHORT NOTES.—STOVE AND GREENHOUSE.

Pelargonium Venus.—This is a pure white variety of the decorative section of Pelargoniums, and it is largely grown by Messrs. Henry Cannell and Sons at Swanley for cutting. The habit of growth is dwarf and compact, and flowering branches burst out in every direction; the flowers are white, with a slight carmine blotch on the upper petals. It is a fine variety for every purpose, and especially for flowering at mid-winter.—R. D.

Dividing tuberous Begonias.—It is a good way of increasing tuberous Begonias, especially for flower beds, to cut the large bulbs into four or five pieces and make a plant of each. The bulb should be cut up with a shoot attached to each as soon as this can be seen, and the divisions may afterwards be potted singly into small pots, or planted a few inches apart in shallow boxes and allowed to remain in these until planted out.—J. MUR, Margam.

Double Pelargonium Swanley Double White.—Of all the double white zonal Pelargoniums this appears to me to be much the best. It has the

peculiarity of being always in flower. It was found in Paris and eventually came into the hands of the Messrs. Cannell. Mr. Cannell calls it a perpetual bloomer, and I do not think he is far wrong. The flowers are pure white; they are persistent, and therefore last some time. It can be strongly recommended for cutting from at mid-winter, and indeed at that season of the year it can be seen at its best. This variety appears to be also known under the name of Comtesse S. Dismermer.—R. D.

The durability of *Asparagus plumosus* when cut.—In November last I gave a lady friend a few sprays of the above, with the understanding that she was to put them in water and try how long she could keep them. I saw the same fronds the other day, and they were almost as fresh as they were when I cut them. They have been kept in a sitting-room with their ends in water, which has been changed weekly, and their power of vitality seems almost incredible.—J. MUIR, *Margam*.

ORCHIDS.

MILTONIAS.

TAKEN altogether, the dozen species of *Miltonia* at present known form as select a genus of first-class garden Orchids as one need wish to have. They have variety enough in habit, foliage, size and form of flower, and colour; they are all large-flowered, the blossoms remain fresh a month or more, and with scarcely an exception none of the species fails to bloom annually if anything like fair treatment be given. There is, however, one drawback to the genus as a whole, namely, the wide difference in temperature required by the several species. We can not, therefore, grow all *Miltonias* in one house, nor can some of them be grown at all, except in stoves. We read of *M. Roezli* and *M. Phalenopsis* thriving in a *Cattleya* house, even in an *Odontoglossum* house, but my experience with these plants suggests that where the *Miltonias* named are grown with *Odontoglossums*, one or the other must suffer. The species which will thrive in an *Odontoglossum* house in summer and in a temperature not lower than 50° in winter are *M. spectabilis* and its varieties, *M. Moreliana* (a good garden kind), *M. anceps*, *M. candida*, *M. Clowesi*, and *M. Warscewiczii*. The last-named is perhaps the coolest of all, but it grows well and flowers freely if treated with the others. The species named are every one of them easy to get and easy to keep, which cannot truthfully be said of many easily got Orchids. They thrive best in shallow pans or baskets, *M. spectabilis* and *M. Moreliana* being perfectly happy when fastened on a teak raft with an inch layer of Sphagnum about the roots. The large clustered kinds, such as *M. candida*, require more root room and a mixture of peat fibre and Sphagnum. Plenty of water, daily, in fact, all through the summer, with a dash overhead from the syringe in the evenings of hot days, should be given to all the above-named. *M. spectabilis* was one of the first introduced of garden Orchids. It was grown and flowered by Viscount Milton, who, fifty years ago, had one of the most famous of Orchid collections, and it was in compliment to him that Dr. Lindley founded the genus *Miltonia*. There are few of the smaller Orchids that surpass *M. spectabilis* in its best forms; it remains still the beautiful *Miltonia*. I have read that the yellowish hue of the *spectabilis* section of these plants is a sign of ill-health, brought about by wrong treatment. This is as absurd as the statement made by someone not long ago that the coppery hue of *Odontoglossum crispum* and *O. Pescatorei* was a bad sign! *Miltonias*, or some of them, are naturally yellowish in colour as a negro is black. One might get the

foliage green by a change of treatment, but it would be at a sacrifice of flower, and probably of the plant. One of the quaintest and prettiest of Orchids is *M. Warscewiczii*, better known as *Oncidium Weltoni* or *O. fuscatum*, the tall, branching scapes crowded with flowers, each 2 inches in diameter, with recurved sepals and petals and a puffed-up lip like a glorified Bee Ophrys, the colour rose-purple, with a central blotch of yellowish brown and a marginal band of white—exactly the kind of flower which the uninitiated are delighted to see, and in this respect almost rivalling that of the Butterfly *Oncidium* or the marvellous *Stanhopeas*. If the majority of *Miltonias* have a fault, it is in the flatness of their flowers. I am afraid to tell admirers of *M. vexillaria* how not a few people of taste call it an ugly, formless flower. Such

from four to eight large flowers, in which the sepals and petals are dark chestnut and the lip white, turning cream-coloured with age. The flowers open in February and remain fresh a month or more.

All the *Miltonias* are Brazilian except *M. Warscewiczii*, which comes from Peru. In a collection where all the species are grown there is scarcely a month in the year when some of them are not in bloom. W.

***Cattleya Trianae Osmani*.**—This, perhaps one of the grandest forms of this variable *Cattleya*, is now flowering in Mr. Measures' collection at Streatham, where it stands out conspicuously amongst a very fine lot of varieties now in bloom; the flowers measure upwards of 7 inches across, the sepals and petals being broad and of a deep magenta-rose, whilst the large bold lip is broadly marked with intense deep crimson, flushed with magenta, the colour reaching back into the throat, where it is stained with yellow. It is a well-marked and distinct variety, and the true form still continues rare.

The yellow *Laelia* (*L. flava*).—Whilst the bright-coloured *Lælias*, such as *cinnabarina* and *harpophylla*, have appeared somewhat frequently in collections during the past year or two, this beautiful species is yet rarely to be met with in flower. Upon two occasions, however, in the past week it has been my good fortune to see it in bloom, its striking colour causing it to stand out conspicuously from everything else. It is nearly related to *cinnabarina*, close to which indeed it would appear to be found, in the province of Minas-Geraes, in Brazil. The spike is erect and bears on the top a clustered raceme of bright yellow flowers (a colour which, I think, is only found in this species of the genus) which last several weeks in full beauty. This species, on account of the distinctness and brilliancy of its blossoms, produced at this early season of the year, ought to be sought after by all Orchidgrowers. It requires good drainage, and I do not think it likes much soil about its roots, otherwise I know of nothing to prevent its being flowered annually.—W. H. G.

***Dendrobium albo-sanguineum*.**—This is a magnificent large-flowered species which I recently noted flowering well in Mr. Darnell's collection at Stamford

Hill. This form is too seldom seen. It was introduced nearly forty years ago by the Messrs. Veitch from Burmah, where it is said to grow on the tops of the highest trees—an indication that it enjoys an abundance of sunshine and light. The flowers, produced from the old bulbs, mostly in pairs, are nearly 3 inches across, the sepals and petals being soft yellowish buff, the lip, in addition, bearing two large velvety maroon blotches at the base. The flowers are very showy and distinct and last long in beauty.—W. H. G.

***Cypripedium Rothschildianum* and *C. Elliottianum*.**—It seems to me—but I am only judging of the two flowers as I see them together, knowing nothing of their history—that *Elliottianum* is but a variety of *Rothschildianum*, and not a very good one. *C. Rothschildianum* is unquestionably the finer of the two, the flowers larger, stronger, and in every way more striking. The markings in the two kinds are very similar. *Elliottianum* has the same distinctive chocolate bands from base to apex of the two sepals, the same



Miltonia Phalenopsis.

people do not know any better. They have never had to grow this and its pretty rivals, *M. Phalenopsis* (see illustration) and *M. Roezli*. But there are many good cultivators who fail with *M. Phalenopsis*, and *M. Roezli* is oftener weak and infested with thrips than it is healthy and promising. The best plants I have seen were grown in a *Phalenopsis* house—not big specimens, but clean, healthy, well-flowered plants in 4-inch pots. They were watered overhead daily with a rose-pot, and shared with the *Phalenopsis* the moisture of the atmosphere, heat, and shade. *M. vexillaria* (see illustration) has been mastered by many, and one often meets with large quantities of it as vigorous and healthy as Leeks.

M. cuneata and *M. Regnelli* do better when grown in the same house as the *Vandas* and kept well supplied with moisture. The former is a very fine Orchid, with dark green strap-shaped leaves and an erect spike, a foot long, bearing

peculiarly shaped lip, and the same singular beak-like staminode, covered with bluish down, or rather dense hairs. The upper sepal in the flower of *Elliotianum* that I have seen was much smaller, though strikingly similar in colour to that of *Rothschildianum*, but even if they are both distinct, there is scarcely room for the two in the same collection.—T. W.

Dendrobium bigibbum.—One usually expects to find this species flowering in the autumn months, but I have been agreeably surprised to see this beauty in several collections this spring, and, indeed, where the mastery has been obtained over it, it would appear to be an almost perpetual bloomer. The flowers are round in shape, almost resembling those of a *Phalenopsis*, whilst the soft magenta-purple colour is quite unusual. Like all the species from North Australia and the neighbourhood of Torres Straits, it enjoys very strong heat.—G.

The Lizard Orchid (*Orchis hircina*) is now almost if not quite extinct as a British plant. It is a shameful thing that the writer of to-day's British flora would have to expunge fully half a dozen plants from the list of fifty years ago. Rarely indeed is it that this very interesting Orchid is seen in flower in this country, but some beautiful spikes were forwarded to me last year by Mr. Odell, of Pinner, who wrote that he had found it readily enough managed in the herbaceous border. As proof of this, two unusually fine plants were kindly forwarded to me, and I am glad at last to be able to live in hopes that this August I may flower so curious and rare a native Orchid. Stiffish loam with some calcareous matter would seem to suit it best.—A. D. WEBSTER.

Lycaste Skinneri.—From Mr. Sherwood's garden at Brixton comes the most intense coloured form of this plant I have ever seen, and Mr. Jones, the gardener, tells me this is the second year of its flowering, so that it may be reckoned as a permanent variety. In my own estimation it is not so handsome as the type, for I consider the thick, fleshy, half-white sepals such a glorious background for the deeper coloured petals and lip. As a coloured variety this is a wonderful form, the flower measuring 6 inches across, the sepals being broad, well formed, and wholly reddish crimson, not flaked nor flushed in any way, as one may occasionally see them. The colour is equally spread over the whole surface; the erect petals are deep crimson, whilst the lip is intense deep velvety crimson. The front lobe is margined with cream colour, the column being the only portion of the flower which is white. It is a truly magnificent variety.—G.

Habenarias.—I recommend the following method of growing these pretty hardy Orchids: Select a well sheltered position facing south or west, dig a hole about 18 inches deep and about 2 feet across and fill it up with Sphagnum, in which the roots of the *Habenarias* should be planted not later than April. The young leaves should be protected during the early spring against frost, and later on shaded, but after flowering the plants should be exposed to the sun. During the growing season *Habenarias* should be treated as bog plants. I have grown and flowered with great success *Habenaria fimbriata*, *H. psycodes*, *H. Hookeri*, *H. ciliaris*, *H. blepharophylla*, *H. tridentata*, *H. orbicularis*, *H. odoratissima*, and others. When planted in peat or any other soil, they rarely flower after the second season and dwindle away. I wish I was as successful with the pretty stemless *Lady's Slipper* (*Cypripedium acaule*); I have never succeeded in flowering it after the first year.—G. R.

Cattleya Trianae Ernesti.—All forms of *Cattleya Trianae* are beautiful, and several are now flowering in the large *Cattleya* house at Cambridge Lodge, Camberwell. Mr. Simpkins, the gardener, tells me this is the finest lot of *C. Trianae* he has been able to preserve from the fog for the last three years. London growers must either adopt means to exclude fog from the Orchid houses, or they must endeavour to prevent the plants flowering so early. Amongst these were numerous highly coloured forms, and also some extremely delicate

and pure white kinds. The most striking, however, was a variety named *Ernesti*, which has a very broad flower, the front portion of the lip being very richly coloured, while the petals have a large wedge-shaped lip of the same colour. These marks appear to be permanent, as it has flowered several years in succession and remains constant.—H. G.

ANÆCTOCHILI.

IN "W. H. G.'s" short note on these interesting warm house plants in a recent number of *THE GARDEN* he expresses the hope that importations will probably be the means of restoring them to popularity. Doubtless if plants can be obtained at a cheaper rate many will be willing to give them a trial, but it must not be forgotten that one cause of their declining in favour was the difficulty that so many experienced in their culture. Twenty years ago they were frequently met with, but in the majority of cases complaint was made of their not growing away freely. I doubt if any family of plants has baffled growers generally more than this. What seems strange is that after doing very well for a time in some particular place they all at once refused to thrive, although the treatment was unchanged. I have known this to occur repeatedly. The position and construction of the house in which they are placed and probably the water may alone suffice to determine the amount of success to be derived in their culture. With plants so hard to please, any deficiency in the quality of the latter would probably alone suffice to render successful culture impossible. I think this the more likely, as I have known cases where men who had previously grown the various species very well quite failed with them in another place. A skilful plant grower in the neighbourhood of London was some twenty years ago noted for his exceptional success with *Anæctochili*. He used to laugh at the idea of their being difficult to grow. "Too much fuss made about them," he used to say. "All that is wanted is a little common sense, and they will grow as well as any other warm house plant."

It happened that later on he took charge of a garden in another part of the country, and his failure there to grow *Anæctochili* was as signal as his success had been hitherto. It is almost inexplicable that, with command of the requisite warmth and means for supplying the necessary atmospheric conditions, so many really good plant growers should fail in the culture of *Anæctochili*, and it is no wonder they should in a great measure have gone out of cultivation. One of the best grown collections existed, I believe, at Black Rock, near Dublin, at the time that Mr. O'Brien was gardener there. If I was rightly informed, they were not grown in the orthodox manner, which consists in keeping them the year through under bell-glasses or in tight cases. They were, I believe, exposed to the same atmospheric conditions as the general occupants of the house. I was told that they gave no particular trouble, forming nice bushy specimens. It may be that we have been on the wrong tack in the culture of these little gems, making the mistake of over-coddling, that has been made with scores of plants that it was later on found did not require so much confinement or warmth. In the earlier days of Orchid culture thousands of plants were thus ruined, and I remember the time when it was thought impossible to grow such a Filmy Fern as *Todea pellucida* in any other way than in a close case in a warm house; whereas now one may frequently see good specimens of it doing well under ordinary treatment. I do not know the exact conditions under which the *Anæctochili* grow naturally, but now that we are likely to get importations of them, some useful information on this point may come to hand that will help to guide cultivators. Plants, too, will undoubtedly be obtainable at a cheaper rate than formerly. When small specimens of the best kinds with two or three leaves are not to be bought for less than half-a-guinea each, there is but little inducement to embark in the culture of plants so notoriously difficult to manage. I have a notion that they would do better if exposed to the full atmosphere of a house specially adapted to them than shut up in close

cases. A house with a low roof and sunken path, where atmospheric moisture could be easily maintained, would probably better meet their wants than any other form of structure. J. C. B.

Dendrobium Dominionum.—If I am not mistaken, this is the first hybrid obtained in gardens of this large and beautiful genus of Eastern Orchids, which are widely distributed in India, but which have not contributed largely to the recognised forms of natural hybrids. In various gardens I have recently observed some finely coloured forms which deserve attention at the hands of the Orchid cultivator as perpetuating the name of the first raiser of seedling Orchids at home. The plant in question is the result of a cross between *D. nobile* and *D. Linawianum*, the latter plant being perhaps better known by the erroneous name of *D. moniliforme*, by which appellation it was for years known and grown in English gardens. *D. Dominionum* is particularly bright in colour, especially in some examples which I have recently seen. The sepals and petals are white at the base, broadly tipped with bright rosy purple; the lip is marked in the same manner, the disc being of a much deeper shade of purple. It is an exquisite variety, especially for early blooming.—W. H. G.

Orchids from Weston Grove, Southampton.—From Mr. Smith, gardener to Mr. Moss, at the above address, comes a beautiful gathering of Orchids, the bright colours showing clearly that the flowers have opened in the country. Amongst them are a nice series of the old, but beautiful *Dendrobium nobile*. No. 1 is a light form with a very dark lip, flower large and bold; No. 2, flower larger than No. 1, the sepals and petals large, heavily marked with rosy crimson, with the base white, lip very long, round, and bold in front, the blotch of velvety crimson large and deep, a beautiful form; No. 3 is a handsome form, the flowers large and midway between those of the other two for colour, whilst that sent as *Wallichianum* is exceedingly deep in colour, the lip being more pointed in front and not recurved. Many highly coloured forms appearing amongst the recently imported plants are decided improvements and are highly prized. This species is very fragrant. There are also two good forms of *Cattleya Trianae*, the sepals and petals of one being unusually dark, whilst the light form is undoubtedly that figured some years ago in the *Floral Magazine* as *Cattleya Rollissoni*. Of *Sophranitis grandiflora* there were two very fine forms upwards of 2 inches across, the petals being round and of good substance. No. 1 is of an intense deep blood colour, whilst No. 2 is scarlet—as bright as a soldier's coat—these two forms being good representatives of the varieties called *grandiflora* and *coccinea*, if it were possible to obtain any other than colour for distinction. Flowers of a good variety of *Epidendrum Stamfordianum* and of a very pretty white *Cælogyne*, the name of which we must give next week, were also amongst this gathering.

SHORT NOTES.—ORCHIDS.

The durability of Orchid flowers when cut.—A number of blooms of *Cypripedium villosum* cut and placed in glasses on January 12 last are now almost as fresh and attractive as they were then. They are in an ordinary sitting-room: the water has been changed twice weekly, and I think it would be a difficult matter to find any other class of flowers that would remain perfect for eight weeks after being cut.—J. MUIR.

Odontoglossum baphicanthum.—A well-flowered plant of this was shown by Mr. B. S. Williams, of Upper Holloway, at the March meeting of the Royal Horticultural Society. It is a supposed natural hybrid between *O. crispum* and *O. odoratum*. The flowers have the form of those of *crispum*, and a pointed lip as in *O. Andersonianum*. The colour is soft sulphur-yellow, spotted with rich chocolate. It is a beautiful *Odontoglossum*, though scarce, and comes from New Grenada.

Highly-coloured Dendrobium nobile.—From Mr. C. King comes a fine form of this grand

old Orchid. He says it is from a recent importation from Assam. The colour is very deep and rich, but we do not think more so than many others which are now flowering from similar importations. The plant is widely spread, and perhaps the collector has selected the plants to send home; if so, the result is eminently successful and pleasing—one of the nicest series of flowers yet to hand, we have already noted, as having been sent by Mr. Moss, of Southampton. Although this species flowered with the Messrs. Loddiges, of Hackney, upwards of half a century ago, it is still held in the greatest esteem.

FLOWER GARDEN.

SAXIFRAGES.

THE genus *Saxifraga*, which formed the subject of Mr. Baker's lecture at the Royal Horticultural Society's meeting on Tuesday, March 12, is one of vast importance to all lovers of alpine plants. Mr. Baker did not, of course, even pretend to grapple with what are known as garden forms, his chief aim being to lay a foundation in a language we all understand as a basis for the cultivator to build upon. Mr. Baker has apparently based his classification of groups on much the same lines as those laid down by Dr. Engler in his "Monographie der Gattung Saxifraga," 1872, the notes and historical matter of which are very interesting, but written in German, and consequently a closed book to the general class of cultivators. The lecture or paper, which, we believe, is to form a part of the new journal, is a decided gain to English horticultural literature, although gardeners want much more before they can even begin to see through the haze of confusion that at present exists. How plants and plant names get confused, as we know them to be in this genus, is a mystery, and can only in a small measure be accounted for by the great popularity *Saxifragas* enjoy. The mossy section, which includes all the hypnoides forms, *decipiens*, *aphylla*, *muscoideus*, &c., carries the palm for confusion of names, and is closely followed by the *Aizoon* group, which includes most of the crusted varieties, well represented by *S. Aizoon* itself. Take, for instance, *S. decipiens* as defined by Dr. Engler, under which you get 14 synonyms, 10 of which are by botanical authorities, and the remainder garden names. The variety *Sternbergi* has 7 synonyms, *S. quinifida* 16, all, with the exception of 3, by botanical authorities. The synonyms of *S. Aizoon* would fill a page, and when we consider that most of those names alluded to above, with many additions from the dealer's fertile brain, are more or less in daily use in gardens and nurseries, a faint idea will be got of the amount of work to be accomplished before the nomenclature is cleared up. Nothing short of a conference will do much good in this direction, and that, too, on very broad principles. Lectures and notes are, no doubt, very beneficial, but "seeing is believing," and this old adage seems to be rigidly acted up to by many of our nurserymen, and we do not blame them much, as no one likes to alter a name when once he has become used to it. One could hardly object to a few synonyms, but when they reach such alarming proportions as given above and are being supplemented annually, it is more than the cultivator bargains for, and is the cause of no end of strife. When the package of supposed new plants is opened, the grower finds, to his great chagrin, old friends under, what are to him, new names, and which should have represented new plants.

As we have already stated, the paper has laid the foundation, but who is to build the house? So far as we can judge, it will require an

immense amount of time and patience, which can ill be spared by the busy men in the trade, who are doubtless best able to do it. Whoever takes it up will perform a great work, to the lasting benefit of his fellow men. Mr. Maw's work on the *Crocus* and that of Mr. Elwes on *Lilies*, the *Narcissus* by Burbidge, and numerous other works well illustrate this. The hybrids, of which there are fewer than one would suppose in a genus so largely cultivated as the *Saxifragas*, are mostly natural, being found in a wild state usually growing in close proximity to their parents. These for the most part have been taken up, named, and described by Dr. Kerner in *Oest. Bot. Zeit.*, 1870, and although doctors differ a little in the matter of their parentage, it matters little to the grower. We have the plants and all are agreed about their specific names. Very few cases of garden hybrids in this remarkable genus are known, and I think the only really authentic one is the *Megasea* raised by Mr. Smith, of Newry. *S. Macnabiana*, we are told, is a cross between *Cotyledon* and some form of *Aizoon*, said to have been raised by the late Mr. Macnab, of the Edinburgh Botanic Garden. I do not doubt Mr. Macnab having raised it, but I question its being a hybrid, and consider it merely a garden form of *S. Hosti*, and anyone taking the trouble to compare and examine for himself will see an exact counterpart of *S. Hosti*, with the exception of the larger, deeper-coloured spots on the petals, and which is demonstrated every day by selection. Another case is that of *S. Camposi*. This plant was said to have been raised (from a cross or otherwise we do not remember) by Mr. Wallace, of the Dean Cemetery, Edinburgh, and was sent out under the name of *S. Wallacei*. It has been proved beyond doubt, however, to be none other than *S. Camposi* of Boissier, a species we have been told that has been in cultivation at Kew and elsewhere for many years. These instances will suffice to show how easily mistakes are made and perpetuated, and also in a measure show the nature of the difficulties to be surmounted before we get everything into apple-pie order. Only last year a plant was certificated under the name of *Frederici-Augusti*, having been sent over as such by a Continental nurseryman. This, we are told, is none other than our old friend *luteo-purpurea*, and which is a hybrid between *aretioideus* and *media* (*calyciflora*). Then, again, seeds were distributed by Dr. Aitchison of what was supposed to be *S. afghanica*. This new species is allied to *S. Kotschy*, an ally of the *aretioideus* group. The seedlings turn out to be *S. ligulata*, and although this fact has been often pointed out, the plant is still being sold as *S. afghanica*. These are only a few examples of the troubles that are continually annoying the cultivator, who, naturally, is ever on the alert for additions, and until he finds out from hard experience, supposes every new name to be such. If nurserymen and others would first submit a plant for the correct name previous to asking for a certificate, this crying evil would be to a very large extent modified, and might possibly be altogether averted.

D.

Flowers from the open air in Ireland.—The other day I received a gathering of *Daffodils* from Mr. Hartland, of Cork. They were a great surprise even to us so far south as London, and show most clearly how much more congenial the Irish climate is than ours, and how suitable it is for bulbs of this class. The blooms were large; indeed, a few of the sorts were larger and more highly coloured than I had ever seen them before. Mr. Hartland tells me they were all gathered from the open air. The names are as follows: *N. maximus*, *Tenby Daffodil*, *Golden Plover*, *variiformis*,

minimus, *cyclamineus*, in bloom since the middle of January; *cernuus*, very fine white, the segments almost as long as the trumpet; *nobilis*, apparently a large form of *variiformis*, and presumably not the *nobilis* of Redouté, which, we believe, has not yet been found; *scoticus*, *pallidus-præcox*, very fine; *Hartland's Leda*, apparently mid-way between *Bishop Mann* and *cernuus*, a fine trumpet, the segments twisted, as in *Bishop Mann*, and the edges reflexed, not flat, as in *cernuus*; *princeps*, *Henry Irving*, *Bishop Mann*, the flowers of which have much the habit of *cernuus*, more dog-eared, flowers larger, and the trumpet open; *Rip Van Winkle*, and *nanus*. What was most surprising, however, was a form of *N. poeticus*, almost as fine as *ornatus*, and near *angustifolius*; the bulbs, we are told, were received from Italy four years ago, and have been out of doors ever since; the leaves are now 14 inches high. This promises to be an acquisition if it retains its early flowering habit.

K.

AURICULAS.

IN answer to an inquiry, I gave in *THE GARDEN*, Nov. 24, 1888 (p. 487), a list of stage selfs which I said were good varieties and could be had at comparatively low prices; and added the remark that it was useless to give such lists as Mr. Douglas had given, as the varieties could not be got except at very high prices, and some of them not at all.

IN *THE GARDEN*, Dec. 29, 1888 (p. 605), Mr. Douglas disapproves of both my selection and my remarks. In doing so, he says he would rather have two he names—*Mrs. Potts* and *Heroine*—than all the dozen I named. Now, I did not condemn these varieties; I said they were scarce and dear as yet, and this is true. In connection with this, Mr. Douglas said *Stadtholder* he had not seen for years. I did not mention *Stadtholder* as one of the dozen just because it was so scarce; I mentioned it because of its colour—the only good yellow. I did not then know that there were other two yellows in the market. One of them, *Sunshine*, Mr. Douglas says he has had more than once too much stock of. I have made inquiries with the view of purchasing this variety, and find that Mr. Douglas himself has not any of it, or at least none of it to spare, and no one else has any. As to the other variety, *Buttercup*, I find there are only two plants of it in existence, and they are not to be bought. True, Mr. Douglas did not put these two in his list; but, notwithstanding what he says, most in his list are scarce and dear as yet.

Another point I would like to notice in Mr. Douglas's remarks. He says he would "take two good varieties and raise seedlings from them, and so be abreast of the times." Towards the end of his remarks (p. 606) the following sentence occurs about seedlings, and it is true: "It is necessary to raise an immense number of plants before any good varieties can be selected. But a prize may be found in a hundred, while a thousand plants may be searched in vain for one." Now I am far from advising growers from raising seedlings, just the opposite, but to advise a beginner who wishes to grow *Auriculas* to get two good varieties, and under these circumstances to raise seedlings to stock his frames or houses, appears to me absurd in the extreme. It would take him ten years to get a hundred presentable plants. It would be interesting to know whether the inquirer will in this follow Mr. D.'s advice or that of "W. S. B." and go into the market and buy good varieties at moderate prices. Perhaps when he thoroughly knows the points of the flower he may thirst after and purchase the newer, though not always better varieties.

W. S. B.

Seedling Auriculas.—I always make a point of sowing some seed of *Auricula* directly it is ripe, and some again in early spring. The pots are well drained, some rough soil is laid upon the crocks, and the pots are filled up to within three-quarters of an inch with a fine sandy compost. The seeds are then sown very thinly, and a very slight sprinkling of silver sand placed over them. Then the pots are stood on a shelf in the greenhouse,

kept well shaded from the sun, a piece of glass being placed over each, and a newspaper over this for shade. Directly signs of germination appear, the pots are stood in earthenware pans of water which are about 1½ inches in depth, and shade is dispensed with. The pans are kept full of water until frost sets in, and then the water is poured away. The seedlings are now nearly ready to prick off into store pots. I should do it at once had I a little bottom heat in which to place the store pots; failing this, I have to wait till fine weather. A good many of the seedlings will flower in the autumn of the present year.—R. D.

Daffodils.—The short discussion between "F. W. B." and myself on the *Narcissus* may do good, and cannot do any harm. I merely wrote of what I saw in Holland, and the discussion may be the means of stimulating our home growers. I have no bias one way or the other. Mr. Murphy's remarks also at page 214 may require explanation. His trial was not a fair one. He planted six bulbs of *N. cernuus* grown in Holland on October 3, one

words on this subject might fancy that I had given some preference to the Dutch growers over the English in this respect. Moreover, "F. W. B.," unconsciously no doubt, says much the same as I did, but he puts it in another way. He says: "We—that is, Irish and English growers—want a little of the Continental confidence and enterprise." As a buyer of bulbs myself and not a seller, I purchase from the English trade firms, and leave it to them to obtain for me the bulbs from where they think best. It is to their interest to supply their customers with a good article, and I fancy that in this respect they are not behind the Dutch in confidence or enterprise.—J. DOUGLAS.

PAPER-WHITE NARCISSUS.

WHAT a misfortune it is that English bulb growers have not, so far, been able to check their Continental friends in the importation of the *Tazettas* in general, and such kinds as the Paper-white in particular, of which there are hundreds

the adjacent fields, bulbs of this species continued to live and increase during all the seven years of my residence there, with no protection but the dead leaves thrown over them in autumn. This proves that it can be grown in our island, and I have no doubt in many situations, by covering the bulbs with long straw during winter, advantageously for the market; it would probably require no protection whatever close to the sea. A deep sandy loam, rather moist than dry, and free from all manure whatever, is the soil I should recommend for it.

South of London we have seen this *Narcissus* do well and flower freely against an east wall with no other protection, and if this can be done with Paper-white the difficulty is much lessened in the case of the other *Tazettas*. *N. T. aureus*, *lacticolor*, *patulus*, *Staten-General*, and many others we grow annually as border plants, and find them as satisfactory as the other classes of this genus. *N. papyraceus*, or Paper-white (see cut), is certainly by far the most useful and beautiful of the early-flowering *Tazettineæ*, en-



Narcissus Paper-white.

in the centre of a 6-inch pot. It would have been better for the bulbs if he had planted three or even six bulbs of *N. cernuus* in a 6-inch pot. Mr. Murphy must be aware that these bulbs were three months out of the ground. Then he goes on the same day in the month to a "sunny south border" and digs up another half dozen of *N. cernuus* and pots them at once. Surely he does not call this a fair trial! The Irish bulbs had three months' start of the Dutch ones; nor do the Dutch growers plant their *Narcissi* on sunny borders. I take it they were all potted in the same way, one bulb in the centre of a 6-inch pot. Our Irish friends must not be illogical. A trial of Irish, Dutch, and English bulbs, to test their value as forcing plants, if conducted fairly, might be of some value, but I would avoid the evil of over-potting if the best results are expected. In my first note on this subject I said not a word on the raising of Daffodils from seeds. "F. W. B." has introduced this on his own account. Readers who missed my first few

of thousands brought annually to this country. In the case of the Paper-white, Scilly White, and a few others, the difficulties are doubtless very great, but many of the *Tazettineæ* grow with remarkable freedom in the southern districts, and there seems no reason why such varieties as *Staten-General*, *Gloriosa*, &c., should not be supplied from the home market. There are many other bulbs, such as Tulips, Hyacinths, Crocuses, Scillas, &c., that could be grown at home in sufficient quantities to supply the demand of the British market, it having been proved beyond doubt that, especially in the case of Tulips, home-grown bulbs are far superior to those annually imported from the Continent. Mr. Salisbury, writing in the *Transactions of the Hort. Soc.*, vol. i., says of Paper-white:—

At Mill Hill, under the shelter of a Laurel on the terrace, where the soil was deep loam thrown up from

hanced by the fact of its being had so early in flower as Christmas, even in an ordinary greenhouse. We are told that tons of these flowers in a bunched state are sent to Covent Garden Market annually chiefly from the Continent. There are several forms, all of which are desirable for the greenhouse in early spring. K.

Yellow Calceolarias.—These useful plants will now need more space, as they will be growing freely, and unless one gets them finally planted out early in the season there is great danger of considerable losses if hot and dry weather sets in before they get well established. The way we treat them is to spread about 6 inches of good soil such as would come from old hotbeds, or rotten turf and manure well mixed together on to a firm bottom of coal ashes, and in this the plants are put out about 6 inches apart and covered with spare lights for a week or two, and then nets or tiffany are sufficient.

Calceolarias when they get well inured to the air will stand a few degrees of frost without injury, and by the end of April they may be safely planted out. The points should be pinched out to induce a well-branched head of shoots, and in planting out we cut down right through the soil to the ashes, and each plant can then be lifted with a good ball of earth. If replanted at once and one good soaking of water given to settle the soil, no further watering will be necessary for several weeks. If the soil is shallow and liable to dry quickly, a coating of short manure or Cocoa fibre on the surface will help to keep the roots free from drought and keep them safe from going off suddenly, as they are liable to, just when they are in full bloom, and thereby make unsightly gaps in the flower garden. After trying many sorts, I do not think there is any to surpass Golden Gem either for habit or freedom of flowering.—J. G. H.

FLOWER GARDEN NOTES.

HARDY SPRING FLOWERS.—The cold sleet, rain, and sharp frost that continued for three weeks have been succeeded by real spring-like weather, and, consequently, hardy flowers are beginning to bloom most profusely. Primroses—hybrid seedlings—that before the cold weather set in had been in flower more or less the whole of the winter are now in splendid blossom, the old plants especially. Young strong plants—seedlings of last year—produce the finest flowers, but for making a display the large tufts three and four years old are best. Our main batch are planted on a narrow border having a northern aspect, and, consequently, get little sunshine throughout the summer, and, as a matter of course, never get so dry that growth is checked. To this fact I attribute their early and free habit of flowering. The seedling plants of the last few years that we have saved have all been self-sown, and it appears to me that they come just as good as if much labour was expended on seed-saving and sowing. For spring bedding it is necessary that they should be planted in the autumn as soon as summer-bedding plants are taken up. They then flower superbly by the middle of April, but if planted later than the date in question they will most likely be in their best form about the time that they ought to be removed to make room for summer-bedding plants. I have planted many of these hybrid varieties in the woods amongst common Primroses, and already there are a great number of coloured flowered self-sown seedlings amongst the common Primrose, but none that can be called good, a dingy brick-red being the prevailing tint. Crocuses are in their best form now. We have a number of clumps under old fruit trees in the kitchen garden that have occupied the same spot without being disturbed for many years, and they are grand in the extreme. Why should not our orchards be garnished with Crocuses? They are just as good for that purpose as Daffodils, Snowdrops, Cowslips, and Primroses. I certainly give preference to planting them in clump fashion in orchards, or in front of shrubs on the lawn and on rockwork, rather than in straight lines, the form in which they are most generally used. On some rough rockwork at this place, mainly planted with hardy Ferns, and which for the most part are now frondless, we have a few clumps of Crocuses, supplemented with clumps of the winter Aconite (just out of flower), Snowdrops, Scilla sibirica, Primroses, Daffodils, wild Hyacinths and a few other plants that carry on the display till the Ferns again fill out the space. But amongst them all none are more beautiful than the Crocuses in small clumps of various colours. On the rock-work proper, Aubrietias, Iberises, and the prostrate Phloxes will very shortly make a fine show, and we have recently been adding to this section of early flowers the white variety of *Viola cornuta*. The yellow and blue we had previously, and also a few tufts of white *Viola Mrs. Grey* and Cliveden Purple Pansy. We have no beds that are wholly devoted to spring flowers. Hyacinths, Tulips, and Narcissi we plant in mixtures amongst Roses, and these all being dwarf and now pruned, protection to the flowers on frosty nights can readily be applied by

stretching tiffany over the Roses. The frost had loosened the soil from about most of the plants, so that it was necessary to press it firmly about them again, and this having been done, a fresh mulching of Cocoa-nut fibre was applied, and now all looks neat and trim. The extra layer of fibre will, it is hoped, prove sufficiently protective, so that the pressing operation will not again be required.

FLOWERING SHRUBS.—There will shortly be a number of species and varieties of these in flower, but at present I mean to note only three that for some time have been flowering most freely, and therefore, though common and well known, are deserving of greater attention, especially by those who have to produce flowers of some kind or other all the year round at as cheap a rate as possible. The first is *Laurustinus* (*Viburnum Tinus*). Our trees are now literally clothed with blossom, and have been more or less in flower all the winter through. The plants that are sheltered from north and east are much the best; the flowers, being large and pure white, are found invaluable for cutting. If cut with a good length of stem and foliage attached they make a good foundation for a large vase or basin on which to thinly arrange red Camellias, and for small upright specimen glasses nothing can look more chaste than a single spray and a red Carnation or a small double-flowered pink Geranium. *Andromeda floribunda* is flowering in perfection. It is a very slow-growing shrub and sometimes shy of flowering, more especially if at all overshadowed by other trees and shrubs. An open, even an exposed position appears to suit it best. It is a most suitable plant for Heath beds; three or four well-flowered bushes planted here and there in a large mass of *Erica herbacea purpurea*—now in full flower—would be a grand sight. I think it is deserving of as conspicuous a position amongst flowering evergreen shrubs as *Kalmias* or *Rhododendrons*, and not the least of its merits is early flowering. Yellow-flowered *Jasmine* (*Jasminum nudiflorum*).—We have a north wall, trellised, which is completely clothed with this plant, and except during the sharpest frosty weather we have been gathering flowers almost daily for weeks past, and it is still a sheet of yellow. I know no early flowering plant that is so well suited for clothing a north or east wall. The best variegated *Ivies* are perhaps better all-the-year-round plants for that purpose, but those who have a preference for flowers should grow this *Jasmine*. Our plants were planted at least a dozen years since, when the soil was specially prepared for their reception by heavy manuring and deep trenching, since which time not a particle of fresh soil or manure has been given; in fact, the border is turfed over. It will be seen by this that the plant does not require much attention as regards cultivation and in respect of training or pruning; the trellis having for years been well filled, the first is not necessary, and pruning is expeditiously performed by clipping with hedge shears to within about 6 inches of the trellis as soon as the flowering season is over. W. WILDSMITH.

SHORT NOTES.—FLOWER.

Scilla bifolia was very fine early in March in Messrs. Barr and Son's nursery at Tooting. It is one of the most beautiful of early spring flowers, coming in just before the blue-flowered *Chionodoxas*, *C. sardensis* and *C. Luciliae*.

Helleborus foetidus.—The strong spikes of greenish flowers of this Hellebore are not very ornamental, but it is worth growing for its large masses of deep green foliage. A few clumps of it were very striking the other day in the Tooting Nursery.

Increasing herbaceous Phloxes.—Established plants of these are already active, and if it is desired to increase them by division no time should be lost in doing so. The whole clumps may be dug up, divided into two, three, four or more pieces, and replanted, or part of each may be taken away and the other allowed to remain undisturbed. In replanting abundance of manure should be given at the roots, as fine Phloxes are never obtained from poor soil.—J. MUIR.

Carnations sporting.—Allow me to express my thanks to M. Rowan and R. Deal for their answers to my queries on the Carnation sporting. I have not had

a long experience in the cultivation of these flowers, but they are my special favourites, and a few hints from some of your correspondents respecting their culture are very helpful. The purple bizarre is the class in this district that sports more than any other. I do not know whether this class is generally more disposed to sporting than the others.—YORKSHIRE.

The Caucasian Scabious.—Referring to the remarks of Mr. Butt in reference to this plant on p. 216, there is no doubt that on some soils, perhaps not on heavy or wet clay lands, this plant is a true perennial. My garden is a light decomposed granite soil, not far from the rock, about 300 feet above sea level, in the County Armagh, and quite exposed to all the winds that blow. I raised this Scabious from seed, obtained, if I remember aright, from Thompson, of Ipswich, the year it was sent out as a novelty, and now the plants which I retained have grown into strong clumps, which give a large number of flowers every summer and are highly esteemed for cutting. I heard some two or three years ago of a variously coloured strain of this plant which had been raised in the south of Ireland, but have failed to learn anything further about it.—W. J. W.

EVILS OF GRAFTING.

"SCION," speaking on this subject (GARDEN, March 9, p. 221), says: "By all means let us use grafting in the best known way until some better way is discovered, but do not let us sit down and placidly accept grafting in any of its phases as the best and only way." Certainly; when a better way is proved to cultivators, rest assured they will not be slow in adopting it; but, as yet, it is not proven, viewing the question as a whole. "Scion," at the commencement of his article (page 220), quotes from three recent papers passages, which, he says, "all condemn grafting to some extent." To some extent, yes, when the best way is not followed. The advice in the original article which gave rise to this discussion, however, was the total abolition of grafting. I cannot conceive of a practice which is so radically wrong, as "Scion" and "F. W. B." would have us believe grafting to be, gaining such universal favour and maintaining its hold so long. The wonder is, if such is the case, that it has not long ago been consigned to oblivion. Gardeners must, indeed, be very slow of comprehension. I would not write a word in support of grafting did I not believe that in every garden greater proofs of its utility exist than can be advanced to the contrary. Surely if own-root fruit trees are so much superior to grafted ones, one orchard or plantation could be found in support of the assertion. As it is, Damsons are the only fruit at present cultivated to any extent in this way.

"Scion" says: "I am evidently still a believer in the hardy or vigorous stock, forgetful of the fact that a headed-off stock is entirely overruled by the scion worked upon it"; and by referring me to page 152, seems to infer, after what is there advanced, that I should not have hinted at such a result. I am fully alive to the fact that the scion exercises a great influence over the stock, having frequently observed it. I did not, however, confine grafting to working a weakly scion on to a strong-growing stock, but only spoke of it as one of its phases. Still, I cannot accept the theory that the scion thoroughly dominates the stock; if so, how is it that dwarfing stocks produce miniature trees and the Quince adapts the Pear to cold, heavy soils by rooting upon the surface, and thus avoiding the cold subsoil?

I must, therefore, still adhere to the opinion that it is the hardy and vigorous character of the roots possessed by the stock which benefits the scion, when we graft with that object in view. I do not say the stock will so change the character of the scion as to convert a Hybrid Perpetual Rose into a rambling wildling like the Dog Rose it is worked upon; neither do we desire such a result, but only endeavour to utilise its hardy roots. The act of digging up a Brier from the shelter of its native hedge and sticking it in the middle of an exposed garden and there grafting it is, I admit, one of the abuses of grafting; but this does not prove that the Brier cannot be advantageously used

as a stock for Roses; on the contrary, abundant evidence can be adduced in its favour.

It is, I think, beside the mark to introduce Mangoes, Bananas, &c., into this discussion in support of the method of raising fruits from seed. I cannot help thinking that "F. W. B." (p. 152) draws an ideal picture when he speaks of raising Peaches from stones, and selecting the strongest seedlings for cultivation. I very much fear it would be the strongest which would prove worthless, and that they, and not the weak ones, would find their way to the fire. Nature's plan may answer very well in a climate where the Peach grows naturally, but I think those who have had experience of its culture in this country will agree with me that it is totally unsuitable for us. When we compare the thousands of seedlings which have been raised in this country and in Europe to the small number of really good varieties in cultivation at the present time, some idea can be formed of the unreliable character of the seedling Peach. Messrs. Rivers, better perhaps than anyone in this country, are aware of the very large percentage of inferior and worthless kinds in a batch of seedlings, and although this firm has raised and introduced into cultivation several Nectarines equal, if not superior, to the then existing kinds, they would, I have no doubt, be the last to admit the superiority of their Peaches over Royal George, Bellegarde, and Grosse Mignonne. A grafted Peach tree will yield a crop of fruit the third year from the graft or bud, and if properly cared for will last a lifetime. What more do we want?—A. BARKER.

—"Scion" (GARDEN, March 9, p. 221) may be interested to learn that the practice of root-grafting for fruit trees is not new in this country. I used to see it practised by an old gardener more than twenty years ago, near to Southampton. He would sit by the fire in the winter evenings with his basket of roots on one side and his bundle of scions on the other. After grafting, tying securely, and making the plants into bundles, he planted them next day. I saw bushes, for they never became trees, which were thus produced, and I am not surprised that the practice of root-grafting was never utilised here by the nursery trade. Had we been tied during the past hundred years to root-produced trees or to own-rooted branches, we should indeed have been in a miserable position as to stocks of fruit trees, whilst the trusting to the production of trees from seed would have been quite a failure. All this hubbub about the evils of grafting arises from the fact that here and there some graft or bud unions, for it comes to the same thing, have turned out badly. In budding and grafting the percentage of mishaps is very small, whilst no stress is laid by pessimistic writers upon the enormous majority of successes which have resulted from the practice of grafting. If some few Conifers have turned out badly, and it would not have mattered if myriads of Conifers had never been raised in any shape, there are to be seen vast quantities of deciduous trees, Thorns, Ash, especially the weeping forms, as well as all other weeping trees, variegated trees, flowering trees of many beautiful kinds, Rhododendrons; indeed, myriads of trees and shrubs have done wonderfully well, and have thus grafted been cheaply and abundantly multiplied. But "Scion" (GARDEN, March 9, p. 221) is for limiting the range of the discussion to fruit trees at present, and submits certain propositions which he evidently regards as unassailable positions.

1. "Grafting is often badly done. Unsuitable stocks are frequently employed, and so far at all events grafting is wrong." Now that is absurd argument. Because grafting is sometimes badly done the fault does not lie with the system, but with the operation. On the other hand, grafting is in ninety cases out of the hundred well done, and I challenge "Scion" to prove such is not the case. If unsuitable stocks are employed the fault lies with the stock, not with the graft. The term "unsuitable," admitted in the proposition, practically admits the whole thing.

2. "Root-grafting is best, as it allows the scion

to throw down roots." Now, I want proof, and conclusive proof also, that scions when thus root-grafted do throw down own roots. It is a familiar phrase in the mouths of rosarians that Roses budded low down on the Manetti will cast down own roots. Is that satisfactorily proved? and even if so, is it also satisfactorily shown that such plants are better or stronger than are those not so rooted? However, "Scion" limits us to fruit trees; from whence, then, are illustrations of the theory put forth to be drawn? The proposition has no value until it can be proved.

3. "The plan of grafting weak growers upon strong-growing stocks is wrong," &c. Suppose it is, and it is only asserted, does that show that grafting on stocks which have affinity of habit is wrong? Take the dwarf Apple trees at Chiswick, for instance; how wonderfully have we seen Cox's Orange Pippin, Stirling Castle, and other Apples, the names of which I cannot now recall, producing crops from year to year, because worked on Paradise and Doucin stocks, with which the sorts have affinity. Again, note how many millions of examples we have in the country of strong-growing Apples worked on strong-growing Crab stocks, and which have developed into grand trees, and now form the backbone of our fruit crop. In this neighbourhood I can in a day's run find 10,000 Apple, Pear, Plum, and Cherry trees all grafted or budded, and all sterling successes. Is not such grand proofs as to success worth a thousand bare assertions?

4. In this proposition we find the full principle of grafting recognised with small qualifications. Our nurserymen are so alive to the needs for supplying the most satisfactory stock for everything they send out, that every care is shown in the selection.

5. This proposition requires proof. How it can be shown that grafting has led to a waste of force in gardens, remembering all the enormous benefits we have derived from the practice, I cannot perceive. Absolutely and fully I decline to admit any one item in this proposition. Its suggestions have no foundation in fact.

6. Is a mild sort of climbing down from previous propositions. "Scion" is alarmed at the structure he has erected, because he finds the foundation is so insecure. It is a terribly involved proposition, and seems to mean anything. What is meant by this: "It is by no means proved that in many cases own-root fruit trees would not equal or surpass grafted ones in fertility or durability." Just so; it is not proven, nor do I see from whence the material is to come to afford the proof. But "Scion" does not mean that by any means. He thinks proof can be furnished, yet words his phrases so mysteriously as to show that he knows the proofs would fail.—A. D.

—Having spoken a few weeks ago of the numerous evils arising from this practice, we thought we should perhaps succeed in getting some common things in France which had not come under the baneful sway of the rapid propagator. But so far we have not succeeded. Here are a few words from the proprietor of one of the most extensive and interesting nurseries in France:—

It is here nearly as in England. Many shrubs are grown in the nurseries grafted, because they can be raised more cheaply in that way, and people do not know enough to appreciate the plants on their own roots, and be willing to pay more for them. We could not supply *Prunus triloba* and Medlars otherwise than grafted.

We really are in the clutches of an enemy to progress. The beauty of many of our fine shrubs is marred by this distorting if convenient practice. But we doubt very much that it is anything but an apparent gain to the nurserymen, because, although the vigorous common stocks they use may at first push growth, in the end it cannot be so vigorous, we think, as on the roots of the things themselves. Certainly it cannot be so natural, and it is no advantage to have a plant distorted into a more vigorous growth than it would naturally show. We feel this particularly when such pretty little shrubs as the double Chinese Plum are grafted on the common wild Plum. The nurserymen will not even take the trouble to give us good healthy plants of Roses on their own roots. We failed to get them from the best Rose nurseries. People would begin

to counteract this evil themselves by getting their gardeners to layer plants in the old-fashioned way, and also strike cuttings, so as to really judge of the difference of plants on their own roots and those grafted in the usual way. Our houses are not made for the convenience of the housemaid, nor are our gardens to be sacrificed to the supposed convenience of the propagator.

The interests of the public are the true interests of the trade. The people who practise this method are always ready to say that the other will not answer. For instance, we tried several nurserymen to get a plant of the Ribston Pippin on its own roots. To a man they said it would not do; but being asked if they had ever seen the Ribston on its own roots, they said they had not.—Field.

—Had anyone asked me, could own-root Medlars have been got, I should have replied right off, yes; but on receipt of your note to-day I turned up several lists in which I quite expected to have met with them, but was disappointed and surprised. It seems that in this case grafting on thorn has been followed so long, that no one has thought of doing anything else—not even sowing seeds! However, I fail to see what advantage an own-root tree in this case would have over a grafted one. I am pretty well acquainted all round, and generally know where to lay my hand on any special thing required, but this is a puzzle. Curious thing if there is not an own-root Medlar in Rivers' nursery, if they would only look!—T. SMITH.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

A SHOW of spring flowers has a freshness and beauty essentially its own. It can be made the most enjoyable of the season when encouragement is given to hardy and alpine flowers, Hyacinths, Tulips, and Orchids, and thus at the exhibition in the Royal Botanic Society's gardens on Wednesday last there were many really good plants to be seen. There were certain exhibits that would be better removed. The pots crammed with Crocuses were undeniably vulgar, and had not a single redeeming feature to recommend them, except it may be the block of colour they made. Such eyesores should be done away with. The Hyacinths, Tulips, and other spring-flowering bulbs were scarcely so good as last year, although the exhibition, taken as a whole, was infinitely better. This is evidently not a bulb year, and from various quarters we have heard complaints that the Hyacinths and Tulips are not up to the average. There were so many certificates given, that we cannot give a detailed account of each plant so honoured. We should heartily approve of a reform in this direction.

The Orchids from Messrs. Sander and Co., St. Albans, were choice and well grown. There were several beautiful varieties of *Cattleya Trianae*, one of the best being the very delicately coloured *ampliata*, the lip of which is very large and of the softest pink imaginable, set off by the shading of orange in the throat. *Splendens* is also finely coloured, the broad petals and sepals just touched with pink; the lip very large, purple in front and yellow in the throat. *Grandis* and excellent are also well-marked forms. *Oncidium bifolium majus* has a large lip of rich yellow, the plants very free flowering. Besides these were such Orchids as the almost perpetual flowering *Odontoglossum Rossi majus*, the beautiful *Cattleya Loddigesi*, the orange-scarlet *Lælia cinnabarina*, the pure white form of *Lycaste Skinneri alba*, *Brassia picturata*, *Odontoglossum Edwardi*, *Dendrobium Brymerianum*, *D. thyrsiflorum*, *D. nobile splendidissimum*, and *Neottia corallina* (silver medal). Mr. Douglas, Ilford, showed a well-flowered plant of the deep violet-purple coloured *Odontoglossum Edwardi* and also of the exceptionally free and useful pure white *Angraecum Sanderianum*, an Orchid that has fulfilled the bright promises expected of it. Messrs. J. Veitch and Sons, Chelsea, showed an interesting group, of which the *Amaryllis* formed the best part.

One named Optima is the finest variety that has come from the Chelsea nursery. The flowers are fully 9 inches across, rich scarlet, massive and even; Finette, a light-coloured variety feathered with scarlet; Mirabella, very neat, white, feathered and veined with scarlet; Julius, scarlet; Scipio, white, feathered and veined with scarlet; and Lustrous, scarlet, a very even flower, completed a rich series of the florist's Amaryllis. Messrs. Veitch also showed the curious Amorphophallus Rivieri, described in "Notes of the Week;" Azalea obtusa alba, a white-flowered variety from Japan; greenhouse Rhododendron Princess Beatrice, the flowers buff-yellow; the new Nepenthes Dicksoniana; and Calanthe vestita oculata gigantea, a noble late-flowering Calanthe, described in "Notes of the Week," (p. 229); Dendrobium endocharis, a hybrid between aureum and japonicum, a deciduous variety, the narrow sepals and petals white, with a fur of dull crimson, surrounded by a cloud of greenish yellow in the throat of the lip; D. splendissimum grandiflorum scarcely justifies its high-sounding name—it is a cross between aureum and nobile, and has more of the nobile character in it; and D. Schneiderianum, which was described in our report of the March meeting of the Royal Horticultural Society. There was also exhibited plants of the beautiful Boronia heterophylla. One of the best plants in the exhibition was the splendidly-flowered Rhododendron Veitchi, from Mr. Banks, gardener to Mr. E. Gotto, Hampstead; it well deserved the cultural certificate given it. A coloured plate of this Rhododendron was given in THE GARDEN, September 18, 1880; and an illustration of it was also given in the number for March 16, 1889 (p. 237).

There were the usual exhibits as in previous years. Mr. Douglas's twelve Hyacinths were excellent, strong, well grown, and not rough. Such self colours as King of the Blues, Souvenir de J. H. Veen, and La Grandesse are much more effective than the pale tints. He was first, and Mr. H. Eason, gardener to Mr. B. Noakes, Hope Cottage, Highgate, who exhibited well, second. The twelve Hyacinths from Messrs. H. Williams, Fortis Green, Finchley, were also worth noting. This firm were first, and also in the trade class for Tulips. Mr. Eason had the best twelve Tulips, and in all the classes the richly-coloured Kaiser Kroon, Vermilion Brilliant, and the pure white Pottebakker showed their immense value at this season for the greenhouse. Messrs. H. Williams & Sons had the best twelve pots of Narcissus Polyanthus. It would be well if amateurs grew more of such varieties as Her Majesty, Princess of Wales, Jaune Supreme, Bazelman major, Sir Isaac Newton and Gloriosa. We may dismiss the pots of Crocuses by condemning the style adopted of exhibiting these spring flowers. A very interesting exhibit was for twelve bulbous plants, and a beautiful group of remarkably well-grown plants was put up by Messrs. Paul and Son, Old Nurseries, Cheshunt. We have seldom seen the spring Snowflake, Iris reticulata, Bulbocodium vernum, and Chionodoxa Lucilæ finer. Mr. T. S. Ware, of Tottenham, was second. A fine pan of the white Scilla bifolia alba was shown, and a plant of the beautiful Iris Rosenbachiana. It is strange more interest is not centred in the Freesias. There was no exhibit in the class for them. They are amongst the easiest grown, most fragrant, and beautiful of spring flowers. Mr. H. Eason had the finest specimens of Deutzia, and Mr. Douglas came first for twelve Amaryllis, with good varieties, Messrs. Paul and Son, Cheshunt, being second. The latter had a variety named Dark Beauty, the colour very rich. The best twelve Cyclamens were shown by Mr. D. Phillips, Langley Broom, Slough, who was first in both amateur and open classes. The pots of Lily of the Valley exhibited by Messrs. H. Williams and Sons were full of flower, and the same remark applies to the six plants of Chinese Primula from Messrs. H. Cannell and Sons, of Swanley.

The cultivation of greenhouse Azaleas in specimen form has almost run its course. No first prize was awarded in the trade class, though there was an improvement in the class for amateurs. Mr. H. Eason showed six excellent specimens, the principa-

varieties being Model, bright rose; Roi d'Hollande, rich scarlet; and the well-known Apollon.

Two very interesting classes were for hardy Primulas and hardy herbaceous plants. Mr. T. S. Ware was first in the last-mentioned class. The group contained fine plants of the noble Lilium longiflorum Harrisii, Narcissus Empress, N. maximus (the finest we have seen this season), Horsfieldi, and Dielytra spectabilis. Messrs. Paul and Son were second for a very choice series of hardy flowers. Androsace Lageri, Saxifraga luteo-purpurea, Sisyrinchium grandiflorum album, Hepaticas, and Narcissus lobularis were well flowered. Mr. J. Douglas had a good assortment of hardy Primulas in the class for these. There were such kinds as the snowy white viscosa, pubescens, and cashmeriana, besides a self variety named Marcus Aurelius, deep purple, with white paste. Messrs. Paul and Son were first for six plants of forced Roses.

There were several miscellaneous groups. Messrs. W. Cutbush and Son, Highgate, had a bank of Hyacinths and other spring-flowering bulbs embedded in Moss, so as to hide the pots. A silver medal was given. The group of Roses from Messrs. Paul and Son was fresh and beautiful. Such standard kinds as Violette Bouyer, Celine Forestier, Alphonse Souper, and Innocente Pirola were excellent, and the lovely series of Polyantha kinds with the single-flowered, though showy berberidifolia Hardyi were exceptionally welcome (bronze medal). Mr. R. Scott, gardener to Miss Foster, The Holme, Regent's Park, showed excellent specimens of Imantophyllum miniatum, and the group of Lily of the Valley from Mr. T. Jannock, Dersingham, Norfolk, is worth a note for its unconventional, pyramidal style of showing it, a vast improvement on the usual method adopted (bronze medal in both cases). Messrs. H. Williams and Sons had double Daffodils, Tulips, Azaleas, and a crowd of other spring flowers, for which a silver medal was granted. The group from Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, contained splendidly flowered specimens of Imantophyllum (see "Notes of the Week" of the present number), giant strain of Cyclamen, Chinese Primulas, Amaryllis, and the old, but beautiful Camellia reticulata (silver medal). Cyclamens were shown by Mr. Hibburt, gardener to Mr. W. Clay, Kingston, and Chinese Primulas in several varieties, together with Cineraria blooms representing their fine strain by Messrs. Carter and Co., High Holborn (bronze medal). A very fine group of Cyclamens was that from the St. George's Nursery Company, Hanwell. The plants were strong and full of flower (bronze medal). Such remarks may also be made with respect to that from Mr. John Odell, Goulds Green, Hillingdon. A variety named striatum was certificated. It was of a novel colour, but we object to striped flowers of this kind; they are weak and not decided in colour (bronze medal). Mr. J. James, Woodside, Farnham Royal, had a display of his superb Cinerarias, to criticise which is needless. Advance, white, with a magenta margin, and Sybil, blue, white centre, are of good colour. The same exhibitor showed Cyclamen Faust, a dark-coloured variety (bronze medal). Mr. Phillips had Cyclamen Avalanche, white, and Princess Teck, rose, purple base—two promising types. A Cineraria named Emperor Frederick, the petals fluted, and forming a handsome distinct flower of rich purple-crimson colour, came from Messrs. J. Carter and Co., of Holborn. It is quite a break away from the ordinary type.

Messrs. Wm. Paul and Son, Waltham Cross, exhibited six boxes of cut Camellias, representing many beautiful varieties (large bronze medal). Messrs. H. Cannell and Sons, Swanley, showed flowers of their beautiful strain of Cinerarias and Chinese Primula, rich crimson. A delightful display of Daffodils was made by Mr. T. S. Ware, and an exceedingly interesting group, consisting of Crocuses, Hepaticas, Chionodoxas, and Colchicums in rich variety, also Iris Rosenbachiana and the compact and pretty Puschkinia libanotica compacta, was shown by Messrs. Barr and Son, Covent Garden (bronze medal in both cases).

THE GARDENERS' ORPHAN FUND.

THE committee of the above fund called a meeting of growers and stand-holders of the wholesale flower market to confer with them in reference to the proposal to hold a second Covent Garden fête in aid of the fund, and the gathering took place at the Hummums Hotel, Covent Garden, on the 8th inst., at 8 o'clock, Mr. George Deal presiding, there being a large attendance both of growers and committee. After an opening address by the chairman, in which he set forth the points of the programme the committee were desirous of carrying out with the consent of the growers, the following resolutions were unanimously passed: "That this meeting, consisting mainly of growers and stand-holders of the wholesale flower market, Covent Garden, cordially agrees with the proposal to hold a second evening floral fête in aid of the Gardeners' Orphan Fund, and having heard with pleasure that his Grace the Duke of Bedford has kindly granted the free use of the market for this purpose, hereby pledges itself to render the best assistance in its power to successfully carry out the same, and to co-operate in general with the executive committee of the fund." Proposed by Mr. Messer, of Edmonton, seconded by Mr. Hawkins, of Twickenham. "That the following gentlemen be appointed as a committee to represent the growers and stand-holders for the purpose of co-operating with the officials of the Gardeners' Orphan Fund in organising and assisting to carry out the necessary arrangements of the fête." Proposed by Mr. Assbee, of Covent Garden, seconded by Mr. Stroud, Leyton. It being arranged that ten representatives of the growers should form this committee, thirteen of their body were nominated for the purpose, and the election being taken by a show of hands, the following were declared duly elected: Messrs. Messer, Lewington, Hawkins, H. B. May, E. Rochford, T. A. Dickson, Geo. May, J. W. Baker, Cattaneo, and G. Poulton.

"That a special badge be granted to each stand-holder or his representative admitting him to the market, and that a ticket be also given admitting a friend." Proposed by Mr. Clark, and seconded by Mr. Lewington.

Some discussion then took place as to the most suitable date; eventually it was decided by a large majority that the fête should take place on Wednesday, May 8.

The chairman read a letter from the president of the fund, Sir Julian Goldsmid, Bt., who stated that he is happy to hear his suggestion as to a charge for admission is approved.

It was suggested that the tickets of admission should be limited to 2000, but that is a point to be further considered.

Death of Mr. Murray.—We regret to hear of the death of Mr. Murray, which occurred at Frogmore, Windsor. He worked in the Royal Gardens for many years, and had lately been pensioned by Her Majesty. He was 70 years of age.

Names of plants.—*Ajax*.—1, Lomaria Spicant; 2, Ceterach officinarum; 3, a Lastrea, specimen insufficient; 4, Asplenium marinum; 5, Polystichum angulare; 6, Asplenium Trichomanes.—*T. F. W.*—1, Cologne cristata Lemoniana; 2, C. flaccida; 3, Anagrum Sanderianum; 4, Phalaenopsis Esmeralda.—*Momus*.—1, Neckeria crispata; 2, Polytichum commune; 3, Grimmia pulvinata; 4, Splachnum ampullaceum; 5, Trichostomum polyphyllum; 6, Tortula subulata; 7, Dieranum glaucum; 8, Bryum rostratum; 9, Bartramia arenata.—*T. B.*—1, Cologne barbata; 2, Vanda coarulescens.—*Congo*.—Anagrum subulatum.—*T. H. A. H.*—Lastrea recurva.—*MacP.*—1, Cypripedium tonsum, more spotted than usual; 2, C. parvum—two flowers on a spike was the style of the original plant; 3, C. Sedeni candidulum (Veitch's form).—*C. W.*, *Beigate*.—1, Cologne flaccida; 2, C. lentiginosa.—*W. W. W.*—1, Adiantum peruvianum; 2, Notholaena rufa; 3, Pteris floussa; 4, Litobrochia vespertilionis.—*Titmouse*.—1, Acacia platyphylla; 2, Boronia tetraphylla; 3, Erica barbata; 4, E. scabriuscula.—*Fritz*.—Your specimen appears to be Trichomanes pyxidiferum, but being without fruit, cannot say more.

WOODS & FORESTS.

THE SCOTCH FIR AS A TIMBER TREE.

In a former paper upon this subject I briefly glanced at a few facts in connection with the quality of the wood of the Scotch Fir as found on different classes of soil as well as at different elevations above sea level. I will now show that the wood of the tree when properly matured, cut up into scantlings, and seasoned is capable of being used by builders for all the purposes for which the best class of foreign Pine timber is used in this country. When supplying this class of timber for large and extensive building purposes in the Highlands of Scotland, the contractor was bound to use the best of foreign Pine timber for the making of doors, windows, flooring, &c., but in course of time it was clearly shown that the timber supplied by me from the natural forest was equal and in some cases better than a great deal of the foreign stuff used for various purposes. When the Scotch Fir is thoroughly matured and seasoned before being used it is all that can be desired even for the finer sorts of work in connection with house-building. Acting upon a suggestion of the late Prince Consort's, the whole of the wood required for building one of the new cottage houses upon his property was supplied from the natural forest, and as I took particular pains to have the wood thoroughly seasoned before being used, the work proved in every way to be highly satisfactory. This was a step in the right direction, and if proprietors would copy and follow the example as here set forth, I have no hesitation in saying that it would be to their advantage in more ways than one.

I could give further examples where the wood of the Scotch Fir has been successfully used for house-building, but this, I think, is unnecessary, seeing that the character of the wood for durability is admitted by the majority of people to be of a high standard. In cases where this is denied, any defect that has been found may be traced either to the texture of the soil in which the trees have been grown, the locality, using the wood before the trees were matured, or want of proper precaution in having the wood well seasoned before being used. There are a great many purposes in house-building where the timber can be used without being seasoned, but in all cases where the wood is used for the finer class of work, thorough seasoning becomes indispensable.

In order to show how durable the wood of the native Scotch Fir has proved to be, I may state that in course of repairing roads and bridges where the wood of this tree had been used for the construction of the latter, I found the beams and the principal timbers as fresh and resinous as when placed in position. Further, I have actually had some of these old beams carted to the sawmill and cut up for other purposes. I regret that I am unable to give the exact number of years during which this old wood had been in use at the bridge, but I take it for granted that it must have covered a considerable space of time, from the fact that none of the inhabitants of the place could give me any reliable information upon this head. In the course of carrying out estate improvements both in this country and in Ireland, I have occasionally had to pull down and remove old dilapidated houses, and in all cases where the roof consisted of Scotch Fir timber it was generally found to be of a hard firm texture, and although in many cases it had become of a black or brownish colour through age, yet it retained its freshness. Now if we contrast the quality and

durability of its matured timber with the hardness of the tree and its capability of growing and attaining a useful size on bleak, exposed situations, upon inferior soils, and shelving rocks in mountainous districts of the country, it is evident that the Scotch Fir occupies a high standard of perfection for ornament, shelter and general utility. There can be no doubt that locality, independent of elevation above sea level, and soil are patent factors in promoting the formation and quality of its timber; and in discussing the merits and demerits of the tree this is a point which in a great measure has been overlooked by many writers upon the subject. Although this tree when planted in many parts of the south of Scotland and in England upon congenial soil suitable for its healthy growth and full development, often attains a large size, yet as a general rule the produce even of fully matured trees in these parts is inferior to such as is produced in the far north. This difference in the quality of the wood I attribute altogether to locality and not to soil, and this is borne out in a great measure by the trees themselves, for had the soil been unsuitable for their growth many fine specimens to be found here and there in the south could never have attained the size which they now present. Even in the north of Scotland, which may be said to be the natural home of the Scotch Fir, we find that not only are the growth and healthy development of the tree influenced by locality, but likewise the quality and texture of the wood produced. In many cases where the mixed system of planting has been carried out on the sea-coast, from the fact of the climate or locality being unsuitable, the Scotch Fir has never been profitable, yet Larch and Spruce Fir in the same plantation have attained a fair average size, thus showing that the Highland Pine is not adapted for planting in all localities alike. Examples of this may be seen along many of the sea-board parishes in the north, but in cases where the face of the country is of a hilly undulating character better results are obtained. In flat districts the influence of the sea air is apparent on the trees at a distance of some ten miles from the shore, while in hilly parts a few miles inland the Scotch Fir often attains the size of a profitable timber tree. J. B. WEBSTER.

The Cluster Pine at Holwood.—Rarely, indeed, have I seen either so many or so large specimens of the Cluster Pine (*Pinus Pinaster*) as are to be found in the woods at Holwood. In one of the plantations, of perhaps seventy or eighty years' growth, it would almost seem as if this Pine was intended for the permanent crop, so many specimens occur at stated intervals. Giant specimens, too, they are, for not one, but the majority have clean straight boles rising without a branch to fully 50 feet in height, and containing on an average 70 feet of timber. Generally one sees the Cluster Pine planted as a lawn tree, and then the stem is rough, crooked and uneven, and usually well clothed with branches, but when grown as a forest tree and in close contiguity to other fast-growing subjects, the appearance, as in the specimens just quoted, is quite different, the trunk being tall and straight and with smoother bark, and usually but a tuft of branches crowns the head. Valueless commercially though the Cluster Pine is, yet for sea-side planting and using in sandy soil where few other trees could eke out an existence, it is of great value, and has been largely used for this purpose both on the Continent and at home. The timber is of little value save for very ordinary purposes, such as the making of packing boxes and for firewood; indeed, for the latter use it may only be termed as second or third-rate. Some of the finest specimens of the Cluster Pine to be found in this country are growing in deep sandy or gravelly soil, or at least where a large percentage of such is pre-

sent, and I do not think that it is a tree that is at all tender, for it may frequently be seen growing stout and strong and throwing out its largest branches right into the teeth of the blast.—A. D. WEBSTER.

Peculiarities of the Oak.—We have no tree in England more sensitive of exposure to wind than the Oak, and the best and fastest growing woods are those in sheltered positions, well inland. There is a tract of country in the south-east of Sussex, lying between Battle and Hailsham, the soil of which is well adapted to the growth of Oak, but which, from its nearness to the sea—about 10 miles as the crow flies—fails to produce, except in some places, other than short stumpy trees with bushy boughs, evidently thrown out as a protection against the south-west wind. These trees, I observe, produce knotty and unsaleable timber. About thirty or thirty-five years ago the planting in St. Leonard's Forest was begun with Larch and Oak, the proportion being about five of Larch to one of Oak. After the Larch trees were seven or eight years old they were gradually thinned out, and, though in no case have they thoroughly disappeared, the land is fairly planted with straight-grown silver-rinded Tellars, which bid fair in due time to become a fine Oak forest. This land is ordinary forest land. My experience is that Oak will grow in almost any description of clay, from the poorest and stiffest to a good deep loam. As the Oak, in its earlier stages of growth, has a long tap-root, a deep soil, free to a certain depth from rock, is necessary to its rapid development. Oak will grow with considerable luxuriance in a gravelly soil, but, on arriving at a size fit to be called timber, it becomes what is termed shaky, and it will be found when felled to be little more than a bundle of laths, and quite unsuitable for the uses to which Oak timber is generally put.—R. W. C.

***Populus grandidentata*.**—Loudon justly considered the "Large-toothed Aspen" the most ornamental of all the Poplars, on account of the deep purplish red colour of the young leaves as they unfold in spring. The foliage is not unlike that of the British Aspen, but the teeth are much larger and more irregular than in that species. As a rule *P. grandidentata* forms a medium-sized tree, but it sometimes attains a height of 70 feet or 80 feet, with a trunk 20 inches to 30 inches in diameter. Whether it will attain such a size in this country or not I am not able to state definitely, but it is perfectly hardy, and grows freely enough wherever I have seen it planted. The wood is white, very soft and light. According to Professor Sargent's catalogue, large quantities have of late years been ground into pulp in Northern New England and Michigan, and used as a substitute for rags in the manufacture of paper.—N.

A school of forestry.—One of the writers to THE GARDEN of March 16 having urged the advantages of a school of forestry in an article which escaped the notice of the editor, he thinks it well now to express his own view in this matter—that is, that any school of the kind would be a mistake, as schools of agriculture are a mistake. These things, no doubt, find places for officials and professors, but they are not the places to learn either forestry or agriculture.

Large Ash trees.—In this parish, on Sir F. L. Robinson's property, stands an Ash tree considerably larger than any at present named. I had it measured to-day by a professional carpenter and timber merchant, who made it: At the base, 28 feet; 5 feet from the ground, 22 feet; 14 feet from the ground, 24 feet 4 inches; height, 68 feet. The tree contains a little over 600 feet (cubic) of timber.—WYRELY P. BIRCH, Cranford, near Kettering, Northants, in Field.

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No. 906. SATURDAY, March 30, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

WHAT ARE N. NOBILIS AND N. VARIFORMIS?

PERHAPS hardly any of the English nurserymen who sell Daffodils by these names could tell us more about them than that "they are collected for them in the Pyrenees." The Pyrenees are very wide hunting grounds, and the Daffodils found there are very various, and the two names are used very loosely. No line is drawn between them, and though one name is indefinite enough, the other ought to be applied to a very definite variety, as there is only one portrait of its type. Both names are presumed to belong to Pyrenean Daffodils. The name nobilis was adopted by De Candolle as a varietal name of a form of *Narcissus pseudo-Narcissus*, which Redouté selected to figure in his "Liliaceae," published about the beginning of this century. De Candolle gives no description of the variety. The description which accompanies the plate refers, I think, to *N. pseudo-Narcissus* as a species, and I am not sure that he tells us where this particular variety was found. If this is so, we might find it in some other part of France. For instance, five Daffodils not yet introduced to our gardens are found in the mountains of Auvergne. I received flowers gathered there on July 8 at an elevation of 7000 feet, but when they reached me they were too much dried up to recognise their characters. Mr. Barr often tells me he has never yet seen a nobilis after Redouté's type. Amongst the many Pyrenean forms which pass under the name, some may come sufficiently near to it to justify their being classed with it; but how are we to separate these from the mixed crowd of varieties at present included in the name variformis? Some of these, though differing widely from Redouté's nobilis, have large and elegant flowers. I have nearly matched both Horsfieldi and volutus—a beautiful citron self—from amongst them, but as sure as I extract a selected form from a mixed bed, it disappears before the next year.

Parkinson is the first authority for the name variformis, which he intends to mean "of various form," so perhaps it ought to be written variformis, but I spell it as its author has done. He tells us that in some parts of the Pyrenees bastard Daffodils grow, amongst which hardly any two are alike. He then enumerates the different characters of the varieties. Before considering what these were, let us briefly review the known forms of Daffodils in the Pyrenees.

First there is *N. muticus* (Gay), perhaps the most widely spread of any, and reaching the greatest altitude, though found also at moderate elevations. In some extensive districts it prevails abundantly, to the exclusion of all other Trumpet Daffodils. For instance, in the Valley of Gavarnie, where it grows in profusion over several square miles, no other Daffodil is found. Its characters are well defined. Its leaves erect, thick, and broad, with bluntly rounded tips; its flowers, with a narrow cylindrical crown, never deeply lobed or much reflexed, with a perianth large and heavy, but flabby in substance, flowering late. It varies much in different spots. Haworth enumerates and describes six species, though he had never seen one. In cultivation it ranges from nearly the size of the Emperor to

that of the typical English wild Daffodil, but variable as is the variety, it varies within well defined limits. I feel no doubt that this is the original wild type of all our garden bicolor class, including Horsfieldi, Emperor, &c., though we may still find some wild development of muticus nearer to our cultivated forms. Next to this we have the Daffodils which Mr. Barr classes together as pallidus præcox. The variations of these are great, even where they are most uniform; but there are several mountain forms, accidentally similar to them in colour, which are quite distinct in habit and other characters, and have no right to be classed with them at all. Of the third class, the white moschatus, I will not say much here. I believe they have as yet been found only on the Spanish side of the ridge of the Pyrenees in several places. The collectors who dig them up sort them for the market into major and minor, guided by nothing but the size of the bulbs. For I am assured that both grow mixed together, I can find no difference except that major dies out in my garden rather more rapidly than minor.

All Pyrenean Daffodils which do not come under one of these three names Mr. Barr calls indiscriminately variformis. But this name should only be applied to Daffodils of various forms which grow mixed together in a native habitat. I found and made selections from such a mixture a few miles from Luchon. The upper slope of the mountain was occupied by *N. muticus* (true), the lower part by another constant form of Pyrenean pseudo-Narcissus; the intermediate variform flowers seemed to me obviously the result of cross upon cross between the upper and lower extremes, and answered in every way to Parkinson's description of variformis.

We must observe, however, that there are in the Pyrenees many Daffodils differing on one mountain from those on another, but really uniform amongst themselves. I have collected from several such constant forms, and planted them separately for comparison, and I am every year trying to get new forms from new places. I got two or three novelties last autumn, one of them from near Lourdes, perhaps as much like Redouté's portrait of nobilis as any I have seen, but I cannot judge them till next year. This year they flowered precociously, as Daffodils fresh from the South are sure to do if dug up before they are ripe. These constant Daffodils have no right to be classed amongst variformis, as they have hitherto been classed. To conclude, I may say, in illustration of the natural history of variformis, that I had flowering this year a bed of 300 or 400 seedlings raised from seed of Horsfieldi saved in my own garden. They are mostly a disappointing and shabby lot of mongrels, hardly any of them bearing any resemblance to the seed parent, and giving me little encouragement to repeat the experiment of growing from home-saved seed.

Edge Hall, Malpas.

C. WOLLEY DOB.

Packing cut flowers.—The excellent remarks of "W. I. M." (p. 253) on the packing of flowers induce me to add one more by way of supplement to them. I send away many boxes of flowers, and I believe they travel successfully. I think the main secret is to pack them firmly, and yet to leave some elasticity in the packing. My proceeding is this: I first lay a slight substratum of Moss, with a mere suspicion of dampness in it; then on the top of this a piece of waxed paper, on which the flowers are carefully placed and packed. The box being quite full, I place another piece of waxed paper, and over this (here is my secret) a piece of the corrugated brown paper so much in use now for sending bottles by Parcel Post. It is very elastic and very cheap, keeps everything snug with the

least possible pressure. I have found nothing to beat this, and I have the authority of one of our first nurserymen for saying it is the best packing he ever saw. In the case of such flowers as Gladioli, Narcissi, and such like, I find it is better to put neither Moss, nor wool, nor any other packing, but I send them in shallow boxes, and lay them in layers at the bottom; take a strip of strong paper or ribbon, draw it tightly over the stalks and tack it to the bottom of the box; they are immovable. It may be said, all this is troublesome and tedious, but if flowers are worth sending at all they are worth sending well. Above all, avoid using the Letter Post for flowers; always send by Parcel Post. Boxes by the former come "a caution to look at."—A. R., *Windermere.*

ROSE GARDEN.

T. W. GIRDLESTONE.

ARRANGING ROSES AT EXHIBITIONS.

THE suggestion made in the columns of THE GARDEN some time since, that the great International Rose Conference to be held next July in the Royal Horticultural Society's gardens at Chiswick should be made the occasion of an attempt to introduce fresh and more artistic methods of arranging the cut Roses exhibited, is a good one, and has almost ever since the publication of the schedule of the conference been a subject of consideration by several probable exhibitors.

Perhaps a better expression to use in this connection than "more artistic methods" would be "more natural methods." No doubt, both should mean the same thing, but convention has brought it about that to many people's minds the two words convey very different ideas. To a natural arrangement of the flowers in many classes the wording of the conference schedule tends directly in asking for "Roses in bunches" not to exceed a maximum size of "six trusses in each bunch," a limit which it may be hoped will preclude too great "bunchiness," the common failing when flowers are asked for in bunches at exhibitions; and it may also be hoped that the bunches will be staged sufficiently long-stemmed. This, of course, involves that the boxes in which the flowers travel to the show should be provided with lids affording considerable head-room, and it is to be feared that the consequent increase of bulk will materially augment the inconvenience of transporting the boxes to the exhibition.

No doubt, a slight difficulty of this kind will not weigh much with exhibitors who are in earnest to make the conference not only the event of the Rose year, but also one whose record shall be worthy of the united efforts of the Royal Horticultural Society and of the National Rose Society in the first season under its Royal patroness, her Royal Highness the Princess of Wales; nevertheless, it must be borne in mind that the conference takes place at the height of the Rose-showing season, the brevity of which involves the crowding together of exhibitions on to almost consecutive days for about three weeks, so that exhibitors who cannot command an extensive "plant" may not be able to afford time or material to have boxes altered or made for a single show.

For it is to be feared that "J. B.'s" protest against the "stereotyped boxes"—not always or necessarily "ugly," by the way—will be unavailing, for the simple reason that in view of the distances to which Roses have to be conveyed, of the hot weather which ought to prevail at the time of the shows, and of the cost of transit, practicability and simplicity must always be the chief consideration of the exhibitor.

It is very easy to find fault with existing arrangements, but to do so without suggesting any alternative is not of much use. It is essential that cut Roses should be exhibited in water, or their beauty would be gone before the show opened; but if the conventional Moss-covered boxes that mask the convenient zinc tubes of water are to be dispensed with, wherewith are they to be replaced? There must be vessels of some kind; should they be bottles, jars, vases? If so, the cost and difficulty of conveying without breakage a sufficient number to stage a collection of 200 or 300 blooms would effectually exclude most exhibitors.

It is obvious that the present system of exhibiting cut Roses, which has gradually developed during a long series of years, has been adopted because it has been found in practice to work best, and the practical difficulties of effecting any radical alteration are admitted by "A. D." in *THE GARDEN*, Feb. 23 (p. 171). His point, however, that the unique nature of the exhibition anticipated at the conference should afford an opportunity for a trial of effective methods of staging Roses deserves, as it will doubtless obtain, the consideration of exhibitors, and there is little question that many of the so-called garden Roses, including Roses that bloom in clusters, single Roses, climbers, and others, will be boldly grouped with great effect.

Unless, however, without stopping to enquire whether Nature is the converse of Art (*pace*, the Shakespearian motto which heads the page on which his note appears), "J. B." has a practical plan to propose, but little alteration can be expected in the arrangement of ordinary Rose shows, in regard to which all the difficulties incident to competition, transport, space and time, both in staging and judging, must be taken into account.

Rose Madame Lambard.—Too much cannot be written in praise of this lovely Tea Rose. For supplying button-hole flowers at this time of the year it is almost unequalled. In a small state when the petals are just showing colour it is charming, whilst in a half expanded state when the real beauty of its colouring is exposed, it is a great favourite. I find it has one fault, viz., the foliage is somewhat liable to be early affected with mildew, which disfigures the leaves slightly. Cuttings strike freely on a slight bottom-heat and quickly grow into nice plants.—E. M., *Hants*.

—T. W. Girdlestone's last remarks about this Tea Rose tempt me to add my little quota to the mass of observations. 1. This Rose is certainly one of the hardest Tea Roses. 2. If anything, it prefers a strong soil, when dry and well drained, to a more sandy one. 3. As is the case with most Tea Roses with us, it is best not to prune at all, generally speaking, but after a very severe winter, or if the trees have got very straggling, a severe pruning back to old wood is advisable; this should not be done more frequently than once in three years. 4. Not being an exhibitor, I prefer this Rose on a south wall for the sake of its beautiful early and late blooms. In a hot year the blooms are so dull and muddy in colour when in the open that I should think other Roses better worth growing. 5. In a very exposed and cold situation on the north-east coast, the only Tea Rose that is decidedly hardier and more vigorous, is Anna Ollivier, a Rose which has not been mentioned, though it is, to my mind, the best Tea Rose for general cultivation.—E. H. W.

Polyantha Roses.—The note in *THE GARDEN* of March 23 (p. 255) respecting the Polyantha Roses exhibited by Messrs. Paul and Son should be the means of popularising these beautiful fairy-like sorts. They are so well suited for pot culture and can be brought into flower so readily by gentle forcing, that the wonder is that they have so long been unrecognised. A selection of the principal

varieties of these miniature Roses came into my hands a few years ago. It was in the month of March, and they were in 6-inch pots and bristling with young growth. Not liking to risk them in the open air, I placed them in a fairly warm greenhouse. The result was that in about a month they were in full flower, and were so much admired that instead of transferring them to the open ground I had to cultivate them in pots. With the aid of a little forcing I had no difficulty in having them in flower early in March.—J. C. C.

ROSE MADAME GABRIEL LUIZET.

The distinctive excellences of this Rose are:—

1. As a plant, its free growth both as a maiden and cut-back; as a flower, the clear soft colour and perfect form, always pleasing and acceptable as an exhibition bloom or specimen for room decoration.
2. The greatest defect with me is that as a maiden plant it grows too strong to bloom freely, often making shoots 4 feet to 5 feet in length.
3. Hardy.
4. Have found it do well on both light and heavy soil, but it flowers more freely when growing on the former.
5. Cutting Brier or Manetti. Have not tried own-root plants.
6. Hard pruning for fine flowers, but by leaving the shoots longer and bending them down, a large quantity of smaller, but very pretty blooms are produced.
7. As a pot Rose I have found it far and away the best Hybrid Perpetual Rose of the colour. It will force more easily than any other Hybrid Perpetual I know, and it makes a splendid specimen plant.
8. Although classed as a Hybrid Perpetual, it can hardly, to my mind, be called perpetual, as I never remember seeing a second growth or bloom as a maiden plant, and only very occasionally late blooms on old plants.—S. G. RUMSEY, *Rose Farm, Wrotham, Kent*.

- 1. Robust grower, free-flowering, and beautiful colour.
2. No defects with me, except that it sometimes buttons in the centre.
3. Hardy.
4. Heavy soil; due south.
5. Manetti.
6. (1) Moderate pruning; (2) long pruning.
7. Very well and easily forced.
8. I seldom cut a bloom in autumn, and when I do it is nearly always without colour.—S. P. BUDD, *8, Gay Street, Bath*.

- 1. I find it a very good grower and a free bloomer.
2. The blooms are sometimes rather thin.
3. Hardy.
4. In the open, on stiff loam.
5. Brier cutting or seedling Brier.
6. Hard pruning.
7. I have never grown the Rose in pots.
8. I have not noticed any alteration in character since first distributed; it has never bloomed in the autumn with me.—ROBERT N. G. BAKER, *Heavitree, Devon*.

- 1. This Rose grows freely and makes a neat bush. The blooms, of a bright clear colour, as a rule are well formed and produced singly on an upright stem.
2. It is very subject to mildew and seldom blooms in autumn.
3. Hardy.
4. Loam; but will grow and thrive anywhere.
5. Seedling Brier; also does well as standard.
6. Hard pruning for show blooms; light pruning for garden decoration.
7. No experience.
8. No.—J. T. STRANGE, *Aldermaston, Berks*.

SHORT NOTES.—ROSES.

Rose Madame Allegatiere.—Messrs. Paul and Son, of Chesham, kindly send us a truss of Madame Allegatiere, one of the new Hybrid Polyanthas raised by Allegatiere from Jules Margottin, fertilised by Rosa Polyantha. The plant appears of vigorous growth with thorny wood, but the inflorescence has much of the character of the Polyantha Roses, the round buds being

produced in a considerable corymb. The flowers are of medium size, bright rose in colour, and very fragrant.

Roses and Asparagus.—Roses, for want of space elsewhere and also for shelter, are frequently grown in kitchen gardens, and they generally do remarkably well. Some of the vegetables are not very appropriate associates for them, but Asparagus is an exception, as when this is planted between the rows of Roses the rich ground suitable for them suits it, and the graceful growths of the Asparagus have a very pretty effect in combination with the Roses when they are in blossom. All who have seen this arrangement have been struck with it, and some have been induced to try the Asparagus with their Roses outside the kitchen garden.—J. MUIR.

ROSES IN THE PAST WINTER.

THE winter, though long and, on the whole, cold, has not been one of exceptional severity, the frost in East Anglia seldom exceeding 16°, though in several localities lying low and close to water I have heard of exceptional readings of from 20° to 25°. Such readings, if true, will doubtless have left deep scars among the Roses. Practically, the majority of Hybrid Perpetuals and our hardier Tea Roses are safe against 10° or 15° of frost. Beyond that the majority begin to show signs of distress, the signs multiplying in number and growing in intensity in the direct ratio of the degree of cold.

On the whole, however, the Roses seem to have wintered so far (March 7) tolerably well. This is the more satisfactory, as they were in very indifferent condition, for, notwithstanding any extra severities of temperature, seldom was Rose wood later or more immature than during the autumn of 1888. Few plants suffer more from lack or normal measures of sunshine than Roses, and neither bloom nor wood were up to an average last year.

Hence we find, in pruning the hardier Roses, a great excess of pith and a lack of hardness in the wood, and should the temperature at the latter end of March, as not unfrequently happens, run down to anything like zero, such a depression would doubtless play sad havoc among the more soft and sappy Roses. While, therefore, hoping for the best, it is as yet quite premature to write of the safe wintering of our favourites; for bitter experience teaches us that while all the months of winter may slay their thousands of Roses, March slays its tens of thousands. This probably arises from the fact that the sap is more active in March than in any or all the other preceding months between March and October. As the sap becomes more active and excitable the plants become more tender and susceptible to cold, or, in other words, more easily injured, and hence the potency of March weather to injure or destroy our Roses.

There is yet another reason for this, and that is, the biting force and penetrating power of March winds. Still frosts are, as a rule, less vigorous than what are termed black or wind frosts. This statement, however, must be accepted with certain limitations. In low-lying valleys, where a series of hills form the sides of natural basins that cabin and confine the air with something like absolute stillness, the destructive force of cold is frequently felt the most. A mere fracture or break in the sides of the basin sufficient to agitate the air would baulk the energy of radiation, and so save many Rose and other plants from destruction. But such mild agitation of the stillness of the air is about as different as can well be from the cooling power of March winds, cooled almost to freezing point on the iced steppes of North-eastern Europe. In writing, too, of the comparative warmth of still air, the heat-husbanding power of hoar-frost must not be overlooked. This is very much greater than is generally supposed, and is mostly wholly absent during the month of March. Doubtless it is to this fact mainly, as well as to the greater activity of the sap, that so many Roses and other semi-tender plants are crippled and destroyed during this hardest and bleakest month of the twelve.

The winter now happily drawing to a close bears powerful testimony in favour of own-root Roses. While not a few budded and worked Tea and other Roses have perished, it is pleasing to find

that Roses on their own roots are safe. In the case of dwarf Teas, earth up more or less freely. Even a good early bloom is still not only possible, but almost within sight. So far, the Roses, as well as fruit trees and all other vegetation, are abnormally late this season. D. T. F.

Hardiness of Tea Roses.—Mr. J. Burrell, of Cambridge, writing on the hardiness of Tea Roses says: "Anyone interested in this question should take a turn round the Rose nurseries, and see the Teas in the open fields. We have not protected a single dwarf Tea during the winter, and do not think we have lost half a dozen plants, though all are right in the open field."

Rose William Allen Richardson for pot culture.—Recently Mr. Douglas referred to the value of having a nice selection of Tea-scented Roses in pots for the purpose of furnishing flowers for cutting. Few will be prepared to differ from him, and if he has not already done so, I would advise him to add to his stock William Allen Richardson. A specimen in a pot 12 inches or 14 inches in diameter will give a large number of flowers both in spring and autumn. When flowered under glass in the spring in a gentle warmth the colour is a pleasing amber, quite distinct from that of other Roses. My practice in dealing with specimens in pots has been to allow the growth to have its own way all the summer, and then shoots from 3 feet to 4 feet long will be produced. To make room for these shoots some of the old wood is cut out and the young tied in the whole length. Treated in this way, most of the prominent eyes along the shoots will start into growth in the spring and produce one or more flowers.—J. C. C.

Marechal Niel as a bedding Rose.—One of the most surprising phases of Rose culture that I ever met with is to be seen in Mr. Fowler's garden at Claremont, near Taunton, in which there is a large bed in the open air filled with plants of *Marechal Niel*. I never saw nor remember reading of a similar successful instance of growing this Rose in an open bed. The instance referred to is the more remarkable owing to the extraordinary growth the plants have made. The bed is large enough to hold two dozen plants at about 2 feet 6 inches apart. The centre of the bed is raised about 3 feet high, gradually sloping down to 1 foot, and the soil is supported by a stout Ivy border or edging. The plants were planted in the autumn of 1887, and are on their own roots. A few flowers were produced last year, but the weather was not very favourable for them. The length and substance of the growth which the plants made last year, and which I saw to-day (March 25), surpass any I have seen in the open air away from a wall. The whole surface of the bed is quite a thicket of strong shoots, many of them thicker than a man's thumb, and from 5 feet to 7 feet long. To a great extent the plants have been allowed to grow their own way during the past year. Before they commenced to make new growth last spring many of the strongest shoots were pegged down on the surface, and they now seem to have formed roots. A more promising lot of growth no one could desire. The wood is evidently getting somewhat hard, so that some good Roses may be expected from it. I shall watch with much interest the behaviour of this unique bed of Roses in the coming season, and I hope its present healthy condition may justify the results expected of it.—J. C. C.

Rockets.—In an old magazine, published in 1851, I find a Mr. S. P. Rushmere writing that in a trip to France at a garden at Fontenay-aux-Roses he saw seven kinds of Rockets, viz.:—

White Giant, growing 5 feet to 6 feet high, with immense spikes of flowers: white, medium size, 2 feet, the English variety; purple, 2 feet high, an abundant bloomer, very double and showy; crimson, 2 feet high, rich and attractive, but spikes not so large as the purple; rose or peach, same as in English gardens; yellow, very double and compact in form, 18 inches.

The yellow was, no doubt, *barbarea*. Are the six

other kinds in existence in England, and where can they be procured?—H. S. NEWILL.

PROPAGATING.

ARALIAS.—This genus includes several of the most elegant foliage plants for stove and greenhouse culture, and as plants for the table and general decoration they are invaluable. Plants for such purposes must not exceed a certain size; therefore fresh stock must be obtained periodically. Some of the species may be propagated from cuttings and young plants obtained with little trouble, but in some cases it is necessary to resort to grafting, which, according to some writers, is an objectionable practice. I believe, however, that, after all that can be adduced against it, the practice will still continue, and it is undoubtedly the best, the safest, and perhaps the only way of perpetuating many of our most valuable plants. My opinion on the question is, that seedlings or cuttings are generally preferable, but grafting, when skilfully done and suitable stocks used, is a practice which should not be condemned. It is only when grafting is clumsily performed, or unsuitable stocks used, that it becomes objectionable.

ARALIA VEITCHI.—This beautiful species, which is one of the most desirable of the genus, is one which cannot be successfully propagated except by grafting. It succeeds best when grafted on *A. reticulata*. *A. Guilfoylei* may also be used as a stock, but the former is preferable, young plants of which may be obtained from cuttings, which will root freely in the ordinary stove propagating pit. The stocks should be well established before being used for grafting. They will be all the better if grown in an intermediate temperature, where the wood gets well hardened. The plants intended for scions will also be better if grown in such a position as will be favourable to the plants making firm short-jointed wood. Plants that have grown too tall to be serviceable may be selected for grafting, the tops being taken off to where the wood is fairly firm. The other portion of the stems may be cut up in short lengths and used as scions. The grafts should be put on the stocks as close to the surface as possible. After the operation they should be kept quite close until well callused, but should not be placed where there is much bottom-heat, or the stocks will be liable to die off. If placed in a close case where there is little or no bottom-heat they will not require any water for the first few days, by which time they will have begun to callus. After they are properly callused they may be removed to a warmer position to promote growth. The slender-growing variety *A. Veitchi gracillima*, of course, requires similar treatment, as does also *A. elegantissima*, which is, perhaps, rather more delicate than *Veitchi*, but when well managed it makes a most elegant plant. The most suitable compost for growing the above sorts is in loam, leaf-mould, and peat in equal parts, with a liberal addition of sand. The plants should be limited to moderate-sized pots. If treated too liberally they make vigorous growth and lose their light graceful habit. This is especially the case with *A. Veitchi*, which, although usually grown in the stove, will do equally well in a greenhouse temperature. At Pendell Court there is a specimen planted out in the cool greenhouse which has made such robust growth as to be hardly identified with those plants grown in pots.

A. LEPTOPHYLLA.—This is a free-growing species, and one of the most effective for table decoration, and also for the conservatory, especially when grown on freely to good sized specimens. This species may be propagated either from cuttings or by grafting; if good stocks are at hand, the latter is the quickest method of obtaining good plants. They should be treated in the same way as recommended for *A. Veitchi*. Cuttings from plants that are not too vigorous will succeed best, the tops from plants with short-jointed firm wood making the best cuttings. They should be put in singly into small pots, using sandy peat. The base of the cuttings should only go just below the surface of the

soil, and each should have a stick to keep it firm. The cuttings should be placed in the warmest part of the propagating pit and kept close, but very little water should be given until they are callused. Cuttings are rather slow in forming roots, and care must be taken that they are not exposed too soon.

A. KERCHOVEANA.—This is another distinct and elegant species. It has bright green foliage and a symmetrical habit of growth. The best way to propagate this species is from cuttings, which may be treated in the same manner as recommended for *A. leptophylla*, but must be grown on in a stove temperature. If exposed to a low temperature it is liable to lose its foliage.

All the *Aralias* require regular attention, especially while they are making growth. If allowed to receive a check in any way the foliage will be imperfectly developed. The plants should be potted on before they get too much pot-bound; but over-potting is a great evil, as is also an excess of moisture at the roots. A regular temperature and careful attention to watering, &c., will ensure symmetrical, well-formed plants, but a little neglect will disfigure the plants permanently. A.

FOLIAGE FOR DECORATION.

Now that flowers for cutting are in such request, any plant which yields them in quantity and suitable for the purpose is not slow in receiving notice; more particularly is this the case with good winter-blooming plants. Foliage does not, however, always receive the attention due to it, and only those who have occasion to frequently want in quantity greenery of a suitable description for dinner-table decoration and other similar purposes can fully appreciate the value of a plant which will yield what is required all the year round in sufficient quantity.

I do not overlook the fact that Ferns supply the needs of the majority, and that it would be difficult, if not impossible, to find anything more suitable than Fern fronds for the greater part of the decorator's work, but as nothing injures Ferns so much as continual cutting of the fronds, where the collection of these plants is limited, considerable care must be exercised in cutting from them.

ASPARAGUS PLUMOSUS NANUS stands first, in my opinion, as a plant to cut from. It would indeed be difficult to find a subject more amenable to different modes of culture, and, at the same time, furnishing such an abundance of material for cutting as this plant. When planted out in a warm house it soon assumes a scandent habit, and fills a large space in the course of a few months with its long branching shoots, which can be used in a great variety of ways. No fear need be entertained as to cutting it, for wherever it is cut, fresh shoots break forth and quickly replace those which have been removed. When grown in pots and kept bushy by pinching out the points of any shoots showing signs of climbing, it forms a most elegant plant for house decoration, and one, moreover, that will stand a considerable amount of hard usage. The best and only means, as far as I know, of increasing it is by division. I have never observed any seed upon the plant, and stem cuttings have not succeeded with us, but by dividing the plants a good stock is soon secured. Light loam, leaf-mould, and sand seem to suit it best. I have tried it in peat, but the growth is not so free nor is the colour of the foliage so good as when the plant is grown in loam. The popular name of "*Asparagus Fern*" which this plant has acquired, though far from correct, is one that I fancy it will retain. I have often found great difficulty in convincing people that it is not a Fern. Fern *Asparagus* would, I think, be much better for a garden name.

MYRSIOPHYLLUM ASPARAGOIDES.—Although not adapted to such a variety of purposes as the preceding, this is, nevertheless, a most valuable and useful plant when treated liberally, ample room being allowed its long slender shoots. Planted out in a greenhouse in a narrow border and supplied with plenty of water its growth is very free. If required for cutting, constant attention is needed

to prevent the shoots becoming too much entwined together. This is an easy matter, as the shoots can either be trained separately to fine twine, and when cut the twine severed with them, or when loosely caught to the front of a wire trellis plenty of long sprays, than which few things are more light and elegant, will always be available for use. I prefer to raise the plants from seed, although it is easy to divide the plants. Seedlings, however, are the best for pot culture when required for hanging over the front of plant stages, for which purpose this plant is well adapted.

LYGODIUM SCANDENS is a useful plant to the decorator, but on account, no doubt, of its somewhat dull green colour it does not find such favour as the two plants previously noticed; still it should be grown where room can be found for it, that is, where it can be planted out and given space to extend. It will then quickly cover the back wall of a warm house or a trellis in any convenient spot, and furnish an abundance of long graceful shoots for cutting.

FICUS REPENS is a well-known inmate of our houses, and for clothing bare wall spaces it has few equals on account of its habit of clinging so closely to the wall. A few years ago I was surprised at the hardness of this plant; some shoots found their way outside between the wall and the woodwork of the house, and soon covered a large space on the wall outside. After a rather severe winter I was surprised to find these shoots hardly affected, and they stood two or three winters until removed. When allowed to cling to the wall it is difficult to obtain shoots in any quantity suitable for decorating, but if trained to a trellis or along the iron bars of the house plenty of suitable material is always at hand. Greenery of a heavier nature can be found in plenty amongst the hardy evergreen trees and shrubs, but there are two greenhouse subjects I should like to draw attention to. One is the Myrtle. Every garden should have some Myrtle bushes from which a few fragrant sprays can occasionally be cut. The Myrtle is easily grown, and, moreover, only needs sufficient protection to secure it from frost. The wonder is it is so seldom met with in any quantity. The small-leaved kinds are most suitable for button-hole bouquets, wreaths, &c.

SCENTED-LEAVED GERANIUMS are of great use for mixing with flowers in the winter time, their bright green sweet-scented foliage being always pleasing and acceptable. Large plants are the best for the purpose, as the growth is firmer and stands longer when cut. If grown outside in the summer and brought into the greenhouse before the advent of frost, the plants will yield a supply of shoots for cutting during the winter. Green-fly is their greatest enemy, and if this pest is not kept from them they are soon doomed to destruction.

A. BARKER.

A flower show was held at Cannes the other day, when some very beautiful Roses grown under glass were shown. The rose-crimson buds of Reine Marie Henriette were remarkable, used as an edging to set off blooms of Maréchal Niel. Reine Marie Henriette is evidently becoming a most popular variety for winter-flowering, and should be tried in England. One way of showing twelve Roses of one variety was charming. The Roses were put in tall-handled baskets, such as are made in Madeira. The handle was tied with a big bow of ribbon that toned or contrasted with the colour of the Roses. Up one side and round the edge were sprays of the brown-red shoots of the well-known Safrano, but the Roses themselves, set in Moss, were untouched, save where they were too heavy to support themselves, when a small wire held them up. This was the more necessary as the centre blooms were cut long, with as much foliage as possible. Some were set in Violets, which also had a very pretty effect without interfering with the individual quality of the flowers. There were some very fine blooms of Tree Carnations shown by a young man named Fuleonis, who had raised them himself. One large orange-red self was quite magnificent, and he proposes to send it to Paris for ex-

hibition, refusing meanwhile to sell it. Altogether the show must be allowed to be greatly superior to anything attempted before, but as the tent was placed too close to the sea, a storm that arose the last night nearly washed away the whole concern. I saw Crotons as well as Primulas and Cinerarias quite ruined by the salt water, and it is to be feared unless some fresh arrangement is made another season that there will not be many good exhibits.—E. H. W.

FERNS.

W. H. GOWER.

THE SCALY SPLEENWORT OF TENERIFFE.

THE genus *Ceterach* does not appear to have any near relations, and yet our British species, *C. officinarum*, is a beautiful plant, as it is to be seen growing in Ireland, where in many places I have seen it completely covering the stone walls and hiding almost every vestige of the artificial groundwork of its abode; indeed, I believe it thrives more luxuriantly in that country than in any other place I have met with it. I wish, however, to draw the attention of my readers to the gigantic form which is found in the Island of Teneriffe, various of the Canaries, and at Madeira, and of which from time to time numerous plants have come into my hands. The plant in question is named *C. canariense* by some, and by others *C. aureum*. The specimen now before me from Teneriffe varies in the size of its fronds to a considerable extent, some being 6 inches long by 1½ inches wide, and others a foot long and 2½ inches wide. The fronds are pinnate, divided nearly to the rachis, the pinnæ dull green on the upper side, densely clothed beneath with rough reddish brown scales, through which the spores apparently have a difficulty to emerge. I am not aware of the particular positions this plant occupies in the Island of Teneriffe, but from the similarity in its appearance to our indigenous species, I should imagine, like it, that it affects the sunny side of the rocks, where its size must render it very effective and beautiful. I have had specimens of this plant under my charge at different times for the last thirty years, but I must acknowledge that they never lived with me more than about three years under cultivation, although I always drained well and planted them in brick rubble, old mortar, and a little loam. It is a plant in which I have never seen a well marked variety, and in this respect our native *C. officinarum* is also noted as being very permanent in its original character. I should be glad to learn that this grand plant from Madeira has been permanently established in some place in this country, but as an outdoor ornament I fear this will never be achieved.

SHORT NOTES.—FERNS.

Ferns for a window (*Talbot*).—The following are six good Ferns for a large window, the room being kept moderately warm: *Phlebodium aureum*, *Pteris tremula*, *Adiantum formosum*, *Asplenium bulbiferum*, *Polystichum capense*, and *Lomaria discolor*.—W. H. G.

A beautiful Davallia.—Undoubtedly one of the most graceful drooping exotic Ferns in cultivation is *Davallia tenuifolia* Veitchiana. It has beautiful, arching, finely-cut fronds which possess a reddish tinge at the base. Grown as a basket plant, as we recently saw it at Messrs. Veitch's, Chelsea, it certainly presents a charming appearance, and is quite an acquisition to any house. The foliage is much more finely cut than in *Davallia tenuifolia*. Like the latter, it is a heat-loving subject, and during the season of growth must be abundantly supplied with water. Otherwise it is of

easy culture, thriving well under the general treatment necessary for the well-being of similar subjects. It also possesses a robust constitution. Such a Fern deserves a place in every warm house.—C. L.

NAMES WANTED.

IN answer to "J. H. G.," winter is the worst time to send fronds of varieties of British Ferns to name, for unless one has dried specimens of them, it is impossible to refer to living examples; moreover, in sending a dozen kinds you have considerably overstepped the rules. As several readers, however, have been asking for names of some varieties worth growing, I name them here, giving brief descriptions. The varieties sent are all beautiful, and although the botanists in their exclusiveness have for years ignored these variations, their beauty of form has made them popular, and you are perfectly justified in collecting together all plants which contribute to the beauty of your garden. Leave the dry-as-dust scientists to scoff as much as they may, you have the reality, they the shadow.

1. *ASPLENIUM FILIX-FEMINA VICTORIE*.—One of the most extraordinary and beautiful Ferns I know. It was originally found in Scotland, and has never been re-discovered. I have raised many seedlings of this form and have found them come true from spores, although I must say there were always a few coarse and inferior forms. The pinnæ proceed from the rachis in pairs, each one diverging at the base, so that each branch of the pinnæ crosses its next neighbour; as these divisions are narrow, there is no confusion of the frond, and the outline is distinctly defined; the ends of all the pinnæ are tasselled, which materially adds to their beauty, and the top of the frond is crested.

2. *A. FILIX-FEMINA FRIZELLÆ* is a more slender form, well adapted for planting in a position on rockwork where the fronds can hang over and drape a boulder. The fronds, from a foot to 18 inches or more long, are somewhat arched and pendent, seldom more than an inch wide; sometimes, however, this variety breaks away into other forms, and these I invariably destroy as they appear. In some forms the top of the frond is crested.

3. *A. ADIANTUM-NIGRUM GRANDICEPS*.—As a variety, I personally do not like this, the top of an ordinary frond bearing a tassel which, to me, does not increase its beauty.

4. *POLYPODIUM VULGARE TRICHOMANOIDES* OR *CORNUBIENSE*.—Your specimen is poor.

5. *P. BIFIDO-CRISTATUM* has narrow fronds, divided at the top into two or three crests; the pinnæ short and obtuse.

6. *LASTREA FILIX-MAS BOLLANDIÆ*.—The original plant of this variety came into my hands, and I believe it was found in Kent. I have never yet seen it fertile; it is a very pretty plume-like Fern.

7. *SCOLOPENDRIUM KELWAYI* is a densely tasselled form, pretty to those who like the close crested plants, but not a kind to my fancy.

8. *S. CRISPUM* is, to my mind, one of the most beautiful forms of the Hart's-tongue, with erect fronds from 1 foot to 2 feet high, the edges deeply frilled and undulated.

9. *S. MULTIFIDUM*.—A handsome variety, the fronds some 18 inches or 2 feet long, the apex much branched and crested.

10. *POLYSTICHUM ANGULARE ACROCLADON*.—A fine form, the fronds much divided, and all the points crested.

11. *P. ANGULARE GRANDICEPS*.—This beautiful form produces fronds nearly 2 feet high when well grown; the pinnæ are crested at the ends, and the top bears a large and dense flat crest.

12. *BLECHNUM SPICANT POLYDACTYLON*.—This plant I do not think an improved form of the species, the crested end of the frond giving it a somewhat unnatural appearance.

13. *ASPLENIUM FILIX-FEMINA MULTIFIDUM* is a handsome and extremely ornamental variety, the pinnæ being somewhat reduced and narrow, bearing on the tips a small crest, whilst the top of the frond is largely tasselled.

W. H. G.

OLD PLACE, LINDFIELD.

PRETTY houses and quaint relics of Elizabethan times abound in the quiet village of Lindfield, and among these the house of Mr. Kemp, and the beautiful garden with which he has surrounded it, give us a true picture. Much of Old Place, however, is of new creation, for the house consists of large additions to a pre-existing quaint cottage; but the same simple style of architecture has been followed throughout, and the result is a charming house.

The house and garden are both well shown in the annexed engraving. The style of gardening, the simplest that could be carried out, is natural and beautiful. The beds are large and of simple shapes; they skirt the outer margins of the Grass and are near to the walks. The plants

receive that attention which would be bestowed upon bedding plants; in fact, they are the bedding plants, but with this difference, that the first frost does not blast the labours of a season in one night.

The occupants of these beds are frequently transplanted, as fresh ground increases the size, quality, and quantity of the flowers. There is scarcely a limit to the making of beautiful beds with hardy flowers. A noble bed could be made with members of one family alone or by grouping several distinct things. The beds need not be entirely filled with hardy plants. At Old Place vacant spaces that remain in spring owing to removals are sown with annuals, among which there are pretty things that never enter into the average flower gardener's arrangements, and when sown in some out-of-the-way

wooded vales of this pretty part of the weald of Sussex.
A. H.

ORCHIDS.

W. H. GOWER.

SPATHOGLOTTIS.

THERE are at present but few species of this Asiatic genus of Orchids in cultivation; the reason why they have been neglected I cannot say, but that it is not for lack of beauty, I can certainly vouch. I have had one or two varieties under my charge at various times, and found them easily managed; and I do hope to see more kinds introduced, as we are told there are plenty of sorts to be found in the Malayan Peninsula, and which possess great beauty. I



Old Place, Lindfield. Engraved for THE GARDEN from a photograph by Mr. S. Norman, Burgess Hill.

which fill the beds give throughout the season flowers varied, infinite, and lovely. Plants gathered together from temperate and northern lands combine to make the garden here what a garden should be—a museum of lovely things which change with the seasons, each day seeing the birth of some new charm.

To mention the numerous things which come between Gentians and Lilies would be almost compiling a catalogue, and no one garden can display them all in their full beauty. Flower gardening upon such broad and sensible lines as at Old Place might be initiated in hundreds of places. The hardy plants which fill these beds are not planted and left to impoverish the ground and starve, as they frequently were in the old mixed borders of our gardens. They

border fifty plants are frequently starving where one would thrive. Similarly, if so desired, a few summer plants might be used in such positions, and one might continue to make hundreds of suggestions, all of them quite different. In working with those materials, many beautiful gardens could be made, all dissimilar. In a garden like Mr. Kemp's the lover of flowers finds plenty to interest, and in carrying out his ideal he has made a step in the right direction, entirely redeeming his place from the charge which lies against many, that of formality and monotony. A few umbrella-shaped Portugal Laurels standing upon the lawn seemed a little out of place in comparison with the flowers around. Beyond the flower beds is an open sunny lawn commanding fine views of the

was much impressed recently with these plants, having seen three kinds in flower in Sir Trevor Lawrence's garden at Boxhill, and this has induced me to bring them under the notice of the readers of THE GARDEN. The plants in question belong to the tribe Epidendræ, and are nearly allied to Bletia and belong to the section Bletia, but they differ principally from that genus in the peculiar formation of the lip. The species are all terrestrial plants, and for the most part have subterranean corms or tubers; but not so all of them, as in some few species these are formed upon the surface, being sheltered only by a little mossy surface growth. The pots for their reception should be well drained, and the soil they thrive well in is a mixture of good fibry loam and peat, which,

however, should not be of great depth. I have found from experience that a thin layer of soil suits them by far the best. *Spathoglottis* enjoy strong heat and moisture when growing, but after this is finished they should be removed to a lower temperature, exposed to the sunshine, and kept entirely without water. This treatment enables the corms to become well ripened, the want of this ripening being, no doubt, the reason why complaints are made of these plants not living long under cultivation. The leaves of *Spathoglottis* are sword-shaped, strongly ribbed, and deciduous, whilst the flowers of most of the species which have yet been introduced are of some shade of yellow.

S. KIMBALLIANA.—This plant was, I believe, introduced by Messrs. Sander, of St. Albans, and by some authorities it has been merged with *S. aurea*. Be this right or wrong, however, I cannot decide, but anyway it does not detract from the beauty of the plant, which I recently noted in superb condition in Sir Trevor Lawrence's collection. It produces a long scape, bearing a large clustered raceme of flowers at the top. The flowers, which are somewhat similar in shape to those of a *Phalaenopsis*, measure nearly 3 inches across, the petals being broader than the sepals. They are thick and fleshy in texture and obovate in form. The colour of the sepals and petals on the inside is full clear yellow, the outer surface of the sepals alone having a central streak of crimson, and the whole surface is more or less flushed with the same colour; lip small, three-lobed, the side lobes hatchet-shaped, clear yellow, plain on the outside, but within streaked with short lines of reddish crimson on the basal half; anterior lobe deeper yellow than the outer portion of the flower, spotted along the surface with reddish crimson. On the disc is a pair of large erect, obtuse, diverging plates, which are also yellow, speckled all over with crimson. It lasts long in beauty, and is a native of the Malayan Peninsula.

S. ANGUSTORUM.—This plant somewhat resembles *Phajus bicolor* in growth. The flowers, nearly 2 inches across, are borne on an erect spike, and somewhat resemble at first sight those of *Phalaenopsis Lowii*. The sepals and petals are white, flushed with mauve; lip mauve-coloured, bearing at the base a raised fleshy protuberance, which is pale yellow freckled with crimson, side lobes erect, hatchet-shaped and pale purple. It remains in flower a very long time. Native of the Eastern Archipelago.

S. LOBBI.—This is a small-growing plant, which was introduced some years ago by the late Messrs. Rollisson, of Tooting, and its corms appear to thrive best when their upper surface is level with the soil and slightly shaded with growing Moss. Its spike is slender and erect, bearing from three to seven or more flowers, each of which is upwards of 1½ inches across and of a uniform clear yellow; lip similar in general shape to that of the others, but broader at the point of the central lobe, which is deeper yellow, the lateral lobes having the veins more or less streaked with reddish crimson. There is a somewhat similar kind known as *S. Fortunei*, which is said to come from Hong-Kong. *S. Lobbi* was figured in *THE GARDEN*, August, 1882 (p. 188).

S. PETRI.—This plant, I believe, was introduced from the Pacific Islands by the Messrs. Veitch, of Chelsea. It has the tubers or pseudo-bulbs above ground, and its flowers are about the size of those of *S. Lobbi*. The sepals and petals are pale lilac; lip three-lobed, the lateral ones oblong, incurved; without they are rosy mauve, but within they are purple, anterior lobe rosy lilac, bearing on the disc a small yellow callus, which is slightly hairy and heart-shaped. This species I have not seen in flower for several years, and am not aware if it is still alive in the country, but the three first-named kinds are now flowering in the collection at Burford Lodge, Dorking.

Hooded Oncid (*Oncidium cucullatum*).—This species was flowering freely the other day in the nursery of Messrs. J. Veitch and Sons, Chelsea. It

is a beautiful *Oncid*, variable, and somewhat difficult to grow. The plants thrive well enough for the first two years, but are apt to die off afterwards, though it is worth some trouble to keep them in flowering condition. They should never be dried off, but kept moderately moist always. The spikes are erect and few-flowered, but each flower, if a good variety is obtained, is exceedingly rich, especially in the lip, which is washed with a purplish tint, overlaid with bold and showy spots. It varies considerably, as in the case of most Orchids. It is a native of Peru and New Grenada.

Cypripedium Winnianum.—This is a very pretty and interesting cross between *C. villosum* and *C. Druryi*, and is, I believe, one of Mr. Seden's raising in Messrs. Veitch's establishment at Chelsea. The dorsal sepal is ovate, very light green, bordered with white, and bearing in the centre a broad stripe of rich chocolate, the sides in addition being flaked with a lighter brown; lower sepal greenish-white; petals slightly incurved, bearing along the centre a broad line of deep purplish chocolate; the upper half deep brownish-yellow, the lower half much paler. Lip similar in shape to that of *villosum* and soft yellowish-brown in colour. The whole flower has the same freshly-varnished appearance as that of *C. villosum*. This charming plant is now flowering in The Woodlands collection at Streatham.—W. H. G.

Cypripedium hirsutissimum.—This species, which has been a shy-flowering kind, would appear to be improving, or the treatment it is receiving suits it better. A remarkable example of this is now conspicuous in Sir Trevor Lawrence's garden, where a large specimen is bearing numerous scapes, all bearing twin flowers. The blooms are large and the petals very highly coloured. I believe the specimen in question is one of the recently imported batch of the Messrs. Low, of Clapton. This kind flowered first with me in the nursery of the Messrs. Jackson, of Kingston, but the first recorded example of its having bloomed was with Messrs. Parker, by whom it was exhibited, and I well remember Dr. Lindley naming this plant in the Regent Street rooms of the Horticultural Society in 1857. This example was a portion of the same batch which flowered with me some two months previously. The plants of this importation, however, never produced either so large or such highly-coloured flowers as those of the Messrs. Low's importation of last season.—H.

Cymbidium pendulum atropurpureum.—It is now a long time since I saw such a fine specimen of this old variety as I recently noted in the establishment of Messrs. Sander at St. Albans, and the plant was bearing numerous spikes of its beautiful flowers. The racemes are pendulous, about 1 yard long, and the blooms are exceedingly rich in colour and very fragrant. Sepals and petals intense deep purple, the side lobes rosy-crimson, the front lobe white, blotched at the tip with crimson, and having two spotted lines of the same colour extending to the base, whilst on the disc are two raised yellow ridges. It is a beautiful form, which lasts long in full beauty. Frequently have I observed this variety treated in the same manner as the typical plant, which is a native of Northern India, and thrives under cool treatment. Under such treatment the variety is usually a shy flowerer, but when grown in a warmer temperature, which it naturally requires, being a native of Borneo and some of the Philippine Islands, it grows and flowers freely.—W. H. G.

Oncidium lamelligerum.—This is a handsome kind of the *O. macranthum* type now flowering with Mr. Measures at Streatham. It produces long, scandent, much-branched spikes bearing many large flowers. In this section the beauty is confined to the sepals and petals, the lip being reduced to small proportions. The upper sepal, which is large, is rich brown with a narrow border of yellow; the lateral sepals are narrower, but of nearly the same colour, all being undulated on the edges. The large petals are beautifully crisp on the edges, rich brown at the base, the upper half yellow, whilst the lip is inconspicuous, somewhat

resembling that of *O. macranthum*. It thrives best under the very coolest treatment. It is wild in Ecuador, and by some it is thought to be a natural hybrid.

ORCHID NOTES.

In response to Mr. Gower, concerning a natural hybrid between *Dendrobium Wardianum* and *D. crassinode*, I would gladly send him a flower (if I may know where to) from a plant that came to me with that description. But I will add, if he thinks it worth his while to see it, for I have no legal evidence of its parentage, and the name with it was not *D. crassinode Wardianum*, but *D. Waltoni*.

If I had to guess at it, I should call this a very mild form of *D. Wardianum*, with the Assam habit of growth. At least, I do not see the united, or even divided splendours of a superb parentage in it. But all the plants I have in bloom of *D. Wardianum* are *D. Wardianum Lowi*, and of *D. crassinode*, *D. crassinode Barberianum*, and, compared with my reputed hybrid, they seem "much above that sort of thing."

In place of the large, dark crimson eyes of *Lowi*, it has a few narrow red lines and dots; while the deep pink, so massive on the tips of *Barberianum* petals, is here watered down to a pale tint. Neither is the yellow on the lip quite so rich as in either *D. Wardianum Lowi* or *D. crassinode Barberianum*.

Would that life were of longer span, or Orchid seed of surer, quicker growth; then how might we revel in *Dendrobium* crosses! Very lovely here, in peach bloom and primrose tints, are the flowers of *D. Findleyanum*; and past turning from, without a lover's sigh, the glittering Buttercup-gold bloom of *D. Brymerianum* on the long, lanky, tapering stems of the genuine variety. The bright green column head is a very emerald set within a fringe of gold, and above the long gold filigree of the lip, which is exquisite beyond compare.

I can the more appreciate the true, from having been afflicted with the rubbishy sort that used to set all its own pods and die in the bud.

This ought to be handed down to posterity, if ever it gets so far, by some still more "abominable" name than the six words and twenty over syllables that composed the maiden name of *D. Wardianum*.

Among pods, I have one nearly ripe on *D. Dalhousianum* × *D. thyrsiflorum*, but have not succeeded so far in getting any from crosses between such *Dendrobes* as are many-flowered on long spikes and those that have a few on pedicels springing more immediately from the nodes. Perhaps, however, there is nothing in this except my failure. F. D. HORNER.

Burton-in-Lonsdale.

Saccolabium bellinum.—An exceedingly handsome form of this rare dwarf-growing plant is now flowering in the Studley House collection, the spotting and markings on the lip being of a deep crimson-maroon, whilst the yellow is of an intense orange shade. It is one of the most exquisite gems in cultivation. It is a Burmese plant, and should be grown in a small basket, and treated to the heat of the East Indian house, with an abundance of moisture in the air.

Dendrobium Cambridgeanum.—This is a handsome, small-growing species, which produces its blooms on the young growth just before maturity, so that the flowers have the advantage of the rich green leaves. The stems are from 6 inches to 9 inches long, stout and leafy, while the flowers, produced mostly in pairs, are between 2 inches and 3 inches across, and wholly deep golden

yellow, with a heavy blotch of purplish black at the base of the lip. It is perhaps more correctly named *D. ochreatum*. This species is now flowering with the Messrs. Laing at Forest Hill. The plant is a native of Northern India at some 4000 feet elevation, and I have found it succeed best under cool treatment, but with good exposure to the light.—G.

Cattleya Massaiana.—This is a gorgeous Cattleya, a supposed natural hybrid between *C. gigas* and *C. Dowiana aurea*; the colour of the sepals and petals is that of *C. gigas*, while the lip is of the same colour as that of *C. Dowiana aurea*, with the two large, orange-coloured, eye-like spots of *C. gigas*. It differs from *C. Hardyana* (another supposed natural hybrid) in having the golden network of aurea confined entirely to the throat, thus leaving the rich magenta-crimson of the fore part quite clear. It is very fragrant.

Dendrobium macrophyllum Richardi.—This is a very distinct form of this species, and was, I think, introduced by M. Linden, of Brussels, and although it does not approach the variety *Veitchianum* either in size or beauty, it is a most desirable plant. In growth it somewhat resembles *Veitch's* variety. The sepals and petals are spreading, the former much the larger and greenish yellow; the latter are decidedly yellow. The flower is very sweet-scented. It is now blooming in the Studley House collection.—W. G.

Saccolabium coleste, from Siam, is one of the most charming of its genus. It belongs to the section which bears erect racemes of bloom, of which *S. Hendersonianum*, *S. ampullaceum*, and *S. curvifolium* are familiar examples; the scape is erect, some 9 inches high, bearing a dense raceme of flowers, which are white tipped with deep blue. We have seen examples of this plant in which the flowers were tipped with light azure-blue, and we find it difficult to determine which of the forms is the most exquisite. It requires strong heat and moisture.

Dendrobium primulinum giganteum.—Although now introduced to this country some thirty years, this plant has never become common, and I was much pleased recently to note several good forms flowering with Messrs. Laing and Sons. It belongs to the *Pierardi* section, but differs from that plant in its shorter, stouter bulbs, and by its very much larger lip. The sepals and petals are deep lilac, the lip being large, convolute at the base, thick and fleshy in texture, soft creamy yellow, streaked more or less with lilac-rose. It has a fragrance somewhat resembling that of the wild Primrose.

Odontoglossum Roezli.—This fine plant undoubtedly enjoys plenty of heat, and of course moisture, for if this is not well supplied to the roots, and the atmosphere also kept well charged, thrips soon work sad havoc amongst the plants. I recently noted a nice lot of this species in vigorous health in Mr. Darnell's garden, where the plants are kept in the East India house. The plants are of an intense deep green, and are just beginning to flower profusely. It is a superb Orchid when well grown and cared for, as these are, but where the atmosphere is not kept well charged with moisture, the plants soon die. I have never seen this plant thrive when kept in a cool house, although it is a native of Colombia. Many growers find that it does well in the Cattleya house, but I think that the dry air in this structure during the winter months is unsuited to the requirements of this species, and therefore I think Mr. Elliott's plan of keeping it in winter with his *Cypripediums* and such like plants is a step in the right direction.—H.

Orchids on cork.—In reply to "J. G. M. G." in THE GARDEN, March 9 (p. 228), the plants I have so growing are *Dendrobium Parishii*, *heterocarpum*, *aggregatum*, *pulchellum*, and *suavissimum*, *Odontoglossum Rossi*, *Londesboroughianum*, *Oncidium splendendum*, *Marshallianum*, *Papilio*, and *varicosum*, *Cattleya citrina* and *Harrisoniae*. I am trying a number of others, but they have not been in position long enough to write with any certainty about them. Some of these are doing better than

similar plants in pots and baskets in the same house. I must say that perhaps my system of damping may have something to do with the results. I am able to regulate the density of the atmosphere to any degree I like without syringing or throwing water about the stages or paths, and am able, in fact, to obtain the dew point at any time of the day or night I like. I keep a hygrometer in each house, and am very much surprised they are not more generally used, not only in Orchid houses, but in stoves, early vineries, and Cucumber houses, as I do not think anything would so soon give warning that red spider would pay you a visit.—ORCHID AMATEUR.

Cattleya Trianae virginalis.—Amongst the numerous very fine forms of this Cattleya now flowering with Mr. Sander at St. Albans this is conspicuous and beautiful, the flowers being large and well formed. The sepals and petals are large and broad and of the purest white; the prettily frilled lip is also white with just a faint tinge of mauve in front of the yellow in the throat. It is almost equal in purity to the true alba, but the slight flush of colour at once distinguishes it from that chaste form.

Odontoglossum blandum.—This is a beautiful dwarf-growing *Odontoglossum*, and it is hard to account for its comparative neglect, as it has become rare even though introduced about twenty years ago. *O. cirrhosum* is another species that had until recently almost dropped out of cultivation, though why it is hard to say. *O. blandum*, several specimens of which were in bloom in the nursery of Messrs. J. Veitch and Sons at Chelsea last week, was discovered by Blunt, we believe, close to Ocana, in New Grenada, where it grows naturally at an elevation of over 6000 feet. The flowers remind one of those of *nævium majus*, and are closely packed on a short raceme. The sepals and petals are about the same size, narrow, and white spotted with crimson-brown. It is a gem amongst its class, and no collection of Orchids is complete without it.

Maxillaria luteo-alba.—This is a genus which, like *Epidendrum*, is not popular with many Orchid growers. I suppose this has arisen through the introduction of so many species with insignificant and dull-coloured flowers, because they were plentiful and easily obtained. These species, I hope, however, still find a home in the garden of some genuine lover of plants. The gardens of Burford Lodge, the residence of Sir Trevor Lawrence, are an exception as far as Orchids are concerned, for there many small-flowered kinds are to be found which do not exist at the present time in any other garden in England. The plant now under consideration has unworthily been under a cloud for some years, but if the best Orchid growers of the present day could see it as I saw it a short time since, bearing upwards of forty flowers, I feel sure it would be restored to popularity as well as *M. Sanderi* (which, however, is the finest species of the genus yet introduced to cultivation). *M. luteo-alba* is a cool house plant, thriving well with *Odontoglossum Alexandræ*; the pseudo-bulbs are some 2 inches or more high, deep green, and bear a single deep green leaf; the flowers solitary on the peduncle, which is about 6 inches high; the sepals are 3 inches long, tawny yellow, the lateral ones soft white at the base, twisted; petals smaller, erect, creamy white at the base, streaked with purplish brown in the centre, and broadly tipped with tawny yellow; lip small, the middle lobe recurved, yellow, bordered with white; side lobes erect, yellowish, and streaked with deep brownish purple. The flowers last long in beauty when cut.—W. H. G.

Dendrobium Jamesianum.—"An Inquirer from the County Armagh" asks for information respecting the management of this plant, and this brings to my mind that a few years ago my statement, that this plant and *D. infundibulum* would succeed under cool treatment, was called in question. What is the case to-day? Where do we see these plants thriving and flowering best? Why in the warm end of the *Odontoglossum* house, or in

a temperature slightly warmer than that and below that of the usual Cattleya house. *D. infundibulum*, also known by the name of *Moulmeinese*, and *D. Jamesianum*, which was named in honour of Mr. James Veitch, are both alpine plants, growing naturally on the mountains in Burmah up to 5000 feet elevation. *D. Jamesianum* should be grown in a pot, as under this system its beautiful flowers are displayed to the best advantage; but special care must be taken that the drainage is ample, whilst a very small quantity of peat and *Sphagnum Moss* will be necessary on the surface. "Inquirer" asks, "When is the time to rest it?" After growth is finished the supply of water must be reduced, but never at any time should this plant be subjected to a thorough rest. Until flowers or a new growth make their appearance, the water supply should be just sufficient to keep the plant or plants in a moist and genial condition. In answer to a query respecting its flowering season, I may remark that I saw this week a batch of plants full of flower, and these same plants were flowering equally as freely about midsummer last year; in fact, their owner told me that he never experiences any trouble with them. He keeps them heavily supplied with moisture when growing, taking particular care that nothing stagnant remains near them, and he regularly has two batches of flowers every season. From these statements and my own observations, I would say that this plant requires exceptionally good drainage, a heavy supply of water during the growing season, good exposure to light, and a cool moist atmosphere. *D. infundibulum* will succeed under the same conditions, but not so *D. formosum giganteum*, another of the same black-haired section.—H.

Orchis Robertiana.—Tantalising it is to receive a fine example of some particular flower that one has long striven in vain to successfully cultivate. Such I felt to be the case to-day, for that grand spike of *Orchis Robertiana* that you forwarded recalls to mind many an unsuccessful trial that I have had to grow this pretty plant out of doors. Failure has invariably crowned my best efforts, for the largest flower-spike produced could bear no comparison with the one you sent. What a handsome spike, and how pretty the flowers look in the bud state or just before they expand with their deep purplish pink labellum! Sixty-five flowers closely packed on a stout and succulent stem of fully half an inch diameter, and set in foliage of the brightest and freshest of green, is a treat that one does not enjoy every day, but particularly in the Orchid line. Some forms of our native *O. fusca* that I have grown remind me much of *O. Robertiana*, but of course the individual flowers are not much more than half as large, though in colour they are much alike. The sepals and petals are brownish green externally, spotted with pink within, while the lip is large, four-cleft, and of a bright purplish red. Judging from how seldom we see a note about *O. Robertiana* in THE GARDEN, it must be a somewhat rare species, or perhaps the culture of this curious Continental plant is not well known. A note from someone who "does" it well would be acceptable to perhaps other readers as well as myself.—A. D. WEBSTER.

Cypripedium Sedeni candidulum.—Noticing in THE GARDEN, March 9 (p. 227), that you speak of *Drewett's* variety of this being the better form, I cannot help calling this statement in question, with all due respect to Mr. Drewett, with whom I am unacquainted, but whom I feel sure will accept my criticism without offence. I have the two forms now before me from undoubtedly true examples, so that there can be no mistake. In *Veitch's* plant, which must be accepted as the type, the sepals and petals are soft ivory-white, the dorsal sepal faintly veined with light green; lower sepal large, similarly coloured; petals also ivory-white, with a faint tinge of flesh colour at the tips; lip large, white beneath, the remaining portion pale pink, the infolded margin ivory-white, slightly spotted with pale pink, whilst through the open part can be seen larger spots of pale rose at the back. This is the description of the true *candidulum* from a flower now in my hand.

A flower of Drewett's variety taken from an equally strong plant as that from which the previous flower was obtained is scarcely half the size; the dorsal sepal is light, flushed with rosy red; the petals on the outside are heavily flushed with the same colour throughout their entire length, and bordered with a fainter hue in front; while the lip, which is more pointed than in Veitch's plant, is wholly rosy red, saving the incurved margin, which is ivory-white, freely dotted with pink.—W. H. G.

Angræcum citratum.—This charming Madagascar Orchid is doing well at Devonshire House, Stamford Hill. The plants, which are growing in a fairly warm house, are vigorous, and bear numerous spikes of bloom fully 18 inches long. The lovely shell-like flowers, densely set, white suffused with a tinge of citron-yellow, render the plant very attractive; moreover, the blooms last long in beauty. This species, though brought into commerce by the Messrs. Veitch some years ago, should not be overlooked by Orchid growers, as it holds its own with any of the newer kinds of the same genus.

Cymbidium eburneum.—This plant is well grown at The Woodlands, Streatham, where I recently noted upwards of thirty of its large snow-white flowers open. It is truly a grand plant and a striking example of the results of cool treatment. In the olden times *C. eburneum* used to be grown at the warmest end of the East India house and rarely flowered, but in the early part of 1875, when I imported a fine lot of this plant, the collector said: "The leaves are all broken down in the cold season. The plants get snow upon them, but they break up again like Willows and flower like great white Tulips." From this time forth *Cymbidium eburneum* has been improving in health and popularity until now it must be reckoned amongst the most showy and beautiful of our white-flowered Orchids.—G.

Sham ruins.—The great public parks in German cities are undoubtedly the most artistic, in scheme and execution, which have been laid out in recent years. It is a double surprise, therefore, to find from time to time in German horticultural journals signs of bad taste exhibiting themselves in directions which have no parallel, we believe, in other countries. For example, one of the chief horticultural journals of Germany has recently devoted many pages to the praise of artificially constructed ruins, and has given illustrations to show how they may best be constructed. Of course, ruins which are essentially picturesque objects, and speak as strongly to sentiment as to the eye, are peculiarly beloved in the sentimental Fatherland; and artificial ruins are found there at almost every step—in the parks of wealthy land-owners, in the gardens of poets, on tops of pretty hills that are laid out as public promenades, and in the depths of rocky ravines. Now they serve as studies or garden shelters, now as booths for the sale of refreshments, and again as outlooks affording a picturesque prospect. And, it must be confessed, they are usually placed in exactly those spots where, if they were only genuine, they would have the best possible effect. But the fact that they are not genuine so degrades them in the eye of sensible folk, that they excite laughter or contempt rather than the poetic sentiment they are intended to serve. Most travellers believe, we fancy, that these artificial ruins are creations of the earlier years of our century, when sentimentalism ran riot in Germany, and expressed itself in a thousand other ludicrous ways. But it seems, from the evidence of the articles to which we refer, that the taste for them is not yet extinct; and it is either amusing or distressing, according to one's turn of mind, to read a serious discussion with regard to the best ways of placing them, of utilising them for one practical purpose or another, and, especially, of making them "genuine." Truth, we are told, should always be considered in their formation—they should be well built, of dignified materials, and a strict regard should be paid to the dictates of style as revealed in the genuine ancient constructions. And all this effort after truth is to be expended in undertakings, the object of which

is to embody a lie. It is almost needless to say that, whatever may be the effort after truth in the matters of detail, it is the lie which makes itself most clearly felt in the result.—*Garden and Forest.*

STOVE AND GREENHOUSE.

BRAHEA NITIDA.

THE pleasure grounds attached to the Villa Valetta at Cannes contain a splendid collection of well-grown specimens of rare species of Palm trees. In these grounds hardly a year passes by in which some new kind of flower or fruit does not make its appearance. At one time the superb *Cocos flexuosa* and *C. Romanzoffiana* will be laden with heavy clusters of fruit, for which the seed merchants of France and Germany pay high prices. At another time the large specimen of *Areca sapida* ripens its pretty



Brahea nitida; showing flowers.

orange-coloured berries, the seeds of which vegetate very readily. The year before last the large *Brahea nitida* fruited abundantly. This specimen, which is unequalled in France for size and beauty, was purchased some years ago at Golfe Juan by M. Dognin.

Independent of its great value as an ornamental subject, this Palm is one of the hardiest grown on the Mediterranean coast, where its foliage does not suffer either from high winds or from cold, which is more than can be said of the *Coryphas*, *Livistonas*, and other like Palms which are grown there. Perhaps the most remarkable thing about *Brahea nitida* is the length of time it takes to ripen its seeds. In the present case, at least, it has taken three full years to do so. This fact should be borne in mind by cultivators, to prevent disappointment in an anticipated gathering of ripe seed.

By some botanists *Brahea nitida* is considered

to be only a cultivated variety of *B. dulcis*, but there is a great difference between the two plants. In *B. dulcis* the leaf-stalks, flower-stalks, and even the flowers are covered with a whitish down, which is absent in those parts of *B. nitida*. Moreover, the berries of *B. dulcis* are as large as Cherries, and are of a yellow colour and edible; while those of *B. nitida* are black and not larger than Peas. As regards the native country of *B. nitida* we cannot speak with certainty, but, like other species of the genus *Brahea*, it probably comes from Mexico.—*Revue Horticole.*

AMARYLLISES AT CHELSEA.

THE Amaryllis in its present aspect represents an unexampled type of the perseverance of the hybridist, who through a series of years has been working, by crossing and careful selection, to bring this flower to perfection. Mr. Heal, who has charge of the Amaryllises in Messrs. J. Veitch and Sons' nursery at Chelsea, has accomplished much, but still there is more to do if the great ideal of what a perfect Amaryllis flower should be is to be reached. There are at the present time in the Chelsea nursery about 1800 spikes of flowers, the bulbs being arranged in the centre bed of the span-roofed house as in former years, and allowed to flower there. There is no artistic grouping, but simply a mass of flowers that gives the critical observer plenty of scope for making comparisons and noting distinct advances. As to the formality of the Amaryllis flower, its hardness, want of foliage when flowering, and other points, we have nothing to do with now. We look at the flower as it is, and can find nothing but praise to bestow. There is still the greenish tint, but it is becoming obliterated. There is also an absence of a self white variety, but there is a greater number of lighter varieties, which are a relief from the self scarlet, crimson and shades of the same which dominated until recently. To obtain a perfectly symmetrical flower is one wish of the hybridiser, and that he is attaining his object the variety Improvement is sufficient evidence. Optima is a surprise to us, as the flower, rich scarlet in colour, is almost 10 inches across, flat, each segment of almost the same size except the lower one. It is a cross between Niobe and Colonel Burnaby. Such a variety as this throws to the winds all the "talk" as to the Amaryllis having attained its largest phase, but whether we want flowers of this enormous size is a matter of opinion. Another Amaryllis in the same line of colour is John Ruskin; it is a noble flower, that is almost as perfect in symmetry as the now old, but still beautiful kind, Dr. Masters. We might enumerate many fine varieties, but the list can never be made complete, because every day sees the opening of some seedling flower that often eclipses its predecessors. Acquisition, which is scarlet with a central band of white down each of the massive segments; Julius, scarlet; Lustrous; The Champion, a noble variety, but scarcely justifying its name; Cicero, Ariel, Conquest, Coreggio, Florentine, Grandeur, Trophy, and Princess Ida, very dwarf, all represent various shades of scarlet. The last-mentioned of this series is dwarf in growth, and it would be an undoubted advantage if the Amaryllises were reduced in height to bring them to a better level and promote a stronger, straighter spike, but every improvement that it is seen might be made cannot be accomplished at once. It is the light-flowered Amaryllises that are undoubtedly catching the public taste, and we can well understand that such undeniably beautiful flowers as Scipio, Mirabella, Finette, Her Majesty, and Felicio are in request. All are not of the same degree of brightness, some showing a more profuse feathering and veining of scarlet than others, occasionally only laid upon the upper segments, and in some instances distributed evenly over the whole flower. If the collection at Chelsea is watched carefully, it will be seen that a few of the flowers are quite innocent of any green colouring, and that even amongst hundreds of seedlings there are comparatively few in-

ferior or badly shaped blooms, though there may be few brilliant prizes as Optima or John Ruskin.

Although this has not proved a good season for Amaryllises, owing to the absence of sun until lately, the plants at Chelsea show no effects of any hardships. They seem sturdier than usual, and should continue for many days in beauty, as the individual flowers last for a considerable time if kept free from damp. It is urged sometimes that the Amaryllis is difficult to grow, but this is by no means the case, and it is perhaps this unfounded rumour that accounts for their frequent absence in gardens in which we might expect a good display. Very little fire-heat is necessary, only just enough to dispel damp and prevent mischief from frosts. The time selected for potting the bulbs is about the middle of January, and they are placed about half their depth in a soil made up of turfy loam of the best

So much has been written respecting Messrs. Veitch's Amaryllises that it is telling an old story to go over the same ground. The exhibition has become an annual event. Each year offers some new surprises, some new departure in shape, colour, or style of growth, all testifying to the energy of the raiser and the public demand for new treasures.

Since the above notes were written, the following varieties have opened: Vandyke, very rich scarlet, one of the darkest we have seen; Sapateo, scarlet, magenta shaded, and with a distinct white band in the centre of the segments; Favourite, rich purplish scarlet, dotted and splashed with white, and with a distinct white central band on the segments; and Improvement, which is purplish scarlet; the distinctive character of this is not so much the colour as the marked advance in shape. It is quite a novelty as regards form. We may add

in beauty to the ordinary form. It is in full beauty at this season.—H. P.

WORK IN PLANT HOUSES.

EPACRISES.—Amongst the different kinds of hard-wooded greenhouse plants that can be had in flower during the winter months there are none that make a more effective display than Epacrises. Where a sufficient number of plants are grown and the right varieties are selected, there is no difficulty in having them in flower from November to the end of May. Another recommendation worth taking into account is that they require no heat to induce them to bloom in winter further than is necessary to keep them out of the reach of frost. Plants that began to flower in autumn, and that after the blooming was over had their shoots shortened back, will now have started into growth and be in a condition for repotting. No time should be lost in getting this done, so that the roots may have a chance of taking hold of the new soil before the hot weather comes on. In determining the increased size of pots that are given, it is necessary to be guided by the size of the specimens and the condition of their roots. In the case of small stock to be grown on without unnecessary delay, a larger shift will be advisable than with plants that have already attained considerable size. It is necessary to bear in mind that Epacrises require less root room than most hard-wooded subjects, especially the erect growing varieties that bloom the earliest. These are much smaller growers than the bushy habited sorts. Fibrous peat, somewhat closer and heavier than required by most kinds of hard-wooded plants, is best for Epacrises. Mix enough sand with it to keep the soil sufficiently porous for an indefinite time, as there must be no attempt to remove any of it, however long the plants live. Do not interfere with the roots in any way, further than to remove the drainage from the bottoms of the balls. Pot firmly, and give no more water after the work is completed than is absolutely necessary. Shade for several weeks when the weather is sunny, and give less side air than at ordinary times, so that the atmosphere may not be dried too much.

PRIMULAS, SINGLE VARIETIES.—Where plants are wanted to flower during the latter months of the year, a little seed should now be sown, for though it is better to defer the raising of the principal stock that are to bloom during winter and spring until May, to have the earliest batch strong enough to flower well at the season they are wanted, no time should be lost in getting them in. It is immaterial whether the seed is sown in the ordinary pans or in shallow boxes, provided it is not put in too thickly, as when this occurs the plants get drawn up weakly through being crowded too closely together. Press the soil quite smooth before sowing and cover very lightly. A temperature of 50° is enough for the seed to vegetate in, but it should not be lower than this, or there is a danger of it decaying. As soon as the plants appear, stand them where they will get plenty of light. Without this they will be wanting in vigour.

SEMI-DOUBLE PRIMULAS.—This section of Primulas is likely to be grown much more extensively than it has hitherto been, especially when the flowers are required for cutting. The white varieties are the most in request for using as cut flowers. Care should be taken that the seed of these semi-double kinds is obtained from a reliable source. So much improvement has been effected in these half-double sorts, that they are equally as free growers as the single varieties.

EPIPHYLLUM TRUNCATUM.—As the plants go out of flower they should be stood where they can have a cool stove temperature so as to induce them to make the requisite growth. These Epiphyllums require less pot room than most things, but when they get large and old they must not have their roots unduly confined. Any that want repotting should be attended to now, as during the time that top growth is in progress the roots will be similarly active. Whether grafted on the Pereskia stock or grown from cuttings, these plants are spare rooters



Brahea nitida; showing habit of growth.

kind, well decayed cow manure, and silver sand. The pots are then plunged in tan, and in this we see them now at Chelsea. Between the plunging and the flowering season very little trouble is experienced, the main thing being the proper supply of water, and at the end of February a little bottom-heat, with a temperature in the house of 55°. After the flowering season has passed it is necessary not to neglect the plants, but to keep them growing and give an abundance of air through the summer and autumn months, at the same time shading from fierce sunshine. One point of prime importance is, of course, the ripening of the bulbs. The bulbs now flowering did not receive any water from the middle of last August until the end of February of the present year.

that those who wish to see the Amaryllises should do so at once, as the earlier flowers are always the best.

Dalechampia Roezliana.—About twenty years ago, when this euphorbiaceous plant was first introduced, a great future was anticipated for it; but this has not been realised, for though of easy propagation and culture and very pretty, it is rarely seen now-a-days. The prominent features of the inflorescence are not the flowers themselves, but the large rosy-pink bracts and the curious tuft of thread-like filaments in the centre. I find that self-sown seedlings of this plant often come up in considerable numbers. There is a variety in which the floral bracts are white, but it is much inferior

their roots are also delicate, and will not bear soil that is in any way sour and adhesive. One part of sand to five of loam, with some broken potsherds, will answer. Drain the pots well. The only object in grafting these Epiphyllums is, that from their naturally drooping habit of growth the plants hang down over the pots too much when on their own roots; consequently when grafted on stems 12 inches or 15 inches high the flowers are better seen. Where any increase in this way is required the grafting may be done now. If the work is put off later there is less time for the shoots to unite and get established. Cuttings of the Pereskia strike readily, but they must not be confined closely under propagating glasses or in a frame in the ordinary manner, as if kept too close they will rot. The cuttings should consist of pieces of the shoots put singly in small pots filled with a mixture of loam and sand; stand them in a moderate stove temperature, and do not give more water than necessary to prevent them shrivelling and to keep the material in a condition that will help the formation of roots. When struck, the stocks should be grown on with a single stem until they have reached the desired height. Where these Epiphyllums are to be grown on their own roots, cuttings, consisting of pieces of the shoots from 4 inches to 6 inches long, may be used. Put them singly in small pots filled with sifted loam and sand in about equal proportions. They will strike without being confined in any way, and it is not necessary to keep the soil so moist as for many things. They will do in an ordinary stove temperature. Plants on their own roots are better adapted for growing in hanging baskets than such as are grafted. There is no way that they are seen to better advantage than when suspended in this manner.

AZALEA MOLLIS.—These Azaleas, like many other plants that are forced, often meet with indifferent treatment afterwards, so that they get into a condition which prevents their being of much use again. If, in place of being turned out of doors or crowded together in pits or frames where little notice is taken of them, they are grown on in a little warmth, such as answers for *Deutzia gracilis*, they will make growth and set flower-buds in larger numbers than were on them when taken up from the open ground. During the time the growth is going on weak manure water will be an assistance. These and other hardy shrubs, including *Rhododendrons*, *Andromedas*, *Lilacs*, and *Ghent Azaleas*, that after being forced are to be again transferred to the open ground, should, as they go out of bloom, be put in a cold house or pit. Here they can remain until next month, when they should be planted in beds of prepared soil in an open position, where with enough room and attention, and water if the summer happens to be dry, they will recover, so that after a second season's growth they will be larger and better for again being forced than hitherto.

KALOSANTHES.—Plants that have been properly prepared for flowering through the coming summer will now be growing and must have more water than it was advisable to give them in the winter. They should have a position well up to the roof in a light airy house. Some weak manure water once a fortnight will be an assistance to them.

KALOSANTHES, STRIKING CUTTINGS.—This is a good time to strike cuttings, either with the object of growing them into large specimens, or for flowering in 6-inch or 7-inch pots. Cuttings that are put in now and grown on with proper attention through the summer will flower the summer following. They should consist of strong or medium-sized shoots from 4 inches to 6 inches long. They may be put singly or half a dozen together in 3-inch or 6-inch pots filled with sand or a mixture of sand and loam. Strip the leaves off the bottom of the cuttings so far as they have to be inserted in the soil. The material must be kept much drier than would do for cuttings of the majority of plants or they will rot. They must not be confined under propagating glasses or in a striking frame, as this would also bring about their decay. A temperature of about 55° is enough to strike them in.

PELARGONIUMS, STRIKING CUTTINGS. July is

the month in which the large-flowered and the fancy varieties of *Pelargoniums* are mostly propagated, but when the cuttings are put in at this time the plants get much larger and stronger before autumn than when the work is deferred later. This applies still more to the early-flowering varieties of the large-bloomed section, as when they are required to flower in less than a year from the present time, they necessarily have a shorter period to acquire the desired size. Cuttings of medium strength, consisting of three or four joints, should be chosen. Avoid the weak shoots from the centres of the plants, as these take a long time to gain strength, and will never, even with the best attention, make plants equal to those that are produced from stouter shoots. It is best to put the cuttings singly in small pots, as when the time comes for potting them on their roots will be less disturbed. A temperature of 55° or 60° will be enough to strike them in, and they must not be confined in the ordinary way that cuttings which are liable to flag if exposed to the air of the house require to be. As soon as the plants are well rooted and have made some top growth, take out the points of the shoots so as to get them to break low down and be bushy at the base.

ZONAL PELARGONIUMS.—Plants that are intended to be grown on into large specimens will now require moving to the pots in which they are to remain during the summer. Room proportionate to the size the plants have attained and to that which they are ultimately to be grown to should be given. For flowering in large conservatories small examples do not give much effect; consequently it is better to have a limited number of good-sized specimens. They will be most useful towards autumn, when flowering subjects are less plentiful than earlier in the season. When not required before the time named, it will be well to pinch out the flowers during the spring and early part of summer, as it is no use letting the plants expend their strength before the bloom is wanted. The shoots should only be stopped so far as necessary to keep the specimens close and bushy. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Stephanotis ripening fruit.—In *THE GARDEN*, Feb. 19 (p. 178), you state that you do not remember having heard of a *Stephanotis* ripening fruit in this country. I cut a perfectly ripened fruit of *Stephanotis* last October. This was set in June, 1887. The plant is growing in a small box and trained on the roof of a stove, and flowers most profusely.—W. G.

New Ivy-leaved Pelargoniums.—Mr. Owen, of Castle Hill Nurseries, Maidenhead, has some fine seedling Ivy-leaved *Pelargoniums* of great beauty. One, a double form, is named *Edith Owen*; it is a seedling from *Souvenir de Charles Turner*, and has large and very symmetrical double flowers of a bright rosy-scarlet colour flushed with crimson; the other, a single variety named *Victorious*, also very fine in form, and having deep rosy-crimson blossoms. While so fine in form, stout in texture, and brilliant in colour, the habit of growth in each case is all that could be desired.—R. D.

Propagating Poinsettias.—The old plants should be brought into heat about this time to induce them to form little shoots, which they very soon will do, and when these are 3 inches or 4 inches in length they should be drawn from the old stem with a heel attached and inserted singly in the smallest sized pots to root. If *Poinsettia* wood is cut it does not root readily, but by taking the shoots off as suggested without using the knife, the tender growth is never injured and roots are formed with the greatest certainty, especially if the shoots are inserted in sandy soil and plunged in a bottom-heat of 85°.—J. Muir.

Forsythias under glass.—Of the two species of *Forsythia* that we possess, *F. suspensa* is a remarkably accommodating plant, for it is one of the best of subjects for training to a wall, or it may be allowed to assume the character of a scrambling bush, while it is also well adapted for flowering under glass. For this latter purpose a good plan is to allow the plant to run up and form a head of branches. After flowering, these should be pruned in pretty hard, when the fresh shoots will make their appearance and grow away freely. The plants

should be kept in an open sunny spot during the summer, as upon this will depend the following season's display, it being useless to expect a profusion of blossoms from partially ripened wood. When grown as a standard the long string-like shoots hang down in a very graceful manner, and being profusely clothed with their golden bells, render a well-flowered specimen most attractive. When the flowering season is over the plants should be gradually hardened off and pruned back. They may be assisted during the growing season by an occasional stimulant, as this will obviate the necessity of re-potting every year. The other species, *F. viridissima*, which is of a bushy habit of growth, will flower under glass as readily as the other, and both blooming naturally so early in the season they require but very little forcing to cause them to expand their blossoms. Both of the *Forsythias* are worth a place in any garden, but the better of the two is *F. suspensa*. When this is employed as a wall plant, should the structure be old, it will sometimes strike root at the top and establish itself there.—T.

CHRYSANTHEMUMS.

E. MOLYNEUX.

JAPANESE CHRYSANTHEMUMS.

ALTHOUGH the varieties in this section are so numerous, it is difficult to place them into family groups, for the reason that so many are seedlings, yet there are a few that can be so classed, and, as far as I know, they are of English origin.

MEG MERRILIES FAMILY.—This variety has probably produced the greatest number of sports. They are three in number, which is very small as compared to the incurved section, in which The Queen family heads the list with a total of seven sorts. Of course, the fact has to be taken into consideration that the Japanese varieties have not existed in quantity nearly so long as the incurved varieties, the latter evidently not producing seed so freely as the Japanese kinds. The type was introduced by Mr. J. Salter in 1871. It is very striking both in its form of growth and flower. No *Chrysanthemum* that I am acquainted with shows the effect of good culture so much as does this one now under notice. The florets are long, drooping, thinly disposed, and for about three parts of their length they are quill-shaped, the point of each being toothed or serrated. The colour is white, with a sulphur centre, well-grown blooms of this variety often measuring 9 inches in diameter. Blooms of this variety which are well developed have a full centre, and always carry weight with good judges, for the simple reason that they are difficult to produce in the best form. This variety is good for producing late blooms, but I do not remember seeing it grown in specimen plant form and not often in bush form. The growth of the plant is stiff; therefore, not well adapted to training in any particular shape. The leaves have a drooping habit, are often pale in colour, and some of them are affected with mildew, especially on the underside, so specially addicted to this fungus is this sort. A light soil and small pots are an advantage to the successful growth of this sort. Where the largest blooms are desired, the second or crown bud must be secured, and this should be early in August. If by any means this bud is lost, the blooms from the next bud will be much smaller in diameter and also thinner. Thus it will be seen that early bud selection is of the utmost importance in the growth of this variety. The plants must be housed at an early date also, as a long time is needed to develop the blooms from the bud state. One advantage which this variety possesses is its naturally

moderate growth, good blooms being often obtained from plants 3 feet 6 inches high.

Early propagation of this kind is most necessary, for the reason that the growth is not so vigorous as in some other varieties. During the year 1886 two sports were obtained from the parent of this family. One of them—Ralph Brocklebank—has already taken a leading position as an exhibition flower, being shown as many as fifty-two times in first-prize stands during the year 1888, although it was only sent out two years before. This fact says much for its quality as an exhibition variety. At present it stands alone in point of colour, which is a clear yellow, harmonising well with other colours in a stand of cut blooms. In growth and the formation of its blooms it is exactly like its parent, though perhaps the flowers are a trifle larger when seen in their best form. This sport originated at Childwall Hall, Lancashire, the residence of the gentleman whose name it bears. From the foregoing variety, Mr. Winkworth had another sport last season, a clear golden one, which he has named Mrs. Bevan Edwards. It promises to be an acquisition.

During the same year that the Brocklebank sport showed in Lancashire, another one—a much paler yellow—originated with Mr. Kipling in Herts. It received the name of Countess of Lytton, and Mr. Kipling says that this variety is “altogether a fuller and better formed flower” than that of Mr. Ralph Brocklebank.

CRITERION FAMILY.—By the advent in 1887 of a sport from this variety we have another family among the Japanese. Now that they have taken to sporting rather freely, we may expect other varieties shortly, and, as a rule, when any good variety adds to the list by sporting, such new kinds are generally of corresponding quality. Criterion has for a long time been one of the leading varieties for exhibition, generally producing large, fully developed flowers which are remarkable for their depth and solidity. In this manner they always secure a full number of points when being adjudicated upon. The colour may be described as orange-amber, varying to deeper or a lighter shade, according to the time the buds were selected, whether early or late, the last formed buds generally developing the deepest coloured flowers, while those plants which form the buds early usually produce blooms paler in colour; the florets recurve on all blooms. Plants of this variety are often weakly in growth and the leaves pale in colour. In some districts the plants grow 6 feet high, but, as a rule, they do not attain a height of more than 5 feet, and in many instances not more than 4 feet. I have seen very fine blooms produced upon plants which were only 2 feet high, and the reverse of a vigorous growth or healthy appearance during the summer and autumn. I have not seen this variety much used either as a decorative plant or in specimen form. Its introduction dates back to 1873. During the year 1888 this variety was staged as many as forty-eight times in a cut state in first-prize stands. The variety which sported in 1887, and bears the name of Thomas Stephenson, is orange-red, a somewhat new colour in the Chrysanthemum. The form of the parent is retained, and no doubt when this variety becomes better known it will prove a favourite. I saw it shown last season on several occasions in a very creditable manner, and it worthily deserved the first-class certificate conferred upon it. Messrs. Clibran and Sons, nurserymen, near Altrincham, are sending out this novelty.

Chrysanthemum Mrs. Alpheus Hardy.—If we can judge of a coloured drawing of this

American novelty exhibited the other day, it is a beautiful flower. It is very full, of the purest white, and the peculiar bristle-like points on the surface of the petals that give it such a distinct character are most marked. Chrysanthemum enthusiasts will await the flowering of this variety with interest; it will be something fresh after the inundation of Continental Japanese seedling varieties of late years, that are frequently inferior in shape and not very novel in colour. It is to the incurved section that we now look for an increased variety of beautiful flowers. Let us hope they will be less vulgar and rough than a few that have recently been shown favour.

Chrysanthemums in spring.—I have, like “T. W.” (THE GARDEN, March 9, p. 210), always considered Chrysanthemums out of season in summer, but in spring they are almost as great an anachronism as snow in June. I also would like to join his protest against sacrificing the ornamental capabilities of Chrysanthemum plants to the mere size of their individual blooms, and the rushing of the plants up to the clouds in pursuit of the latter craze. Even the training of dwarf plants like Pelargoniums, so much affected some years ago and so perfectly carried out at some of the great shows, is sense itself compared to rushing up huge blooms and stems so long and lanky as to need steps to get up to or enjoy them. Surely a medium may be found without much difficulty between these two extremes of height and dwarfness; and as to time, from August to January ought to satisfy the most insatiable cravings for Chrysanthemums. —QUERCUS.

TREES AND SHRUBS.

LILY OF THE VALLEY TREE.

ANDROMEDA FLORIBUNDA, which is one of the most desirable of spring-flowering shrubs, and one of the very few that are of an evergreen character, is known now under the name of *Pieris floribunda*. It is a neat, much-branched shrub, somewhat dense and regular in outline, and clothed with deep green ovate leaves. The Lily-of-the-Valley-like flowers are profusely borne. These flowers appear in both terminal and axillary racemes towards the ends of the shoots, so that they actually form terminal panicles. They are seen on the plant during the preceding autumn, but they seem proof against even our most severe winters and trying springs. They also last a very long time in perfection. This particular species is a native of North America, and though in this country it is seldom seen much more than a yard high, according to Dr. Asa Gray it varies from 2 feet to 10 feet in height. It will grow under the same conditions as *Rhododendrons* require, for which at one time a soil composed at least of a certain amount of peat was considered absolutely necessary, but a stiff loamy soil will do as well. For plants of this class, the incorporation of some well-decayed leaf-mould with the soil, if very stiff, is an advantage, though not essential, but in most gardens there is a certain amount available for the purpose. When sprays of this plant are cut just as the earliest blossoms are expanding, they will open well in water and prove useful for indoor decorations.

Good bushy plants can be lifted in the autumn (their dense mass of fibrous roots then standing them in good stead), and if potted and kept in a cool greenhouse throughout the winter they will flower much earlier than those out of doors, indeed as early as many shrubs that require a good deal more heat to induce them to bloom than this *Pieris* requires. To the lover of bedding out may also be suggested a bed of this *Pieris* edged with the pretty little *Erica carnea* or herbacea, which with a few bulbs dotted around will be equal in beauty to

most tender subjects usually employed, and possess the advantage of being interesting at all seasons. In the case of a mild winter, one or two of the earliest blossoms may be found on the Heath soon after Christmas. Another species of *Pieris* and a very beautiful one, too, is *Pieris japonica*, whose merits were almost unknown till a coloured plate appeared in THE GARDEN, November 3, 1877. Great interest was aroused in the plant after being illustrated in this way, proof of which was shown by the many inquiries regarding it which were received by our nurserymen. This *Pieris* can be struck from cuttings more readily than the majority of ericaceous plants. It is well adapted for forcing into bloom if not subjected to too much heat, and shoots produced under these conditions strike root more readily than those borne on plants in the open ground, though these last are not difficult to strike.

Pieris japonica is, like the preceding, a much-branched bush with rather small deep green leaves, but the whole plant is more upright in habit than *P. floribunda*. The white waxy flowers are arranged in very long pendent racemes, and when in good condition completely veil the whole specimen. This species, beautiful as it is, has one great drawback compared with *P. floribunda*, and that is the flowers are often injured by spring frosts, so that in some cases they rarely open satisfactorily out of doors; when they do, however, they are most beautiful. The young foliage of this *Pieris* is also very attractive, for the new shoots, bark, and leaves are all of a crimson tint, especially if in a sunny spot; so much so, indeed, that at a little distance a specimen of it appears to be studded with richly-coloured blossoms. There is a variety of *P. japonica* in which the leaves are edged with creamy-white, which stands out clearly from the rich green of the mature foliage, and as the young shoots are flushed with crimson, it is then one of the prettiest of variegated shrubs. Other evergreen species of *Pieris* are *P. formosa* and *ovalifolia*, both from the Himalayan region and both somewhat tender.

T.

The Rose of the Alps (*Rhododendron ferrugineum*) is as neat and pretty a peat plant as could well be desired. The terminal clusters of rosy red flowers, well set off by the dark green rusty leaves, are produced freely enough, and lend a charm to the plant which one cannot help noticing. A group of well-grown and full-sized plants has a most interesting and pleasing appearance when in full bloom, and gives one a far better idea of the plant's value for ornamental purposes than single specimens dotted about, be they ever so fine. Light sandy peat or leaf-mould seems to be the soil that is best suited for this alpine *Rhododendron*.—A. D. W.

Fendlera rupicola is a low shrub peculiar to the dry south-western portions of the United States, being found growing in the crevices of cliffs or among rocks from the valley of the Guadaloupe, in Western Texas, to the western borders of New Mexico and South-western Colorado. Although scarcely known in gardens yet, it promises to become so, as it possesses many qualities which will make it a most desirable addition to the number of small shrubs suitable for cultivation in the rock garden or along the margins of small shrubberies. *Fendlera* attains a height of from 2 feet to 4 feet. The bluish white flowers, with their conspicuous yellow stamens, are very showy, and are produced in the greatest profusion from the extremities of short lateral branches, which spring from the main stems of the plant. *Fendlera* has been cultivated in the Arnold Arboretum for several years; it is perfectly hardy, flowering in the middle of June and ripening its seed in September. It is growing in ordinary good garden soil, and requires no special

care or cultivation. The genus *Fendlera*, of which but a single species is known, belongs to the Saxifrage family and to the tribe of the Hydrangeas, which consists of sixteen genera of woody plants, all natives of Eastern Asia, the Pacific Islands, and North America. Among them are *Hydrangea*, *Deutzia* and *Philadelphus*, and several North American genera, *Jamesia* of Colorado and *Carpenteria* of California being its closest allies.—*Garden and Forest*.

WINTER-FLOWERING SHRUBS.

ANDROMEDA FLORIBUNDA.—The flowering of several unusually large specimens of this pretty, but, unfortunately, somewhat rare North American shrub in the grounds at Holwood just now demands more than a passing notice. As usually seen, even in very favourable localities, this *Andromeda* is a small bush of rarely more than a yard in height, and about as much in diameter of branch-spread, but the specimens now under consideration are about double these dimensions, one in particular being nearly 6 feet high, and measuring about 20 feet in circumference. It is not, however, the unusual size to which these shrubs have attained, but their value as winter-bloomers that I particularly wish to point out, for during the past fortnight one and all have been thickly studded with their pretty Heath-like flowers, which are thrown up so well above the dark glossy foliage. Usually this *Andromeda* is considered a fickle or miffy plant to deal with; indeed, I have heard many complaints from good amateur plantmen regarding its shy-blooming qualities and proneness to die off prematurely. Here it would seem to be by no means particular either about soil or situation, for it may be seen flourishing well in those of a very opposite nature. Somehow I fancy that it relishes a peaty soil almost half composed of sand or good sandy leaf-mould, but there are two giant specimens growing, one in front of Holwood House and another at Hollydale, where not a particle of either peat or leaf-mould is present in the ground, but where fairly rich loam resting at no great depth on deep gravel, are the main ingredients. The lasting quality of the flowers is remarkable, for they frequently remain in good condition for a couple of months on the plants, and when used for decoration are little the worse after being a fortnight in water. *Andromeda floribunda* is one of the most charming flowering shrubs of the season.

THE SPURGE LAUREL (*Daphne Mezereum*) is in every way a fitting companion to the *Andromeda*; its worst fault—if fault it be—is its deciduous character. As an ornamental shrub it ranks high, the plentifully produced flowers, of the richest purplish red and deliciously fragrant, being highly attractive and of good substance. The flowers are produced in great abundance, it being no uncommon occurrence to see 6-inch lengths of the branch tips thickly studded with the fragrant blooms. There is a white-flowered form, and it is one of the showiest and most useful plants with which I am acquainted. These *Mezereons* flourish and bloom as freely in the shade as the sunshine, while they are perfectly hardy, of the freest growth, readily propagated, and by no means particular as to soil or site, although flourishing with the greatest luxuriance in dampish soil and where partially shaded from cold winds and fierce sunshine. Cuttings root with the greatest freedom, while layers come away quickly, and soon make, under good management, stout and well-formed plants. Of the normal form there are two or three very diverse coloured kinds, one, and perhaps the most ornamental of any, being of a rich rosy hue, while others between that colour and the usual purple are not at all uncommon where the shrub is grown in quantity. For planting along the margins of ponds and lakes, the *Mezereon* is of the greatest value—at least, I have found it so, and largely used it for that purpose. In some of the Welsh woodlands the *Mezereon* is naturalised in great abundance, and blooms with the greatest freedom.

THE LAURUSTINUS (*Viburnum Tinus*), although a common occupant of our shrubberies, must on no account be omitted from our list of ornamental

winter-flowering plants, for it has a charm of its own when well grown in fairly rich soil and where not exposed to cold and cutting winds. For using as a hedge plant, not for farm boundaries or where cattle can browse on its foliage, but for garden subdivisions or wherever an ornamental fence is in request, the *Laurustinus* is not half appreciated, or perhaps it may be that its value in this particular way may not be well known. It is, however, a shrub of great beauty and value for such a purpose, and soon forms, if the young plants are placed in well-prepared ground and at moderate distances apart, a hedge of moderate proportions and that will bear timely pruning with impunity. Unfortunately, if grown in damp soils the *Laurustinus* is apt to get injured by frost, but for this it makes up in starting freely from the root if cut over in early spring and just before growth commences. As an ornamental winter-flowering shrub it is undoubtedly of great value, and usually the pretty white or pinky tinged blooms are produced in succession from November till May. A. D. WEBSTER.

THE PLEASURE GROUND.

THE season of 1888 was a good one for all trees and shrubs, and the growth made by the various inmates of the pleasure ground is a marked contrast to that noticeable in the hot summers of 1886 and 1887. This is particularly seen in the case of plantations of seedling *Rhododendrons* made in the winter of 1887-88. A very dry season following such planting means often the loss of a large proportion of stuff, but the damp summer of last year has preserved all the plants. Where large banks and stretches of shrubbery are required in the wilder parts of the pleasure ground, there is nothing better for the purpose, where it is thoroughly at home, than *R. ponticum*, owing to the immunity it enjoys from the ravages of rabbits. I have employed for covert purposes *Laurels* in variety, *Mahonias*, *Privet*, *Snowberries*, and the commoner *Conifers*, and all these, especially in severe winters, have been more or less damaged, *Rhododendrons* alone having been untouched. A large piece planted some few years ago with all the above named is a standing witness to this, nothing being left but the *R. ponticum* and a few American *Brambles*, which are kept very small by having their points nibbled off every season.

It is not too late to set about clothing any bare spots, especially slopes and hillsides where such, owing to the decay of existing shrubs, have become unsightly. All old stuff that can be so used may be cut half through and layered, and anything very ragged removed entirely, after which all bare spaces may be filled in with *Rhododendrons*. In using seedling *Rhododendrons*, they should be carefully taken up and planted, as if this is not attended to, the percentage of loss is apt to be large. As the fibres of the young seedlings run along just under the surface it is advisable to lift with a cake of soil retaining all these fibres, planting rather firmly, and as the work progresses leaving on the surface a good mulching of half decayed leaves which is very beneficial, especially if the following summer proves hot and dry. A considerable amount of cutting will be necessary this spring, owing to the extra growth made during last summer. Old plants of *Laurel* and *Rhododendron* that have been cut half through and layered will require a lot of heading back to keep them within bounds, as they have broken all along the old stems and made a quantity of strong upright growth. They are best left until March is well advanced, as if pruned too early the bitter winds and occasional frost we experience sometimes in April are apt to cut any tender growths, and the plants look shabby all through the summer. Very large brakes of *Laurel* are, I think, rather a mistake. The plants require a considerable amount of work to keep them within bounds, and at their best can only be compared to a raised lawn; the only thing that can be done to break the flat appearance is to clear them out at intervals and introduce a few *Conifers*, as *Cupressus Lawsoniana* in variety, *Thuja gigantea*, and some of the best of the *Spruces* and *Silver Firs*, and also a few good deciduous flowering shrubs. In the out-

lying portions of the pleasure ground where the clothing of bare spaces is simply a question of covert planting, there is nothing better than the cut-leaved American and the double-flowering *Brambles*. Rabbits are fond of them and nibble away at the young growths, but they do not kill the plants, and although they are considerably retarded for several seasons, they will ultimately cover the ground. The very shortening back tends to keep the young stuff dense and bushy. E. BURRELL.

Claremont.

GARDEN FLORA.

PLATE 694.

BOUVARDIAS.

(WITH COLOURED PLATE OF B. PRESIDENT CLEVELAND AND B. MRS. R. GREEN.)*

IT is now nearly a century ago since *Bouvardias* were first introduced to this country. I believe *B. triphylla* was the first species known to flower in our gardens. Within the last few years a considerable number of garden varieties has been obtained, yet, taking into consideration the fact that these beautiful flowering plants have so long been cultivated, it is rather remarkable that more varieties have not been raised and greater improvements made. I believe that *B. Hogarth* was one of the first garden varieties obtained, and this, together with one or two other sorts, was raised by the late Mr. G. Parsons, of Brighton. I do not know the date, but it must be over twenty-five years ago since they were distributed, and yet *Hogarth* is still a favourite with many, the other sorts apparently having died out. The double varieties are perhaps the most remarkable of the garden sorts. The first of these, *B. Alfred Neuner*, which was raised in America about eight or nine years ago, was very soon followed by other double forms, raised by V. Lemoine, of Nancy, and others.

The accompanying plate represents two of the most recent additions to this beautiful class of plants. The scarlet variety, *B. President Cleveland*, is of American origin and was introduced by Messrs. H. Low & Co., of Clapton. It is certainly an acquisition, being a great advance on all other scarlet-flowered varieties, having a free branching habit of growth, and producing large terminal corymbs of brilliant scarlet flowers. The pink variety, *Mrs. Robert Green*, is a sport from *President Cleveland*, and is identical with that variety except in colour, which is of a very pleasing shade of salmon-pink, and shows well under artificial light. This variety originated with Mr. H. B. May, of Edmonton, and is named in honour of Mrs. R. Green, of Crawford Street, Bryanston Square, who considers it a valuable acquisition for floral arrangements.

There are several very distinct white-flowered varieties, the best being *B. Humboldtii corymbiflora*, which is quite distinct from all other sorts that I am acquainted with. It is of a vigorous habit of growth, having smooth bright green leaves, while the flowers, which are pure white and very fragrant, are larger, and have a much longer tube than the other sorts. This beautiful *Bouvardia* requires rather different treatment to the other varieties. The plants should not be stopped so late in the season, and they should have larger pots. Unless grown on vigorously and well exposed to the sun it does not flower freely, but under favourable treatment the same plants will continue to bloom from July to the end of October, and for producing a supply of

* Drawn for THE GARDEN at H. B. May's nursery, Edmonton, by H. G. Moon, November 3, 1888. Lithographed and printed by Guillaume Severeys.



BOUVARDIAS 1 PRÉSIDENT CLEVELAND 2 MR. RUSSELL

cut flowers it is one of the most valuable plants we have. Of longiflora there are several slight variations, of which *jasminoides* is the most popular. This is another very sweet-scented variety of rather slender growth with pure white flowers. It is one of the best for winter-flowering. *Candidissima* is another useful variety, of a dwarf compact habit of growth, and very free-flowering; the flowers are small, but produced in good trusses. It will be found useful for pots, and cut-back plants will come into bloom quite early in the spring. *Bridal Wreath* is a free-flowering and compact-habited variety with rather large flowers, the tube and under side of the lobes being slightly shaded with pink. *Vreelandi*, also a popular variety, has rough dark green leaves; the flowers are sometimes pure white, but where much exposed to the sun they are more or less tinted with pink. It is a free and continuous bloomer, and is very useful for cutting from, as the flowers are of good substance. The *Bride*, *Davidsoni*, and *alba elegantissima* are all identical with this variety. I do not know if they all originated from the same stock; probably not. It was sent out under the name of *Vreelandi* by the late Mr. Standish, of Ascot, who, I believe, was the raiser, or at any rate the first to distribute it in this country.

Of scarlet varieties, the one already alluded to, viz., *President Cleveland*, of course takes first place. It has, however, been suggested that it would find a rival in *B. Vulcan*, but I hardly think this will be the case. *Vulcan* is certainly a very desirable variety, and of rather a deeper shade of colour, but the flowers are smaller, while the plant is of a more slender habit of growth. Other scarlet varieties worthy of mention are, *B. elegans*; *B. Dazzler*, one of the most free-flowering and best for winter work; *B. Brilliant*, almost as deep in colour as *Vulcan*, but not so free-flowering. *B. leiantha*, with small orange-scarlet flowers and soft woolly leaves, and the pretty little *B. splendens* should find a place in every collection. Among pink varieties we have three which have originated from sports, viz., *Maiden's Blush* from *Hogarth*, *Priory Beauty* from *elegans*, and *Mrs. Green* from *President Cleveland*, all of which differ only in colour from their parents. *Reine des Roses* is a very pretty variety with rosy pink flowers. This variety is of good habit and very free-flowering. *B. rosea oculata* is a distinct, remarkably free-flowering variety, of rather slender growth with pale rosy pink flowers, which are of medium size. The yellow form, *B. flava*, cannot be very highly recommended. When the flowers first open they are clear yellow, but they quickly fade to a rather dirty-looking white; another point against it is, that it does not flower freely. *Jasminoides flavescens* is identical with *flava*. A good yellow variety would be a great acquisition.

DOUBLE VARIETIES.—*Alfred Neuner*.—I believe this originated from *Vreelandi* (or *Davidsoni*, as it is called in America), and differs only in the flowers being double. *President Garfield*, flesh-pink, is a sport from *A. Neuner*. Of scarlet varieties, *Hogarth fl.-pl.* appears to be the best; the flowers are very double, and the plant has the same free-flowering habit as the parent; *Victor Lemoine*, coral-red; *Triomphe de Nancy*, deep salmon; *Sang Lorraine*, scarlet; and *Thomas Meehan*, crimson-scarlet, are all pretty, but do not flower so freely as might be desired.

GENERAL TREATMENT.—After the plants have done flowering, all the old leaves should be cleared off, and the plants should have a position and sufficient room for the wood to ripen pro-

perly. They may then be gradually dried off, after which they may be pruned back. Those plants required for cuttings should be started into growth again as early in the year as possible, but those that are only required for growing on another season may be kept in a cool house, and will break out more strongly than if started in heat. As soon as the plants begin to start, they may be repotted, reducing the balls in order to get them back into the same or smaller sized pots. They will then require a little extra warmth to give them a fresh start, and as soon as they are well established plenty of air should be given. During the summer-time they may be grown out of doors or in pits, where the

Bouvardias are naturally summer-flowering plants, and are sometimes used as bedding plants, but it is only under very favourable conditions that they are very satisfactory as such. It is as pot plants, or for producing a supply of cut bloom, that they are of the most value, and under good treatment they may be had in flower nearly throughout the year; but it is during the autumn and early part of the winter that they are of the most value. It is during this period that they may be flowered most successfully, as the frequent stopping which is necessary to secure good bushy plants will prevent them from coming into flower at their natural flowering season. It is by attention to stopping



A group of *Bouvardias*.

lights can be taken off on all favourable occasions. I prefer keeping them in pits, as they can then be protected in rough weather or from heavy rains. *Bouvardias* require little or no shading. Careful and regular attention must be paid to watering, as the roots being very slender they are easily damaged by either extreme. The syringe should be used freely up to the time the plants begin to flower. The planting-out system, which is often recommended for *Bouvardias*, is very well where they are only required for cut bloom, especially if they are to be flowered in the ground; but plants taken up and potted rarely do so well or keep up such a succession of bloom as when grown in pots.

the plants that the time of flowering can be regulated.
A. H., E.

Bulbous flowers in 1889.—Owing to the unfavourable season of last year for the ripening of bulbs, we shall be glad if readers will kindly give their experience. We hear many complaints of the inferiority of bulbous flowers this year.

Dipping plants.—A great deal of time is frequently spent in sponging plants to free them from insects, and in the case of plants with many small leaves and joints the sponging is rarely effective. Dipping is remarkably so, and it can be quickly done. If a deep tub is filled with insecticide to the specified strength, the plants turned upside down, plunged into it, and worked to and fro for a few minutes, more

insects will be destroyed than can possibly be reached by sponging, while the operation will be accomplished in one-fourth of the time.—J. MCIR.

FRUIT GARDEN.

W. COLEMAN.

HARDY FRUIT GARDEN.

OUR greatest anxiety just now is the perfection as well as the protection of the blossoms, in some instances thin, in others abundant, upon choice fruit trees. Complaints already have reached us, but if one-tenth of the flowers are perfect and the weather is favourable, good crops of fruit may be secured. Whether this be so or not there must be no lack of attention to the most trifling details; indeed, if anything, barren trees will require extra care, as the absence of fruit may induce gross growths which another ordinary season cannot ripen. The season for checking the trees by root-pruning, as a matter of course, has gone by, but something may be done by the removal of all strong mulching, by withholding stimulating liquid, and also by disbudding. Disbudding and defoliating have a most depressing effect upon strong trees, but the latter is an unnatural process, and should only be resorted to when cropping and cutting off supplies of food fail. Peaches and Apricots with us come on very slowly, but the trees look 100 per cent. better since they were nailed in, and I am now hopeful of having to do some open-air thinning. Plums, Cherries, and Apples are thickly studded with flower-buds, and the first and second being early to start and early to rest, their blossoms will, I have no doubt, be quite perfect. I do not know whether others have remarked it, but I always find green and black aphids more abundant and troublesome after bad than good seasons. Here they have not been troublesome for some years past, a fact I believe entirely due to the incessant application of soap-suds, which have rendered their usual resting haunts quite untenable. Where this cheap insecticide and stimulant is not looked after, and the trees have been left uncleansed, a keen eye should be kept upon them when the buds begin to push. Insecticides, now numerous enough, cannot be used when the trees are in flower, but prevention being better than cure, I would suggest the washing of every branch, and twig, and bit of wall with soap, soda, and sulphur if possible before the buds open. Where these remarks fall too late, and choice trees are carrying open flowers and living aphides, the application of tobacco powder through a fine puff or dredger may scotch the enemy until the crop is safe. When Apricots have set, the borders should be examined, and if at all dry thoroughly watered, as no fruit with which I am acquainted suffers so quickly from drought or pays better for copious watering where the drainage is satisfactory. Peaches do not suffer, or, at any rate, do not show the effects of moderate spring drought, but knowing how my borders are drained and made, I never miss giving them a thorough watering when the blossoms have fallen from the fruit. Many growers mulch in preference, but early mulching keeps our heavy soil too cold, whilst watering on a bright sunny day carries a certain amount of warmth down into the borders. The slight pruning necessary and the training of Figs may now be pushed forward to the finish. Exposed trees have not been injured by the dry frosts, and nearly every point will grow, but fruit, after such an unkind summer, is hardly

likely to be plentiful. Should the trees show well, some kind of protection from wet and morning frosts should be provided, certainly in low, damp situations. Here I use broad coping boards, which project 10 inches or 1 foot, and drop two or three thicknesses of fishing net down in front of the trees. Where Raspberry canes are allowed to stand full length until the spring they should be reduced to the proper height when the buds begin to push pretty freely. As these plants revel in good living, a second mulch, consisting of anything light, fresh, and rich will greatly assist them, and the most active and useful roots being close to the surface, a thorough watering with the hose, should the weather continue dry, will be found equally beneficial. All old Strawberry beds should now be cleared of winter weeds and raked off, and if not already done, a good dusting of soot should be cast in amongst the stools, but not actually upon the crowns, as serious mischief sometimes follows a too free use of this powerful stimulant.

PRUNING FIGS ON WALLS.

THE end of March is the usual time for the removal of the protecting materials from Fig trees in the open air, and a week or two after when the trees have got accustomed to exposure the pruning should be done. In cold districts where heavy coverings are employed it is better to remove them by degrees. Our climate is very treacherous at this season of the year; to-day may be warm and spring-like, but to-morrow the thermometer may fall many degrees below freezing point. Under such circumstances it is best to uncover anything at all tender by degrees, so that no sudden check may be given to the upward flow of sap. The chief thing to aim at in growing Figs in the open air is to keep the roots near the surface. If the roots run down into the cold subsoil, the crop under any circumstances, no matter how the trees are grown, must be thin, simply because the wood does not, cannot ripen. Therefore when a Fig tree is not in a satisfactory condition and the crop is thin and inferior, dig a deep trench along the front of the border; get under the roots, lift them out by working with spade and fork up towards the wall, throwing the soil back, but taking as much care as possible of the roots. When they have all been lifted out, shortened a little, and straightened out, lay them on the surface of the old border and cover 6 inches deep with good turfy loam to which about one-sixth part of old plaster or mortar rubbish has been added. When the surface has become dry give it a good trenching and mulch with 2 inches of old manure; this will keep in the moisture without altogether keeping out solar warmth. The work may be done now, and in the course of a fortnight or three weeks thin the branches sufficiently to make room for laying in new wood, the production of which should be encouraged by a good thinning of the main branches. The mulching is important, and when manure is spread over the surface it does not cause gross soft wood to break forth in the same way as manure buried near the roots will do, because the roots when working near the surface under the influence of the sun's warmth do not send up cold weak fluid to clog the healthy working of the leaves and other parts of the plant's machinery employed in building up the growth. Thinning the heads of plants will lighten the work of the roots, and this may be done somewhat severely, and next year the tree will be furnished with short-jointed wood that will bear an abundant crop of fruit. I have occasionally cut large old branches from Fig trees after root-pruning to make room to lay in young wood, but the knife has no value in bringing back fertility to a tree with its roots buried deeply in an ungenial soil. In the midlands and elsewhere where the soil is heavy, Figs will do better planted on the surface and some loam and old mortar placed over them. It is much easier to get at the roots of a tree so planted than when treated in the usual way, and where the situa-

tion is at all unsuitable there is an advantage in keeping the roots within reach, as it were.

E. H.

EVILS OF GRAFTING.

I HAVE, in common with many other readers of THE GARDEN, been expecting to see some logical and reasonable defence made on behalf of the grafting of fruit trees, and especially from those gardeners and nurserymen who make fruit or fruit tree growing a speciality. Are the present results of grafting so bad that no good defence can be made? I was very glad to read your extract from the practical letter of Mr. Walter Kruse in the *South-Eastern Gazette* (p. 243), and I think some of the would-be growers of fruit for market will also feel thankful to him for his temperate views, and especially for his axiom that "small trees mean small profits," which is worth remembering when we find nurserymen advocating the more extended planting of Apples and Pears as worked on the restricting or dwarfing stocks. If results were as certain as the statements of them in the papers, it would pay the nurserymen better to grow fruit than to grow fruit trees. As things are, growing the young trees for sale seems preferable. The one great inducement to use or employ the French Paradise stock for Apples and the Quince stock for Pears was because early or precocious fruitfulness was by these means to be attained. As has already been shown, however, one may pay too dearly for a crop, even though it be obtained the second or third year after grafting, as sometimes occurs. But sometimes the crop does not occur, and yet we find that there exists a great reluctance to blame grafting as one of the causes, even if it be not the principal cause of failure. Just now any evidence for or against grafting is interesting, and we must take it as we find it just for what it is worth. Surely it will be granted that the Blenheim Orange does magnificently on the Crab or free stock in many gardens after it has attained size and age. That it will not do much on restricting or dwarfing stocks, however, is amply proven by the experiments carried out for thirteen years in the Chiswick Garden.

Those who uphold the grafting of fruit trees should read Mr. Barron's report on some "Experiments in Grafting Apples" in part I, vol. xi., of the "Journal of the Royal Horticultural Society," just published, and handed or posted to the Fellows. It is one of the most lamentable records of failure ever advanced by the advocates of grafting. In 1875 eighteen different stocks were grafted with scions of the Blenheim Orange. These trees were grown and attended to for thirteen years, and, as we are clearly informed, the total result in the way of fruit produced by these eighteen trees in thirteen years was less than a bushel, and yet we are told that "the trees are every season pretty well covered with flowers." The trees did not even flower until the third year after grafting, and the careful counting and tabulating of the flowers produced each year for five years on the eighteen different stocks was evidently a case of "counting the chickens before they were hatched." I am afraid that the moral of the report cited is, do not graft the Blenheim Orange Apple at Chiswick. There is also a deeper meaning, for as we are plainly shown it is possible for flowers in plenty to be produced for ten years or so by such grafted trees; whereas the actual results in fruit production are *nil*. That the flower-buds of Peaches (see p. 245) fall from a lack of moisture now and then is true, and grafting the Peach on bad stocks is very likely the original cause. I

know one or two gardeners who have lost their situations through a house of gouty old grafted Peaches which the owner would not have removed, because, as he said, "the gardener who planted them grew splendid crops on them only a few years ago."

The lesson as published by the society is certainly one worth remembering, and some of us may think that they should in due time show us the reverse of the picture by publishing tabulated results of the instances in which the French Paradise has been used as a stock successfully in the Chiswick Garden. We are further told that the French Paradise Apple as an ungrafted fruiting tree at Chiswick "has invariably cankered and died after a few years." This last statement is very suggestive, since it proves pretty plainly that it is the scions engrafted on to it as a stock which have kept it alive when used (as a stock only) successfully at Chiswick. Thus we here gain another proof of the fact that a strong or vigorous scion may succeed on a dwarf or weakly stock by its exciting and stimulating its root action better than the stock's own leafage can do here under cultivation in English gardens. This is also proved by the renovating influence exerted by vigorous young scions when engrafted on a decayed or decrepit tree. But the converse of this practice, viz., the grafting of weakly varieties on to so-called robust, hardy, or vigorous stocks is wrong in both principle and in practice, and is very often a source of trouble and loss in the garden. From my own experience and reading of the past, I should say that the best and only valuable results in fruit tree culture will surely follow our "hastening more slowly," and that the best results may be gained by planting a few carefully selected fruit trees every year. The old system of planting an orchard and then waiting until the trees are worn out by age and neglect will have to be abandoned, and we must carefully and gradually extend our fruit tree plantations year by year, and at the same time grub out the old and decrepit or worthless trees.

Another great aid to progress in fruit culture will be the more general adoption of root-grafting, which, while inducing precocity for the first year or two, will eventually allow the tree to become established on its own roots, and so increase its size, age, and period of fruitfulness. I think our fruit-bearing trees should at least have the option or possibility of rooting on their own account if they wish to do so. If the roots of the stock are more suitable to them than their own fibres, they may not care to root on their own account, and in that case I should willingly admit the use and value of grafted above and beyond own-rooted fruit trees. Any fruit tree or plant in the garden knows its own wants better than we do, and the sooner the gardeners recognise that simple fact, the better it will be for the trees and for themselves. Great extremes in cultural matters may be temporarily effective, but they rarely lead to any permanent amount of success.

The use of the vigorous-rooted stock for more delicate things leads to a vigorous crop of sucker shoots such as those of which "Stock," at p. 251, complains. This is a great source of annoyance to the planters of Rhododendrons, Prunus of the double-blossomed kinds, and life is too short for us to pay for grafted plants that turn out a source of trouble and perplexity instead of a pleasure. I hope the good old fashion of hillock-layering will be revived, and that we shall get good sound and honest plants, even if we have to pay more for them. After all, we pay dear enough as it is, considering all things, since we

often pay for plants and for the trouble of planting them, and then wait four or five years for the good results that never come. Amateurs and their gardeners often have themselves to blame for not asking the nurserymen the name of the stock on which their fruit or flowering trees and shrubs are worked. We cannot be too exact and careful in making observations and inquiries and records of this kind. Failures and disappointments are bad enough at all times, but there is a double sting in a failure when we cannot satisfy ourselves as to its cause.—SCION.

— Grafting is one of the oldest of gardening operations, and has done so much to popularise many things, that I do not see how we are to do without it. The fact that this method of increase is often practised where another would be better does not affect its utility. Let grafting be done away with and the price of many fruits and plants would be so raised as to place them out of the reach of the million, whilst some would be almost unobtainable. The plants that remain dear, and are, therefore, not so much grown as they would be, are mostly those to which this form of propagation cannot be applied. It is not just to make trade growers the scapegoats for the evils that grafting may bring about. They have a demand for cheap plants to meet, and no one can blame them for adopting a method of increase that will best enable them to do so. Raising the price by one-third only would in many cases so restrict the demand, that not a few nurserymen would be crippled. I do not hesitate to assert that grafting and its kindred art, budding, which, I presume, some people equally object to, have given a living to thousands simply through creating a large class of buyers who are tempted by the low prices at which certain things are offered. In my neighbourhood there is a market town, and I have been astonished at the price that fruit trees and other things are sold at—prices which hardly seem to leave any margin of profit to the producer, and yet there must be a profit, for the sales go on regularly from year to year. I have known standard fruits, such as Apples and Plums, to be bought for less than 6d. each, and such things as Paul's Crimson Thorn, nice little standards, at 2d. each. I would ask the readers of THE GARDEN, in what other way than by grafting or budding can such things be produced at those low prices? With respect to Roses, there is certainly much to be said in favour of own-root plants, but the question of rapid propagation again comes in. So many buy them because they are now offered at a cheap rate, and it is well known that whilst some kinds can be increased from cuttings in an easy and inexpensive manner, many do not succeed well in this way, and to make sure of rooting them a more costly system must be employed. Speaking to a trade grower who makes a speciality of the Rose, he said that he had given up growing own-root Roses because he could not produce them cheaply enough to admit of a ready sale. He said that if people were willing to pay extra for the plants he would not have any objection to growing them, but in most cases they did not care to give more than for budded plants that cost about half as much to grow. As regards Clematises, Azaleas, Camellias, &c., it is just possible that grafting is the reverse of beneficial. I have grown quantities of Azaleas on their own roots and never found any difficulty with them. They seemed to grow as vigorously as grafted plants; but it must be remembered that all Camellias do not grow freely, and there is a difficulty in getting any large amount of cuttings from them. These, too, do not root so freely, and however skilful a propagator may be, he cannot rely upon rooting more than a certain percentage of them; whereas the experienced grafter will not have more than two per cent. of failures. Whatever may be said of grafting, it is certainly indispensable in some cases. Combretum purpureum, for instance, baffles the most experienced to strike, and has to be grafted on its own roots; and some of the Aralias, such as trifoliata,

are extremely difficult of increase except by means of grafting on a closely allied species. The same may be said of Correas, Pimeleas, &c. It has been asserted that there is no real advantage in grafting a weakly growing variety on one more robust; but I would ask if this has been proved? No plant will grow well or live long without plenty of good roots, and it is well known that certain flowers and fruits are naturally deficient in this respect. It does, therefore, seem reasonable to assume that the placing of a weakly rooting kind on one that is quite the reverse should be helpful to it. I must believe this to be the case until good proof to the contrary is forthcoming.—J. CORNHILL.

WORK IN FORCING HOUSES.

STRAWBERRIES.

As days increase in length and the sun gains power, the plants will require greater quantities of tepid water and copious syringing twice a day until the flowers begin to open, after which the syringe must be laid aside and the fertilising brush substituted. If forced under favourable conditions, including as a matter of first importance plenty of light and heat in sufficient strength to facilitate liberal ventilation, the fruit will now set freely enough, but for all this an occasional run with the brush will put doubt out of the reckoning, if it does not increase the size and perfection of the fruit. Another important matter, especially upon free-flowering batches, is the thinning of the flowers before they begin to open, whilst smoking is quite as essential as watering or syringing. As early batches are removed from shelves in Peach houses and vineries they should not be replaced, but in preference light pits in which moist heat from fermenting material can be obtained should be employed, first, because the plants can receive proper treatment; and second, to shield valuable trees and Vines from early attacks of red spider. Indeed, plants in the early stages of their growth, both early and late in the season, will do much better in pits than upon drying shelves in large houses, where watering two or three times a day soon washes all the virtue out of the soil. We sometimes see saucers and sods of turf used as economisers of labour, but this keeping want away may be overdone, for much as the Strawberry enjoys moisture, it never succeeds where air is kept out and the roots are paralysed by stagnant water. As the fruit in Pine stoves now swells and colours quickly, feeding in this department should be regular, but once the berries become red the liquid must give place to pure water, otherwise the flavour will be affected. Some growers turn the pots round and allow the berries to ripen in the shade, but, notwithstanding the glossy brightness of the fruit, the quality is not equal to that obtained under the full influence of sun and a chink of fresh air. Growing for market, however, is one thing, and for home use another; therefore, those who would have the finest quality not only should admit sun, but if possible an abundance of fresh warm air to a small compartment specially fitted for finishing and keeping the fruit.

Late plants intended for giving a supply of fruit through the month of May should have an abundance of room pretty close to the glass in cold pits, or, better still, in pits with a hot-water pipe running along the front. Sir Charles Napier, British Queen, Dr. Hogg, Filbert Pine, Sir J. Paxton, and Oxonian are well adapted for this work, as they produce remarkably fine fruit and maintain a succession until early varieties are ripe in the open air. If the pits are shallow the pots may be placed 4 inches apart upon a floor of ashes, or they may be partly plunged in old tan or leaves favourable to the crock roots, the absorption of water, and the production of moist vapour in bright sunny weather. In this position air must be freely admitted in mild weather, but unless the elements are decidedly unfavourable fire-heat will not be needed until the plants come into flower. Gentle warmth from the hot-water pipes will then be essential to the maintenance of a free circulation of fresh air, the ripening of the pollen, and the expulsion of stagnant moisture so baneful in cold pits and houses where Strawberries

are in flower. Once the fruit is set, the heat here, as in the late Plum and Cherry houses, may be dispensed with; the trusses must be well thinned and propped up with twigs of Birch, but on no account must the pots be disturbed, as much benefit may be derived from the crock roots which escape through the apertures. Early morning is the best time to water and feed, but the syringe will hardly be needed, as early closing with solar heat will keep the pit if anything too full of atmospheric moisture.

Early forced plants intended for autumn fruiting should be cleared of fruit-stalks and a few of the oldest leaves, well soaked, if dry, and dipped in sulphur water or soapsuds to free them from mildew and spider. When quite clean and properly moistened they should be transferred to cold pits for a time, and when all danger of sharp frosts has passed away they may be plunged out in the open air, well mulched, and watered freely through the summer. We sometimes take plants of *La Grosse Sucrée* and *Héricart* out of the pots, remove the crocks, reduce the balls, plant out for the summer, lift and re-pot early in September. Whichever plan is adopted, the plants should be kept within reach of the hose, as dry balls are fatal to autumn fruiting.

VINES.

Late Vines, this year later than usual, should now be helped forward by moderate fire-heat, early closing, and good syringing at least twice a-day with tepid water. Years ago spring firing was considered quite unnecessary, as the Grapes have the whole summer in which to set, swell, and ripen their fruit; but this trusting to fickle seasons has gone by, and if anyone doubts the gain, he has only to compare the quality of Lady Downe's and Gros Colman with that obtained twenty years ago. This improved keeping and eating quality is not, however, the only advantage, as long experience proves that better results follow the consumption of half a ton of fuel in March and April than double the quantity in September and October. Another great help to late Vines wherever inside border space remains unoccupied by compost is fermenting material, including a little fresh stable manure and a good body of hardwood leaves. In houses, for instance, where the lifting and relaying of the roots in reduced borders are performed just as the buds are beginning to swell, a few loads of hot leaves placed against the retaining turf walls soon raise the temperature of the new compost, and set the roots in action long before the Vines feel the strain of the crop. Where all border space has been filled up, a thorough mulch of fresh, rather short stable manure from which the droppings have not been taken for Mushrooms is a powerful aid, not only as a root stimulant, but also as a never-failing source of atmospheric moisture. As late Grapes stand and enjoy a Muscat temperature, a range of 56° on cold nights, 65° to 70° by day, and 75° after closing, with sun-heat and the afternoon bath, will not be found too high from the time the buds begin to push until the bunches are prominent. From this stage forward another 5° may be laid on at night, and still more by day, whilst 65° may be the minimum when the Vines come into flower.

Succession houses, in which the Vines are in various stages from breaking to setting their fruit, will now require incessant attention, as nothing pays better than the performance of every operation at the right time. Disbudding is a piecemeal operation, but once the work is finished the shoots push on apace, and in a few days the most forward are fit for divesting of superfluous bunches, stopping, and tying down. The best time to tie down is after the turn of a bright day, when the young shoots are a little limp, and then the principal care should be the prevention of their touching the glass. Some Vines are more tractable than others, but in all cases the pressure the first time over should be very slight, as it is better to allow them to settle by degrees than to create gaps by undue haste. Pinching, on the other hand, must not be put off for a single day, as every leaf made beyond the second or third joint in advance of the bunch represents wasted force. I am not a believer in restrictive training, but I like to throw strength into the bunch by taking the point out of each shoot

with the finger and thumb, as all vacant spaces can be covered by tying down the leading laterals. Here, again, some judgment is needful, as it is very easy to allow the premier lateral to run too far before it is pinched, when the knife must be employed. Bleeding and the removal of apronfuls of succulent wood and leaves more than counteract all that has been gained by timely pinching. Having so recently touched upon thinning, a most tedious operation, all I have to say is this: remove all superfluous bunches, if not before, certainly immediately after they are set; introduce the scissors early, trim the bunches into shape, and endeavour to get rid of all stoneless berries the first time over.

Early houses.—When the Grapes in early houses have finished stoning, run the scissors through the bunches for the last time, see that all ties are sound and not too tight, and keep a sharp eye on the foliage in dry corners. If spider puts in an appearance, sponging with warm soap-water may be tried, but the best preventive is good inside mulching, copious feeding with warm diluted liquid, filling the evaporating pans with the same, and syringing with pure soft water wherever the foliage can be reached without spraying the berries. If laterals, the best proof of moderate cropping, continue growing freely, all the weakest may have full play, but the strongest must be pinched before they reach the glass, otherwise their retention of condensed moisture and their prevention of a free circulation of air may result in the scalding of the main foliage. A little night air is an excellent preventive of scalding, but it should be shut off early in the morning, for the twofold purpose of economising fire and favouring the early re-opening of the ventilators for the day.

WORK AMONGST FIGS.

Early house.—Pot trees placed upon pedestals and surrounded to the rims with fermenting leaves will now be forcing their white fleshy roots over the sides in search of fresh food and moisture, of which the decaying vegetable matter affords a never-failing supply. All other fruits we prefer keeping at home, but Figs in pots seem so thoroughly happy when granted a roving commission, whilst every fruit swells to maturity, that we always foster this tendency by spreading large sods of turf partly upon the rims and well over the sides as conductors to their new pasture. As this auxiliary food does not justify neglect of the matted balls within the pots, extra warm diluted liquid is copiously administered, whilst the turf and plunging material are kept constantly moist. The syringe, too, plays a very important part, not only during the flowering stage, but also through the last swelling for ripening, when atmospheric moisture is substituted and ventilation, with steady fire-heat, is increased. Exposure to sun and light being so essential to colour and flavour, all gross shoots are kept pinched, and weak or crowded growths are removed as they appear. By these means, and allowing the temperature to range 60° to 65° at night with a little air, and 70° to 80° on bright fine days, the first crop fruits attain their fullest size, ripen quickly, and young shoots laden with small figlets get well advanced for the succession.

Trained trees in succession houses will now require constant attention to thinning out, stopping for spurs, and tying down where there is room for the leading shoots to extend. Extension training where space admits is the simplest of all modes of growing good Figs, but in order to carry it out properly, old branches which have reached the extremities of the trellis must be well thinned out at the winter pruning, and feeding must be on a liberal scale. The roots of such trees, as a matter of course, are kept within bounds by means of turf or brick walls, and surface feeders are encouraged by mulching with light rich manure and watering with weak liquid soot or guano water alternately. Fire-heat as yet cannot be dispensed with, but it should be shut off pretty early on bright promising mornings. Air should be given at 70°, gradually rising to 80°, the closing bath following about 3 p.m., or earlier, should the temperature show signs of a decline.

The latest houses containing trees from which one crop only, and that a good one, is expected must be kept cool, dry, and well ventilated until the point buds begin to push into growth. If fire-heat is at command in cases of emergency, there will no longer exist the necessity for delay, as warmth can be supplied on frosty or very cold nights, but lacking this important aid, early growth should be kept as hardy and backward as possible until all danger from the elements has passed away. We train our late trees—Brown Turkey—up the back walls of lean-to houses, and when the branches reach the top they are turned over, thence down the trellis to the front wall plate. They are never pinched or stopped, but having an abundance of room, each shoot is allowed to grow, making as many fruits as leaves, which ripen in succession throughout August and the early part of September. The later shows might be induced to prolong the season, but all the smallest are rubbed off as they appear, otherwise the debt incurred late in the autumn must be paid with interest the following year. The roots of these trees are confined to a very limited root-run—that is, below the surface of the back path; but in order to make up for scarcity of food when the full crop is swelling, we pack pieces of fibry turf and Moss about the branches 2 feet or 3 feet up the walls immediately after the trees are cleansed; encourage roots by means of constant syringing with pure water, and when these have taken full possession of the turf, warm, diluted liquid two or three times a week is dashed fully into it. Cold, stagnant water is fatal to crops of Figs, but by treating the trees like Orchids, it is simply impossible for any novice to over-water, as the aerial roots take all they require on its passage from the highest point down into the underground drainage.

Young trees struck from cuttings in bottom-heat should have a shift before they become pot-bound. If intended for forcing in pots, they should be pinched when 1 foot in height to induce the formation of side shoots. The pyramidal form being best, the leaders should be trained to sticks, and again pinched as often as they require it. It is not necessary to keep them in bottom-heat, but, like young Vines, they may be raised by degrees to the surface of the bed in a warm, well-ventilated pit where heat and light are plentiful. W. C.

FLOWER GARDEN.

FOXGLOVES.

If it were necessary to bring forward any evidence of the improvement in the Foxglove, we could point to the accompanying illustration of what is a splendid type of this flower. This variety has three strong recommendations—freedom of flowering, robust growth, and individual blossoms of bold form and beautiful colour. They are pure white, with spots of purple on the lower portion of the bell—just that kind of flower that is always admired, whether on the plant or the table. While we had only the common *Digitalis purpurea*, there was not sufficient variety of colour to justify extensive planting, but through a long period of careful culture and selection we have now a fine race of handsome flowers, some spotted, others self-coloured, and a portion of each we can have for the beautifying of the woodland walk, the garden border, and the shrubbery, bold handsome clumps giving infinitely more pleasure than straggling lines or a single plant here and there. We have to thank the French nurserymen for the present beauty of the Foxglove. The coloured plate of the spotted variety given in *THE GARDEN*, Nov. 24, 1888, was drawn from a plant in the grounds of Messrs. Vilmorin at Verrieres-le-Buisson, but our own nurserymen have also good strains, in which the colours are bright, varied, and exceptionally pure. In the Royal Horticultural Society's Gardens at Chiswick some few years ago there were noble

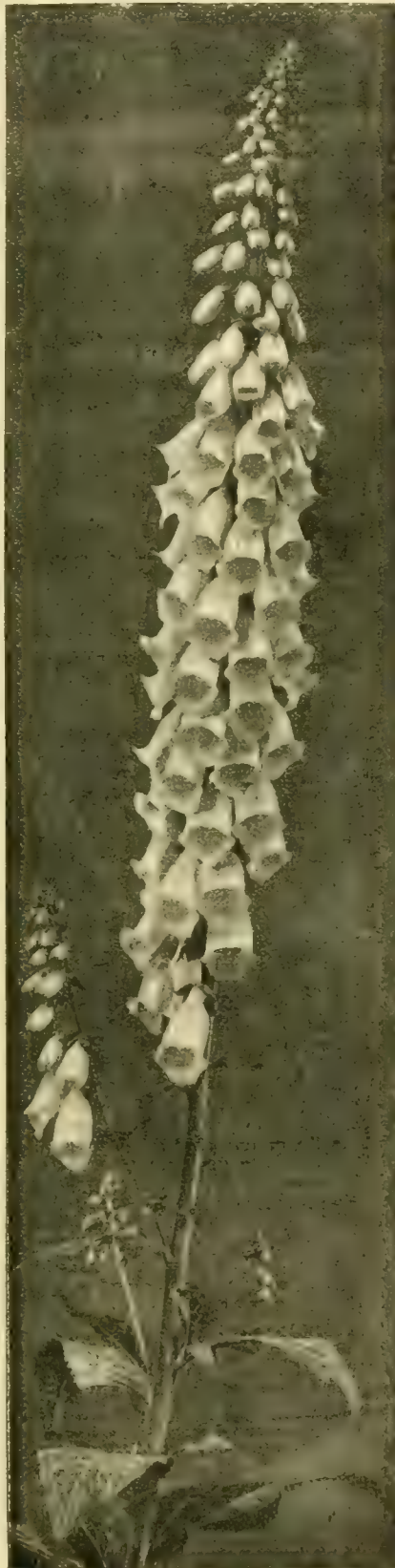
clumps of spotted Foxgloves of Messrs. Vilmer's strain. No plants in the summer months gave more pleasure than these perennials, though they ought to have been as well known as the better types of *Mignonette* or any other annual or biennial flower. There never need be a lack of Foxgloves, as the seeds come up freely, the great point being to keep the young plants free from weeds. If a start is to be made, sow early in June in a sheltered corner of the garden, prick out the seedlings when they become too crowded, and plant out the following autumn in their permanent positions. It is not a plant that wants cultivating; it is essentially an English flower, of which, through the energies of the cultivator, we have a beautiful progeny. Every large garden should have its Foxgloves, and if there is a wild garden—which there should be in every place of sufficient size for such a feature—then plant Foxgloves freely to bring some of the beauty of English woodland scenery nearer home.

The Ranunculus.—We have planted out the *Ranunculuses* this week, being a month later than the old florists used to recommend. I fancy we followed their dictum too long, and found that the earliest planted ones did not do so well as those planted later. For the last two seasons, at least, we have planted them out after the middle of March, and they came up more evenly than they did in previous years. When any of these small tuberous or bulbous plants come up evenly, it is a sure sign that they are likely to do well. Our soil is rather heavy, and seems to suit the *Ranunculus* better than lighter material. There is always some difficulty with the soil; even in March it is too wet for working; it was this year, and also last, but our plan is to use some old potting soil. That saved from the Carnation pots suits best; we simply spread 2 inches of it (when it has been sifted) over the surface of the beds, and in this the tubers are planted. Having plenty this year, they were set out much more thickly, 3 inches apart in rows 6 inches asunder. They are also planted 2 inches deep.—J. DOUGLAS.

***Galanthus nivalis poculiformis*.**—Mr. D. Melville tells us (*THE GARDEN*, p. 209) that this Snowdrop, he believes, originated at Dunrobin Castle. Now I think this is an error, for I have found it apparently wild on at least two occasions, there being in one of the instances at least 100 bulbs or rather flowers. It is very improbable, but not impossible, that these came originally from Dunrobin. In the same wood grows the pink form, which three years ago I sent to the editor of *THE GARDEN*. My own opinion is that wherever our native Snowdrop grows in quantity there will forms be found, and occasionally, too, in plenty, particularly if the soil is inclined to peat. I had at one time no less than five distinct forms of our Snowdrop, and they were all collected in the same wood, there being at least half a dozen bulbs of each. There is a very distinct unnamed form that blooms long after the typical plant, and which has short narrow leaves and remarkably small flowers. Could Mr. Melville give us any idea of when *poculiformis* was first noticed at Dunrobin? If so, a solution of the problem whether it originated there or not might be worked out, for I have not yet heard of its being found wild save by Mr. Melville and myself.—A. D. WEBSTER.

Dwarf Nasturtiums.—In an interesting paper on "Beautiful Flowers" (page 217), "C." refers to Bedfont Rival dwarf *Nasturtium* as never coming true from seed. In that respect he was misinformed, as so far from that being the case, having grown it for many years annually from seed, I can aver that it comes wonderfully true from seed. "C." was perhaps led to believe what he has written because plants of this very effective kind produced by cuttings seed very sparingly; indeed, sometimes not at all, and in such case it is essential that the stock should be increased by cuttings, happily very easy to anyone who has a few plants. But for the very rea-

son given I raise stock of Bedfont Rival each spring from seed, because I want the plants to produce seed, and I find any break from the true form to be very rare. There are several forms of this compac-



A fine type of Foxglove.

tum type, but the best are the scarlet one named and a wonderfully effective massing variety. Lustrous, rich crimson-scarlet, and Golden Gem,

yellow with red spots. Each comes very true from seed, and has the same free-blooming and constant habit of sending flowers well above the foliage right up until the autumn frost intervenes. As I wish the plants to begin blooming early I sow seeds in a cold frame early in April and dibble out into other frames when the seedlings are strong enough to handle, and finally transplant into rows 18 inches apart in the open ground towards the end of May. Flowers come immediately and very soon the plants are full of bloom. The plants will expand into 18 inches in diameter during the summer.—A. D.

SPRING CROCUSES.

THE wealth of spring Crocuses is lost to our gardens either through a lack of appreciation of their rich and beautiful colouring or through ignorance of the vast number of species at our command. Crocuses we have in many gardens—almost a surfeit sometimes, but they are the usual yellow and purple florists' varieties, in themselves extremely beautiful, but monotonous from their constant repetition. The price of the species of *Crocus* naturally debars the would-be purchaser from buying largely, but with an increasing demand would come a decreasing expense, and once a clump of bulbs becomes established it spreads freely; there is no perennial cost, as in the case of many things. One way to popularise them is by showing them tastefully in shallow pans, as adopted by Messrs. Barr and Son, of Covent Garden, at the last meeting of the Royal Horticultural Society. Each flower had sufficient space to show its own individual beauty, not massed together to make a block of colour. The showiest, but the most unnatural feature at many spring exhibitions is the pots of Crocuses. It is strange that societies should still persist in offering prizes for this kind of exhibit, which is unfair to the flower itself and essentially vulgar. What idea would a 5-inch pot crammed with Bluebells give of the filmy cloud of blue made by this flower in an English wood? It is just as unreasonable to exhibit Crocuses in the routine haphazard method adopted. Neither show us the beauty of the flowers nor their charm when seen grouped under spreading trees, on Grass turf, or on the rockery.

There are sixty-seven species of *Crocus* described by Mr. Maw in his remarkable monograph of the genus, so it is necessary to use a little discrimination in pointing out a few that might be used in gardens. If we could induce those who can to grow such spring flowers as these it would be a great gain. There are many spots now bare where either the Snowdrop in one or more of its many phases, the early Squill, or the *Crocus* could be planted. It is not an abundance of one colour or of one flower that constitutes the charm of our gardens, but the variety of things planted. I was struck with the rich beauty of the species of Crocuses and their varieties in Messrs. Barr and Son's Tooting Nursery the other day, and a few notes may assist readers of *THE GARDEN*.

CROCUS SIEBERI is a species found high up on the mountains of Greece and the Isles of the Grecian Archipelago. It is clear lilac, the anthers orange, and the stigma rich orange-scarlet. A mass of it was very delicate and beautiful, also of the variety *versicolor*, which is found in Crete and the Grecian Archipelago, the flowers pure white, but varying, and with the outer segments of the perianth feathered with purple.

C. AUREUS is a native of the south-east of Europe, and is one of the showiest of the yellow-flowered Crocuses; its flowers are rich orange. This species is interesting, as it was one of the first introduced to cultivation and is the parent of the yellow *Crocus* of gardens. It makes bright patches, and clumps here and there in the garden would make a rich contrast, but not in company with the distinct and

very dwarf Olivieri, a native of the same country as the beautiful Sieberi, and found at high elevations. C. Olivieri has smaller flowers than C. aureus, globular in outline, and of a self-yellow shade. The leaves are broad, appearing with, but not hiding, the flowers. Another yellow Crocus, more curious perhaps than beautiful, is C. susianus, the old Cloth of Gold Crocus, and one of the earliest of all to bloom, appearing in the month of February. Its reflexed segments are very distinctive, and though a showy species there are many more in its line of colour far finer—Olivieri, for instance. Its home is the Crimea. C. Korolkowi is another interesting yellow Crocus, the inside segments of a deep shade, the three outer ones coloured with brown on the exterior. It is a comparatively new species from Central Asia. The lovely C. Balanse is also a yellow-flowered species, and was the subject of an interesting note in THE GARDEN of last week, p. 251. C. chrysanthus is a handsome yellow species which is found in Greece, Roumelia, &c., and varies considerably in colour, but in this respect it does not differ materially from many of the Crocuses. The variety fusco-lineatus, found on the mountains of Smyrna, is very pretty when seen with its yellow flowers clustering amongst the leaves. C. stellaris is of unknown origin; it has flowers of a fine orange colour, the exterior of the outer segments being feathered with purplish-chocolate.

C. VERSICOLOR is a familiar species to all interested in Crocuses, as it is not uncommon and was amongst the first introduced. The flowers are very variable in colour—hence the name—displaying many beautiful shades of purple. The variety obscura was blooming freely at Tooting on March 13; the inside segments are deep purple, the outer ring paler in colour; picturatus is white with a feathering of purple outside; striatus is finely striped with deep purple on a paler ground, very showy. It is, of course, questionable whether we should mark any varieties when the species is so variable in colour itself.

C. BANATICUS is one of the finest of Crocuses in flower now, and is a native of Hungary and Transylvania. It varies in the colour of its flowers, the normal form being of a very rich deep purple, the anthers deep orange. A patch of it in the Grass is very striking. C. biflorus is described in a note in THE GARDEN of last week, and C. vernus is sufficiently well known to need no description; it is a beautiful spring Crocus, very variable, and has become naturalised in some parts of England. C. dalmaticus is a fine lilac-coloured species, and found plentifully on the mountains of Dalmatia; it is of a lilac colour. The beautiful Imperati and several of its varieties were in fullest beauty. It is a very early species, and found plentifully in South Italy. The outer segments are beautifully feathered from base to apex on the outside, the inner ring purple, but it varies in its markings; albus is pure white, with a bright orange stigma that is very striking against the pearly whiteness of the segments. Other Crocuses in flower at the same time were the pale lavender coloured Tommasianus, a Dalmatian and Servian species; reticulatus, the sweet-scented suaveolens, corsicus, and carpatanus lavendulaceus, which is of a lovely lavender shade. Two beautiful kinds are leucostigma, bluish lilac, with a white stigma, and Weldeni, given by Mr. Maw as a form of biflorus. Its variety albus is exceedingly pretty, white, with flush of purple on the outside of the segments.

It may be gathered from these few notes that the family of Crocuses is large, and contains species and varieties of varied colouring. The majority of them are not slow of increase, and even on the stiff, unkindly soil at Tooting they spread with freedom. There are not many flowers that open in early March, but there need be no lack of Crocuses of a few kinds. C.

Narcissus Johnstoni.—This beautiful Daffodil flowers a little later than the sulphur-coloured pallidus precox, and was blooming freely a short time back in Messrs. Barr and Son's Tooting Nursery. It is given in Mr. J. G. Baker's "Handbook of the Amaryllidaceae," p. 3, as a variety of pseudo-

Narcissus. It is a native of the Pyrenees, and a good idea of the character of the flowers may be had from the engraving given of it in THE GARDEN, July 21, 1888 (p. 55). The flowers are pendent, or rather nodding, very neat, and the chalice or cup delicate sulphur in colour, the segments a trifle deeper. It may be well included amongst the choicest of early Daffodils, this, with pallidus precox and cyclamineus, making a beautiful trio.

CYCLAMEN ATKINSI.

THIS is a charming kind, and will probably in time become very popular. It varies in colour from pure white to bright pink, its blooming season appearing to be identical with that of the Persian Cyclamen. Seeing how wonderful is the difference between the old forms of the Persian Cyclamen and those in cultivation at the present time, it does not seem too much to expect that we shall one day possess a strain of Cyclamen Atkinsi, the flowers of which may be as large and varied in colour as those of its tender relation. There are few hardy flowers that it would be more desirable to improve than this, for it blooms in the dead of winter, and for that reason, though hardy enough, must have the shelter of a frame or cool house. It would therefore be no slight gain to our gardens if we could get a show of bloom equal to that obtainable from its more tender relations, and it would enable the numerous class of flower growers who cannot command a heated glasshouse in winter to have a good show of bloom with the air of merely an ordinary frame. Hardy Cyclamens are too much neglected. They are so dainty in form that they ought to find a place in most gardens, and we have nothing quite like them in the way of hardy flowers. They are not quite so easily grown as many hardy things, but the amount of soil they require and the space they occupy individually is so very moderate, that it is not difficult to give them just what they need, both as regards soil and position. It is for plants of such a nature that a rootery is so useful. The shade, shelter, and good drainage that such lovely hardy flowers find amongst rootwork are just what they like. Whatever may be the demerits of rootwork, it is certain that a great many hardy flowers, in the culture of which there is an element of difficulty, thrive better there than in almost any other position. J. C. B.

Saxifraga Fortunei.—Notwithstanding that this beautiful Rockfoil has been introduced many years, it is not cultivated on so large a scale as might be expected. It is certainly one of the best of the genus, although it blooms late in the summer, so late, in fact, that the early frosts are apt to injure it in some localities. A well-known enthusiast in Saxifrages told me the other day that he invariably found it suffer severely during winter if grown in the open, so that to do it well he grew it in pots in a cold frame or unheated greenhouse. Here in a gritty soil it grew luxuriantly, forming quite a feature with its bright green foliage and racemes of pure white flowers. In favourable localities or in sheltered nooks it may, however, be assigned a place out-of-doors without any severe damage accruing from frost. It is by no means fastidious as to soil, thriving well in ordinary garden staple, and it is easily propagated by division.—C. C.

Old pink Clove.—I do not know how long the old pink or blush Clove Carnation has been in cultivation, but I think that it is far from being common, and many do not seem to be aware that such a kind exists. I doubt if there exists a flower more deliciously scented than this, a few blooms of it filling a room with their grateful fragrance. The foliage much resembles that of the common Pink, only on a larger scale and it enjoys a complete immunity from disease, which of itself is enough to recommend it to the attention of Carnation growers. Grown by the side of the old crimson Clove, which is badly affected, not a leaf of it has been touched. Neither do hard winters hurt it, as is the case with Clove Carnations generally. Left alone, it grows into large masses, which, retaining their pristine freshness no matter what the weather

may be, have a very pleasing appearance through the winter. This pink Clove, like the common Pink, would make a good edging plant.—J. C. B.

Self Carnations.—As some may now be purchasing Carnations, it is well not to be misled by the bizarre and flaked varieties. They are useful in their proper place, but to the amateur who wishes for plenty of flowers of good colour, nothing can be better than the self kinds. In small gardens the florist's Carnations are very often dismal failures.

Campanula glomerata dahurica.—This is a Bellflower every amateur and owner of a small garden should have. It is comparatively common, but it is not seen so much as it might be in suburban gardens. Where there is only space to grow a few really good things, this Campanula is just the plant to grow; it is of vigorous growth, very hardy, increases rapidly by division of the roots, and blooms profusely. The bell-shaped flowers are borne in close heads and terminate the shoots. It is one of the richest coloured of all the Campanulas; the flowers deep lustrous blue of a beautiful shade. For cutting it is invaluable.

Lavatera arborea variegata.—Some fine plants of this in the open air have this winter been quite destroyed. They were charming up to late in the autumn, the leaves handsomely variegated, and while comparatively unharmed by the frost which destroyed so many things in October last, yet went down rapidly before the winter attack. Not long since I saw quite a plantation of it in Mr. Cannell's nursery at Swanley that had been similarly destroyed. When used for summer decoration, the plants should be lifted and placed in a greenhouse for protection when the winter sets in.—R. D.

Doronicums in pots.—One gets so accustomed to the ordinary spring-flowering greenhouse plants, that anything out of the common comes as a relief. This perhaps may be found in the Doronicums. Strictly speaking, hardy plants, and their proper place the border, where they never fail to produce their beautiful golden flowers in spring, it seems almost unnatural to utilise them for pot culture, and yet for this they are admirably adapted. Passing through a garden recently I noticed fine plants of them in full bloom, and arranged in the conservatory they were very effective. D. plantagineum excelsum is one of the best varieties for pot culture. It has large golden flowers upwards of 3 inches in diameter. The other varieties may also be used for the same purpose. Plants should be lifted from the border in autumn, potted in a loamy soil, and kept in cold frames during winter. Placed in a gentle heat in February, or even earlier, they will come into bloom and prove useful for decoration.—C. C.

Hardy Cyclamens on rockeries.—Despite the oft-repeated references made to this charming class of plants, many have as yet failed to see their beauty. That is to say, they are by no means so universally cultivated as their merits deserve. True, owing to their dwarfness, there is a tendency—as there is in most dwarf hardy subjects, especially those that bloom in early spring—to ignore them, on the ground that they are not showy enough. More than once I have heard them rejected for that reason. To overcome this, however, they should be planted on rockeries and other elevated, yet sheltered spots. On a rockery, in a garden in North London, I saw several plants in full bloom as early as the second week in March. This, too, was immediately after a spell of frost and snow. The plants, which were of the coum and Atkinsi types, were planted under the shelter of rocks, where they grew luxuriantly and produced their beautiful flowers in spite of cutting winds and frosts. They pay for liberal treatment, and do best if planted in a mixture of decayed vegetable matter, lime rubble, and light soil.—C. C.

Shortia galacifolia.—This interesting plant has proved perfectly hardy in New Jersey. When it has the protection of a cool house in winter it thrives better, however. The flowers are produced earlier, and last several weeks in good condition. Established plants flower freely. We have one in

a 4-inch pot with twenty-four buds, some of which are already expanded. Those who wish to cultivate this plant should, if possible, get established plants; collected ones are uncertain. *Shortia galacifolia* succeeds well in a soil composed of two parts peat and one of loam. It requires plenty of moisture at all times. We have also found that a half shady spot, such as a cool frame, is best suited to the plant in summer, as the sunlight is apt to scorch the young foliage.—*Garden and Forest*.

* * This plant is now in flower with Mr. Elwes at Preston House, Cirencester. See GARDEN, March 23 (p. 253).—ED.

FLOWER GARDEN NOTES.

PLANTING OUT VIOLAS, &c.—Having transferred to the reserve garden the shrubs used for the winter decoration of the flower beds that are set apart for summer bedding, progress with this work is being made as expeditiously as possible, so that the frames now occupied with half hardy plants, such as *Violas*, *Calceolarias*, and *Verbenas*, may be available for more tender plants as soon as they require to be moved out of the heat of the propagating pit. This is one reason for beginning the work early, other and perhaps more important reasons being the getting the work out of hand before the busy time hinders, due thought being paid to the arrangement of plants, and of their being planted so carefully that they may start into growth at once. It is full early to plant out *Calceolarias* and *Verbenas*, except in most favoured localities or where shelter can be readily afforded, but they may quite safely be transplanted into sheltered places, such as turf pits, over which in bad weather straw hurdles may be placed. This extra transplanting causes the plants to move with a less amount of check at the planting-out season. *Violas* are, of course, sufficiently hardy to be planted out at once, and where dwarf bedding plants are required in large numbers, I strongly recommend these and the fancy section of *Pansies* for a foremost position. They are not grown nearly so extensively as they would be but for the delusion that in dry weather they are sure to fail. The rainfall of this district is nearly the lowest in England, and yet in the driest and hottest of seasons these plants have not failed; but, of course, there is a reason why this has not happened, and that is, that the preparation of the soil for the several species of plants has always the first consideration. As regards the plants in question, it is hardly possible to use too much manure, and, as a matter of course, a good depth of soil. This preparation and a surface mulching have as yet never failed to maintain these plants in excellent flower the season through.

PLANTING EDGINGS AND GROUNDWORK PLANTS.

—The soil of flower beds, if raised from 3 inches to 4 inches above the turf so as to admit of planting the upright edge with suitable dwarf plants, forming, in fact, a sort of frame for the picture, imparts such a boldness of effect to the entire arrangement, that on no account would I discontinue the practice. The edgings are made up to the desired height before the beds are trenched and the planting is done whilst the soil is still moist, and readily pressed firmly to the plants, or rather particles of plants, by means of a pointed stick. *Herniaria glabra* is our favourite plant for the purpose, but those who prefer grey to green may use *Sedum glaucum*, but must plant thicker, as it does not so quickly spread as *Herniaria*, 1 inch apart for the *Sedum* and 2 inches for *Herniaria* being about the distance at which to plant. Any that, through lack of labour or plants, are disinclined to treat the edgings of beds in this way may yet make progress with this kind of work by using hardy plants in the ordinary manner—that is, by planting on the same level as the turf. Variegated *Thyme* is an excellent plant for the purpose, and bears clipping so well that a perfectly square edge of any height may be made with it. *Veronica incana* (white foliage) and *Leptinella scariosa* (green) are also excellent plants for edgings of this kind. As soon as the edgings are planted no time should be lost in marking out the designs, that all hardy plants that it is intended

to use in the arrangements may be got in. It is important that all ornamental shrubs that are intended for use as central or standard plants be got in early, as they are not like ordinary bedding plants that may be moved at any time with impunity. Hardy groundwork and marginal line plants should also be got in as early as they can be. In all arrangements of dwarf foliage plants our invariable rule is to have all the bands or outlines of design worked out with hardy plants. This, as regards labour-saving at the busy season of bedding out, is a great gain, as by the time that season comes round the greater half of the work will have been done.

FILLING UP GAPS IN HERBACEOUS BORDERS.

Now that the growth of all kinds of plants is visible (*Lilies*, *Tigridias*, and *Gladioli* excepted, and when these were planted sticks or labels were put to each, so that all vacant plots are seen), we shall take an early opportunity of filling out all except a few places that are intended for *Dahlias*, *Hollyhocks*, *Sunflowers*, *Castor-oils*, &c., a few of which we always use amongst perennials to give the borders a somewhat refined appearance during summer. Plants for the other vacancies will be taken from the larger clumps now in the borders. *Phloxes* there are in any quantity, and pieces of these can be cut off with a sharp edging iron without the slightest damage to the parent plants. *Delphiniums* are equally amenable to this treatment. Japanese *Anemones*, of which we have some large plots, are bad to transplant, and if the pieces cut off are expected to do well, balls of earth must accompany each; therefore only small offsets should be taken. *Epimediums* divide well, and are fine for the front of borders. *Funkias* are no trouble, as they always lift with plenty of soil. All the *Starworts* do the same, the varieties *Aster Novæ-Angliæ*, *Amellus*, *Reeysi*, and *Shorti* being first-rate kinds, free growers, and free flowering. They are excellent for the back parts of wide borders. English *Irises* divide well at this late season. Three years ago we cut up some large clumps late in March, planted carefully, and well watered them, and they flowered quite as freely as if they had never been moved. *Thalictrum minus* is naturally a very spreading plant, and some clumps of it are encroaching on other species and must be curtailed. It is the perfection of a plant for the front part of borders, and is also an appropriate edging plant for an isolated bed of perennials. *Hemerocallis flava* (yellow Day Lily) is another excellent plant for filling up gaps at this season, because soil adheres well to its roots, and species not possessing this merit ought never to be transplanted later than January. There are numbers of other species that may safely be divided and transplanted at this season, but I have named only those that we are now about to divide ourselves. In borders that underwent a general overhauling as to rearrangement of plants in the autumn, there will, of course, be none to divide now, and any vacant places there are may remain, to be eventually filled with *Stocks*, *Asters*, *Zinnias*, *Mignonette*, or, in fact, with any spare bedding plants.

W. WILDSMITH.

Boxwood edgings.—Nothing equals *Boxwood*, when well kept, as a good and neat edging in the kitchen garden and some other positions. It is frequently allowed to become too high and bushy, and before the season advances further all overgrown edgings of it should be rooted up and replanted thinly. A thick row will afford pieces with a root attached to each and that will extend three or four times the length it previously occupied, and the relaying will be a great improvement in every way. Very often, when *Box* edgings have been relaid, they are allowed to grow on for several years without being trimmed. They become so high as to shade little plants near them, while they afford a splendid shelter for grubs, &c. All *Box* edgings should be cut down to 3 inches or 4 inches at most from the ground.—J. MUIR.

Clematis paniculata.—The question is often asked, "What is a good white *Clematis* to plant as a companion to *C. Jackmanni*?" To this may be

replied, *C. paniculata*. This Japanese species is of vigorous habit, hardy, and, above all, long-lived. Young plants with us last summer grew 10 feet high and flowered from the ground to the ends of the shoots. In general appearance, *C. paniculata* somewhat resembles *C. flammula*, but the foliage is large and leathery, and the flowers are produced in panicles often 2 feet in length, of a pleasing ivory-white colour. They may be seen at their best about the second week in September, at which time the foliage is hidden by the flowers, which are followed by awned seeds with a reddish tint, and which last until severe frost sets in. Although introduced in 1796, *C. paniculata* is by no means common in this country, owing to the difficulty of obtaining good seed, it being usually killed by frost before it is sufficiently matured to germinate.—*Garden and Forest*.

KITCHEN GARDEN.

INEXPENSIVE ASPARAGUS CULTURE.

As a choice vegetable *Asparagus* has no equal, nor, all things considered, can a much more profitable open-air vegetable be grown. Neither is it, as a rule, very difficult to cultivate, nor need there be any serious outlay in preparing ground for its reception. There may be, must be in fact, a delay of two or three years before the produce is cut for use, but when once a bed has commenced to be productive it can, with very little trouble or expense, be kept in a profitable state for many years, in this respect comparing most favourably with any other vegetable that may be named. Occasionally good beds are to be found in small gardens or where a professional gardener is not constantly employed, but according to my experience these are few and far between. What, then, is the reason amateurs either fail to appreciate the merits of *Asparagus*, or are unable to grow it satisfactorily? In some instances it is a mistaken notion of the expensive nature of the crop, but in more cases that have come under my notice the absence of good *Asparagus* is due to an inability to grow it properly. Failure is due, not to any notions of economy or pains wanting in the preparation of the site, but, on the contrary, the outlay in this direction is too elaborate, though not wisely directed. A great depth of much enriched heavy ground is not what is wanted, many of the roots perishing in this at the outset, and more are lost during a wet winter. In addition to this the more anxious cultivators commence salting the surface of the beds almost from the first, and thus complete the destructive process. An even more frequent cause of failure can be traced to obtaining the roots for planting from a distance. These are sure to be crippled in lifting, and no matter how carefully the plants are packed, all, or nearly all, the delicate root fibres perish before they are finally replanted, the consequence being many failures. A few hours', or even minutes', exposure to cold, drying winds proves fatal to the young root fibres which commence to form just as the shoots are pushing through the ground, and which, let me add, is the best time to transplant.

A medium, free-working, loamy soil properly drained will usually, without any more preparation than is needed for Potatoes and various other vegetables, answer well for *Asparagus*. There is no necessity to dig this to a great depth, but in many instances it will be improved by double digging two spits deep. By this method of trenching very little of the poor subsoil is brought to the surface, and if strawy manure is freely mixed with the bottom spit and a light dressing forked into the surface, very little other preparation is needed. Very light shallow

soils should, if possible, be increased to a depth of about 18 inches by the addition of any kind of decaying rubbish, road trimmings, and the best soil procurable. In the case of cold clayey soils, more judgment must be exercised, both in their preparation and the method of planting adopted. A wet and cold root-run is fatal to Asparagus, and if it is not possible to excavate and wheel out a clay subsoil, the surface cultivation must be of a character to keep the roots from penetrating downwards. Double digging and the free addition of various soluble and insoluble materials to the bottom spit are supposed to be sure methods of rendering a clay subsoil fertile and congenial to the roots of vegetables generally, but a single process never yet effected this cure, and it must be repeated several times before the ground can be said to be fit for the reception of Asparagus roots. In forming a bed over a clay subsoil, I would prefer to leave the latter untouched, and, if procurable, would cover it with a good layer of rough mortar rubbish, or even clinkers, on this returning the surface soil. In order to increase the depth and otherwise improve the ground, as well as to raise it above the ordinary level of the garden, a variety of substances may well be mixed with the surface soil. For this purpose leaf-mould, spent tan and hops, peat, trimmings of turf edges, sand, charred garden refuse, fine mortar rubbish, and well decayed manure are all suitable, these being added and well forked in when the ground is dry.

Whether Asparagus should be planted on raised beds, on the level, or rather deeply, depends upon circumstances. In France immense quantities are grown between the Vines in the vineyards, the plants being put out singly wherever there is room, and in time fine clumps are formed. I have not seen the French Asparagus grounds, but in this country I have seen many acres of Asparagus planted out in the breaks between the rows of young orchard trees, much as fruit bushes are often grown, and very profitable crops are cut from them every season. On the fertile soils round Cheltenham, for instance, Asparagus is very simply and well grown, the produce, if more pains were taken in blanching it, being equal to that obtained from France. Near London, notably in Essex, a row of Asparagus is frequently planted between the fruit bushes, and of the two crops proves the most profitable. I mention these facts in order to suggest to amateurs and others where they, too, may grow this valuable vegetable without encroaching on their limited garden ground. It is almost useless to plant Asparagus in old fruit quarters, where it would not have fair play, but supposing young bushes are put out, or have not long been planted, 4 feet apart in rows 5 feet apart, single plants might well be put midway between the bushes, and a row between the lines of bushes or trees, as the case may be. These may remain undisturbed for many years, and if duly manured from the surface will never fail to be remunerative. When a good open piece of ground can be given up to Asparagus, this, if of a medium or light character, need not be formed into beds, the Asparagus being planted on the level, or if blanching shoots are preferred (and they are the best), from 6 inches to 10 inches below the level. Supposing the rows are arranged from 3 feet to 4 feet apart, this latter distance being most favoured by experienced cultivators, the intervening spaces can be utilised for the production of early Potatoes or other quick-growing crops without detriment to the Asparagus. It will thus be seen that there will be little waste of garden ground, even during the first three years that ought to be allowed

the Asparagus to get strong and well established. Raised beds always yield the earliest Asparagus, and one or more might with advantage be formed in addition to any there may be on the level. In the case of heavy soils or low-lying positions raised beds are absolutely necessary. The narrowest, or those 3 feet wide, and which hold two rows of plants, are the first to be productive, the principal crop, however, being taken from beds 5 feet wide, in which three rows of plants are usually grown. W. IGGULDEN.

Protecting Broccoli.—When writing on this subject some months ago, I pointed out, according to my experience, the absurdity of going to such unnecessary trouble as some gardeners do in protecting Broccoli during winter. Despite the fact, too, that many lose the greater portion of their crops, I get more firmly convinced in my opinion every year that protection is unnecessary labour. Only last week I passed through a field of Broccoli, not many miles from London, and probably not 3 per cent. of vacancies existed in the whole batch, which was several acres in extent. The plants were dwarf, sturdy, and looked so thoroughly hardened, that were the thermometer to fall below zero—a very unlikely thing—they could stand it with impunity. True, the past winter has not been one of the severest, although no doubt it has been quite severe enough to injure the Broccoli crops of those who advocate the coddling system. That we have hardy Broccoli and in plenty has been proved over and over again, and this being the case, it certainly seems absurd to protect that which is hardy. The chief point is to promote a dwarf, sturdy habit, commencing from the present time, until growth is completed.—C. C.

Potatoes.—In answer to "A. D." (p. 248), everyone resident in England is likely to know the effect of the season of 1888 on the Potato, and I naturally thought the selection of a few varieties that came best through it in this particular soil might be a guide to future operations. I have neither the time, space, nor inclination to grow sixty varieties for trial in the one season, ten or twelve being all I can manage. But to enumerate all for the several years would exhaust the reader's patience and touch on personalities, which, to my thinking, it is better to avoid. To ask me to specify old varieties and disease-resisters is, to say the least of it, rather superfluous, as they may be found in any catalogue, and doubtless "A. D." is sufficiently versed in Potato lore to classify them for himself. I simply say that Early Puritan, Sutton's Seedling, and the old Redskin Flourball were respectively our three best last year. I do not say Redskin Flourball is the best flavoured Potato in cultivation, but I maintain that for combined flavour and productiveness it is one of the best, and much better than many newer varieties that are fit for use at the same time. Its quality is not a question of any personal taste; it is apparent to all who have tried it. A few seasons ago, when I wanted a quantity of seed for a main crop and did not care to give fancy prices for new varieties, the firm to whom I applied said, "Why not give the old Redskin Flourball a trial; it is highly recommended from some localities." It had its trial, stood the test, and I shall not dispense with its services just yet.—E. BURRELL, *Claremont*.

Christmas Cabbage.—A few years ago I saw in March a bed of this Cabbage. I was struck by its fine healthy appearance, every head being hard, firm, and not open or decayed. The farmer told me it had no name. He had grown it for about twelve years, but would not give any seed on any account. I sent the housekeeper to buy half a dozen for cooking; she brought heads and roots. The Cabbages were planted out and I harvested a small quantity of seed. The description is as follows: Medium size (although I have had heads weighing 15 pounds), outer leaves few, dark slate-green, head round, very hard and firm, the top leaves only getting a purplish tinge in severe weather. It is one of the sweetest and best flavoured Cabbages I have ever tasted. It must be

sown from May 15 to June 15, and if seedlings are transplanted in succession as soon as ready, the crop will be fit for use from November until the end of April. Severe winters do not hurt this Cabbage. When full grown it can stay three months out of doors in winter without being broken or decayed. In the terrible winter of 1879-80 the heads were not injured, and the farmer sold from an acre Cabbages to the value of £200, all other sorts having been destroyed. For many years many new varieties of Cabbage have been offered, but they are nearly all extra early. It is of little advantage to grow a Cabbage which will be a few days earlier than another sort, as the earlier a Cabbage is the smaller is the head. Christmas Cabbage should be welcomed by market gardeners and private gardeners, as it will ensure a full crop during the winter.—D. GUIHÉNEUF, *Nantes*.

**** A very fine, firm head of Cabbage of the Drumhead type.** We have had the above cooked and find it of remarkably fine flavour. Could you not send a pinch of seed to Mr. Barron, Royal Horticultural Society's Gardens, Chiswick, so that its suitability for England might be proved?—ED.

KITCHEN GARDEN NOTES.

ASPARAGUS.

THOSE who contemplate forming new plantations and making good any blanks that are among those plants put out last season, ought now to attend to the matter. Where the soil is of a light, free-working character, the first week in April is a good time to plant Asparagus, but on heavier soils planting may well be deferred to the middle or end of the month. However carefully the roots are lifted, some of them are certain to be broken, and if these are at once buried in cold, heavy ground, many losses will occur. One-year-old plants, as a rule, move with the least injury to the roots, the exceptions being when roots one or two years older have been lifted and replanted each year. In the latter case the older roots are to be preferred, as they more quickly prove profitable, but, failing these, I would prefer strong one-year-old plants, and if home-grown, so much the better. Any bought in and which will have suffered by long exposure, and it may be rather rough usage, will well repay for a little extra trouble in recovering them somewhat prior to finally planting them out. The plan I favour is to set the roots flatly and closely in a cold frame or pit, or even on a sunny border, covering them with a little fine soil. If the soil is not allowed to become dry, top-growth will soon commence and root fibres be plentifully formed, and if a favourable time be chosen for carefully planting out, there will be few failures.

PLANTING ASPARAGUS.

On no account should the roots be puddled in. If the ground is not fit to work, that is to say, is not sufficiently dry, early in April, then wait till it is, even if this means delaying planting till May. There are some who prefer to plant after strong shoots have formed, but I would rather anticipate this if other conditions are favourable. The surface soil cannot well be too finely divided, and rather than plant on lumpy ground I would prefer to put out Asparagus in an undug quarter. Those who cannot avoid having a rough surface should do their best to break this down with hoes, and also prepare a large heap of fine light compost for surrounding the roots. If, owing to the heavy character of the soil or the lowness of the position, it is decided to plant on raised beds, first mark out these with stout and permanent corner stakes. The orthodox widths are from 3 feet to 4 feet for narrow early beds, and from 5 feet to 6 feet for the rest, alleys 2 feet wide being allowed between them in each instance. They may run in any direction or much as the rows of various other vegetables are arranged. The next proceeding should be to shovel out the best portion of the soil in the alleys, or say about 6 inches, this being evenly distributed over the beds. Two rows of plants are all that ought to be grown on the narrow beds, these being arranged about 12 inches from the edges, while in the case of the

broader beds three rows are ample, the outer lines being about 15 inches from the edges. A space of from 15 inches to 18 inches is a suitable distance to place the plants apart in the rows. Where the nature of the ground and the position are favourable to growing Asparagus on the level, this proves the surest method of obtaining the finest produce. Put out on a free working soil and given plenty of room, extra strong plants result in the course of a few years, and such may be most readily moulded up when it is desirable to blanch the produce. As there are no alleys between, more space must be given the plants, and, as far as my experience goes, the rows succeed best when not less than 3 feet apart, while more room than that is considered necessary by some growers. The plants should be 2 feet apart in the rows. When the plants are put out rather thickly or as advised for the beds, wide drills may be opened for them with a spade, and on heavy soils not more than 5 inches deep. A little hillock should be formed for each plant and the roots evenly spread out, these being covered with about 2 inches of the finest soil, and a handful of bone meal to each will not be wasted. For those on the level, either a trench or holes 1 foot square may be opened, the rest of the process being much as just advised. If extra fine blanched shoots are needed, the trenches should be opened not less than 10 inches deep, and the roots only covered at first with 2 inches of soil. Each spring the roots ought to be partially bared, a little good manure given and the soil returned, more being drawn in each time from the ridges, till at the end of five or six years the roots are covered with a depth of about 10 inches of light mould. This depth of surfacing ensures the required length of blanched shoot, and does not, in the case of light sandy loams especially, injure the plants.

PREPARING ASPARAGUS FOR FORCING.

Since the more general adoption of planting Asparagus on the level, gardeners have developed a still greater aversion to breaking up profitable Asparagus beds for the purpose of procuring roots for forcing. As the latter must be had, some method of preparing plants specially for that purpose will in time become more general than at present. Seakale roots are prepared especially and largely for forcing, and why not Asparagus? The former, it is true, can be most quickly got to a serviceable size, but Asparagus is the most valuable, and well repays for any trouble taken with it. Want of garden room cannot well be pleaded as an excuse for not trying the plan I am about to suggest, as the older or alternative practice of breaking up an old bed and planting a fresh one each year is quite as expensive, as far as space is concerned, as the young plantations must not be cut from for three seasons, while plants intended for forcing can be prepared in two years. Those who have abundance of seedlings raised last year should plant several hundreds of these on moderately good, well-worked ground (not necessarily inside the garden walls) 12 inches apart in rows 2 feet apart, and if these are duly mulched and watered if need be in dry weather, the tops being lightly staked up, strong growth will result. Very good shoots would be obtained by forcing these in the following winter, but naturally they would be very much stronger if left for a second season's growth. Seed, if sown at once thinly in boxes or singly in small pots and placed in heat, would soon germinate. The plants being eventually hardened off and carefully transplanted to well-prepared ground would grow to a good size the same season, another summer's growth fitting the roots for lifting.

SOWING ASPARAGUS SEED.

The method of quickly raising plants above briefly detailed is also to be recommended where a number are required for permanent beds, these surpassing any raised during the same season in the open, and it is possible to raise a stock in heat this spring to overtake any raised last year in the open garden. With some gardeners the practice of sowing seed in drills where the plants are to remain finds favour, and it answers well. More, however, prefer to sow the seed on a well-prepared strip of

ground, in drills drawn 1 inch deep and from 12 inches to 15 inches apart. The seedlings being lightly thinned out form strong roots, and may be transplanted readily in the following spring. Early in April is a good time to sow the seed, the best varieties being Early and Late Giant Argenteuil, and the Giant, or Battersea.

CABBAGE.

In many instances where the plants put out in August or early in September were not checked, they made too much progress and are cut badly, or else are running to seed prematurely. If the lower leaves of the former are sound the damaged hearts may be cut out, and good successional heads will result. Those plants that have bolted should be drawn up and used, their places being filled, and any other blanks made good, with plants wintered in the seed beds. Many beds are more weedy than usual, and these ought to be hoed over and the weeds raked off and burnt or rotted. A free use of the flat hoe among the Cabbage beds generally is most beneficial, and if a liberal dressing of soot, mixed with some kind of special manure, is stirred in during showery weather, this will have a good effect upon the advancing crops. Red or pickling Cabbage (autumn raised) ought to be planted out on well-manured ground and given plenty of room. A pinch of seed may yet be sown in heat, and if the plants are got out in good time useful heads will be obtained in the autumn.

CELERIAC.

Celeriac, or Turnip-rooted Celery, is not so well known as it deserves to be. Well-grown roots are excellent, either for flavouring soups or served as a vegetable, and are much appreciated in some establishments. Few English seedsmen offer seeds of more than the common Turnip-rooted, but in France Celeriac is more appreciated, and as a consequence more varieties are grown and novelties are being introduced. In Messrs. Vilmorin's catalogue four distinct varieties are offered, viz., common, Large Early Erfurt, Large Smooth Paris, and Apple-shaped, the two last being new. The seed ought to be sown at once in a pan of fine soil and placed in gentle heat, the plants being eventually hardened off and pricked out, and otherwise treated similarly to the common Celery. Instead, however, of planting in trenches, Celeriac should be put out on the surface of well-manured ground, where, without much further trouble, fine bulbs will be formed, these only being used. W. I. M.

SHORT NOTES.—KITCHEN.

A stimulant for early Cabbage.—All who have spring Cabbage ready for the table by Easter are well to the fore, but in many cases they will be considerably behind this year, and as it is desirable that they should be ready as soon as possible, a little nitrate of soda will be found the best of all stimulants for them. This should be given at once by shaking about an egg-cupful round the stem of each plant, and drawing a little soil up to the stems on both sides immediately afterwards. — J. Muir.

Pea guards.—Here we are a good deal troubled about this time of the year with pheasants and other intruders picking the Peas out of the rows before the young plants appear above ground, but I have lately discovered a cheap and efficient guard for them. It is this: A piece of wire netting is unrolled over the top of the row; one side is pegged down first, and the other is pushed in a little until the netting forms an arch, and it is pegged in this form. When up, this netting resembles manufactured Pea guards, but it is much cheaper and far more useful, as when the Peas are safe the netting can be removed, rolled into its usual form, and used for other purposes. The mesh may be 1 inch, 1½ inches, or 2 inches, as may be thought fit, and the netting may be from 2 feet to 3 feet in width. Rolls of 50 or 100 yards would protect all the Peas in the garden, as it may be removed from one row to another as may be required. — J. M., *South Wales*.

Sowing seeds too early.—Mr. Iggulden never wrote a more truthful or common-sense article than that which appeared in THE GARDEN, March 23 (p. 265), and I quite agree with him in every parti-

cular but one, and that, unfortunately, is as regards his favourite vegetable, the Tomato. I have at the present time 200 plants of Surpasse which, now in 3-inch pots, will be shifted on into 6-inch pots, and grown on until they reach a height of from 3 feet to 3½ feet. The plants are then put into a cool house, properly hardened off, and planted out the first week in June. This system I have practised now for seven years with the very best results every year excepting last, when, like most other people, I had a perfect failure. — R. GILBERT, *Burghley*.

MARKET PLANTS.

ONE of the branches of market gardening that has of late made great progress is the cultivation of plants in pots, boxes, and in open-air beds. This is quite a distinct branch to that of the florists, for it is carried on mainly by growers who have not the means of retailing their productions direct to the public, but who are obliged to sell to florists or to hawkers who dispose of them from house to house. At this season of the year the houses are crowded to their utmost capacity either with plants in bloom or approaching that stage, while the number of young plants coming on makes one wonder where the purchasers are to come from. The fact is, that the majority of these plants have but a very brief existence, for during the time they are being prepared for market they receive the best attention that skill can devise. Close to the glass in low span-roofed houses they make dwarf stocky growth, while the best of soil and an unlimited supply of tepid water, kept inside the house so as not to chill the roots, and stimulants to cause both flowers and foliage to be of the highest order, combine to make the perfect models of plants one finds in these establishments.

Look at them, however, only a week after they leave this fostering care, and the majority of them will be dust dry, and probably set in the dry arid air of a dwelling-room. The only water they get is drawn direct from the water main, and probably at the coldest part of the day the windows are thrown wide open while the rooms are being cleaned. This soon settles the fate of these plants, and they disappear, and fresh ones take their place. At no season of the year is there so great a variety to select from as in the spring and early summer months.

Looking through the ranges of houses in one of these establishments a few days ago, I was struck with the high standard of excellence attained in everything that is made a speciality of, for, unlike the ordinary nurseryman, who wants a little of everything, these growers go in for large quantities of particular kinds, while some only cater for particular seasons, as they clear out most of their stock of pot plants in time to utilise a good deal of the space for Tomatoes, Cucumbers, and other summer crops. Amongst the principal plants that are raised from seed, Cyclamens, Primulas, and Cinerarias are the most noticeable, the colour and size of the blooms being remarkable. Bulbs and roots also figure largely, as they are bought in at a cheap rate by the thousand and sold in full bloom in pots at a price at which the roots alone could not have been procured a few years ago. *Spiraea japonica*, *Hyacinths*, *Tulips*, and *Lily of the Valley* appear the favourites in this class, while *Geraniums*, *Pelargoniums*, *Cytisuses* and *Ferns* are extremely well done. The bedding plant craze has evidently seen its best days, for hardy plant roots are taking their place, and *Daisies*, *Pansies*, *Myosotis*, *Wall-flowers*, and the hosts of other things that are now utilised for filling beds and borders are in great request. The work of improving such flowers as the *Pansy*, *Viola*, &c., is now being carried out in earnest, and in place of the weedy varieties sold a few years ago, plants with blooms equal to exhibition ones are grown by the thousand for market.

J. G. H.

Carnations sporting.—Referring to remarks on Carnations sporting (p. 273), I cannot say that I have found the pink and purple bizzarres as a class more disposed to sport than others, though there are some remarkable examples of this tendency among them. In

my own experience, I have found the scarlet flakes the most prone to sporting, and the rose flakes the most constant among the various classes.—M. ROWAN.

DESTROYERS.

DESTRUCTION OF EARWIGS.

IN answer to "Border" (GARDEN, March 23, p. 256), the simplest and surest method of destroying earwigs is to drown them out. If all empty spaces could be scalded, the process of destruction would be hastened; but the farmer's remedy for his panting Mangolds—turn a river over them—will speedily annihilate all earwigs, or render their garden quarters so uncomfortable that they will voluntarily depart.

Not a few small gardens in such populous towns as Liverpool are placed on a sort of gridiron formed of water, sewage, gas-pipes, and drains for storm water. The earth laid over these gets dust-dry, and earwigs or woodlice finding such comfortable quarters increase and devour growing produce to such an extent, that barely a green thing is left. Turn the water over the gardens and repeat the floodings at intervals until the entire area is saturated through. The whole of the earwigs, young and old, will either perish in the floods or decamp to drier quarters. If once thus completely destroyed or promptly driven out they seldom return to the same ground. Should they, however, show any symptoms of doing so, give yet another flooding.

In large towns honeycombed with water, gas, and sewage pipes, such floodings, if managed with ordinary sense and skill, always do good in most gardens. Where the soil is poor a dose of guano water, or rather pungent sewage, in the last watering facilitates the destruction or voluntary removal of the earwigs. A wet bed or home is distasteful or destructive enough, but a nauseous or pungent one to boot is more than even a humble earwig will put up with, and hence the extra potency of guano water for the last dressing.

Scalding hot dressings will facilitate the work of clearance; but, of course, these cost money, and destroy every living plant they touch as well as the troublesome insect pests. Much risk also attends the application of paraffin or other mineral oils. Unless strong enough to endanger vegetable life, it is hardly likely to prove very efficient in the destruction of earwigs, as it glides rapidly off their smooth varnished backs; whereas drowning out with pure or manure water is at once cheap and safe, and in most gardens affected by such pests highly beneficial to the plants as well, for the presence of the insects shows that already the soil is too dry for the well-doing of vegetable life, and hence the flooding proves at once a welcome stimulant to the roots as well as a speedy clearance of all devouring earwigs.

QUERCUS.

Insects among Orchids.—Would you kindly give the name of enclosed insect and if injurious to Orchids, among which it was found?—ROSE.

* * In reply to above, the insect you sent is an immature specimen of a foreign species of cockroach. It is, no doubt, injurious to the roots of Orchids. Trap them in the usual manner and sprinkle some insect powder in their haunts if they have taken up their position in any cracks in the walls, &c.—G. S. S.

Bulbs of Eucharis unhealthy.—I have sent you some Eucharis bulbs, and shall be glad to know if they are infested with the mite.—J. H. F.

* * I am sorry to tell you that your bulbs are attacked by the Eucharis mite. Though various methods have been tried from time to time with more or less success to destroy the mites, I doubt if any would prove useful if they, as they often do, have worked some distance down between the scales of the bulbs, as the insecticide would not then reach them. Washing the bulbs well in paraffin oil and water, or washing or soaking them in 1 lb. of sulphide of potassium dissolved in a pailful of water, appear to be the most effectual remedies, and are no doubt successful if they can be made to reach the mites. I believe that soaking the bulbs for a quarter of an hour in water of a

temperature of 110° or 115° Fahr. will prove the best remedy; it will kill the mites, and I do not think it will injure the bulbs, but of this I am uncertain.—G. S. S.

Eucharis bulbs diseased.—I have forwarded some bulbs of Eucharis amazonica affected, as I suppose, with the mite. Would you kindly say whether they are so affected and what is the cure, if any? I understand that the roots were washed with paraffin and water and repotted last spring. Is there any danger of the disease attacking Pancratiums?—J. WINDER.

* * In reply to the above, your Eucharis bulbs have all the appearance of being attacked by the Eucharis mite, but though I examined the bulbs very carefully, I could not find any specimens. I expect they would attack Pancratiums, but I have never seen them on them. If the bulbs are badly attacked, I do not believe that there is any cure for them, as the mites work down between the scales for some distance where no insecticide can reach them. If they have not worked down far, washing with paraffin and water or 1 lb. of sulphide of potassium dissolved in a pailful of water would kill them.—G. S. S.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE SPRING SHOW.

MARCH 23.

THE show at the Crystal Palace on Saturday last was small, but interesting, as in the majority of cases the plants were well flowered, especially the Cinerarias. It would not have been easy to find twelve better specimens than those of Mr. J. Ford, gardener to Sir Charles Pigott, Bart., Wexham Park, Slough, the flowers having a rich variety of colouring. Mr. A. Carter, gardener to Alderman Evans, Ewell Grove, Surrey, showed the finest twelve in the amateurs' class for these. Cyclamens are always in plenty at spring shows, and the thirty-six plants from Mr. D. Phillips, Langley Broom, Slough, were of the finest type. In this particular flower Mr. Phillips seems at the head of all amateurs, as he was first for twelve specimens. Mr. John Odell, Gould's Green, Hillingdon, was second. The Tulips were fresh and well grown, but not up to the high standard we have seen them in previous seasons. Messrs. H. Williams and Sons, Fortis Green, Finchley, had the finest thirty-six plants, the varieties including such excellent types as Joost Van Vondel, Ophir d'Or, golden yellow; Rose Luisant, and the white Joost Van Vondel. We admire the feathered kinds, as Monument. The twelve pots from Mr. W. Monk, gardener to Mr. G. R. Higgins, Eastlands, Dulwich, were also worthy of note; likewise the second prize collection from Mr. H. Shoesmith, gardener to Mr. Hodgson, Shirley Cottage, Croydon. Messrs. Williams and Sons were first for thirty-six Hyacinths, the spikes strong and compact. We can scarcely have too many of such beautiful kinds as La Grandesse, Princess Amalie, Lord Derby, and King of the Blues. In the class for twelve, Mr. J. Rodbourn, gardener to Baroness Heath, Coombe House, near Croydon, was the most successful. There was the usual class for Polyanthi Narcissi. In that for twelve plants, Mr. Monk was at the top, and in the trade section Messrs. H. Williams had the finest. Mr. D. Phillips showed eighteen pots of excellently grown Mignonette; the plants were compact, strong, and full of flower—a set-off against the specimens of Tree Mignonette shown by Mr. J. R. Bird, gardener to Mr. J. A. Causton, Lodgemore, Alleyn Park. They were as hard and formal as it is possible to make a flower. The Lilies of the Valley from Messrs. J. Laing and Sons, Forest Hill, call for a note; as also those from Mr. Penfold, gardener to the Rev. Canon Bridges, Beddington House, Beddington. The classes for greenhouse Azaleas were well filled. Messrs. Paul and Son, Old Nurseries, Cheshunt, were first for Amaryllises, which this season seem especially strong and well flowered.

The groups were exceedingly fine. Messrs. John Laing and Sons, Forest Hill, had a varied arrange-

ment, in which were choice varieties of Cattleya Trianae, Dendrobium Wardianum, of which there is quite a show in the Forest Hill Nurseries, and Clivias. Mr. Henry James, Castle Nursery, Norwood, was second.

There were several miscellaneous exhibits. Mr. J. James, Woodside, Farnham Royal, had plants of Cinerarias, for which he has done much, and Cyclamen Faust, a dark crimson-coloured variety. Several boxes of Camellia blooms came from Messrs. Wm. Paul and Sons, of Waltham Cross—a rich variety of Italian kinds as well as English. Daffodils, principally of the Trumpet class, were shown by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham. An excellent group of Cyclamens came from Mr. W. Hibbert, gardener to Mr. W. Clay, Grove Road, Kingston. The group of Imantophyllums, Amaryllises, Primulas, and Cyclamens from Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, was one of the best things in the show. Such varieties of Imantophyllum, or Clivia, as Martha Reimers, splendens, Prince of Orange, Meteor are improvements on the type. The St. George's Nursery Company, Hanwell, had a bank of Cyclamens of strong growth, and Mr. John Odell also exhibited Cyclamens. A varied and interesting group was that put up by Messrs. Paul and Son, Cheshunt. There were various kinds of Roses, and many pretty alpine flowers in a rich series of Hepaticas, hardy Cyclamens, the compact free-flowering Puschkinia libanotica compacta, and Saxifraga oppositifolia in its several phases. We prefer the major variety. Mr. J. Rodbourn had a group of Primula obconica, a most useful winter-flowering Primrose, and Lachenalia pendula in baskets.

First-class certificates went to the following:—

AMARYLLIS DARK BEAUTY.—A very dark-coloured variety, with flowers of medium size and excellent shape. From Messrs. Paul and Son, Cheshunt.

DENDROBIUM CRASSINODE ALBUM.—A pure white form of this beautiful species; the only colour is the yellow suffusion in the centre of the flower. From Messrs. J. Laing and Sons.

CLIVIA JOHN LAING.—This variety has a large truss of scarlet flowers. It is a valuable acquisition. From Messrs. J. Laing.

CYCLAMEN STRIATUM (Empress of India).—A distinct flower, flamed with white on a rose-crimson ground. From Mr. J. Odell.

CYCLAMEN FAUST.—A deep crimson variety. From Mr. J. James.

A full list of prizes is given in our advertising columns.

ROYAL HORTICULTURAL.

MARCH 26.

THERE was an interesting meeting of the Royal Horticultural Society on Tuesday last, as will be seen by the report. The Orchid committee met for the first time, and had plenty of species and varieties to judge, as there was an unusually large number shown.

FIRST-CLASS CERTIFICATES were awarded to the following:—

SHORTIA GALACIFOLIA.—This interesting plant was exhibited by Mr. H. J. Elwes, Preston House, Cirencester, who wrote of it in THE GARDEN, of March 23, 1889 (p. 253), and a description is also given from an American journal on page 294 of the present issue.

CLIVIA JOHN LAING.—There was no harm in Messrs. J. Laing and Sons, of Forest Hill, naming this seedling Clivia, as the plant bears a strong spike of brilliant orange-scarlet flowers, that individually are large, broad, and with plenty of substance. It is one of the best we have seen, and was well worth a certificate. There are now so many good varieties of this plant, that great care will have to be taken in making awards.

AMARYLLIS TARENTIAN.—This is the finest variety that has ever been sent out from the nursery of Messrs. J. Veitch and Sons, of Chelsea. It recalls such varieties as Nonpareil and Dr. Masters; the

flowers faultless in shape, smooth, symmetrical, and of a rich self-crimson colour, without the least suspicion of any other tint. They are of medium size, and this is a great point, as when too large, *Amaryllis* flowers are far from beautiful. This variety approaches as closely to a perfect *Amaryllis* as any we have yet seen.

SAXIFRAGA MALYI.—A Rockfoil that shows an affinity to *S. luteo-purpurea*, but the flowers are individually larger and brighter in colour. From Messrs. Paul and Son, Broxbourne.

PRIMROSE MIKADO.—A variety that has flowers of a deep purple colour with an irregular margin of white. We prefer self-coloured flowers in Primroses, not those that are striped or margined. From Mr. R. Dean, Ealing.

ONCIDIUM SUPERBIENS.—A very handsome species belonging to the same class as *O. serratum* and *O. macranthum*. The pseudo-bulbs are ovate and about 4 inches or 5 inches in length, the scape being of considerable length and bearing numerous flowers of a rich appearance. The sepals are rich brown tipped with green, and the petals yellow in the lower portion, but the remainder is barred with brown; the purplish lip gives character to the flower. From Sir Trevor Lawrence, Bart., M.P., Dorking.

DENDROBIUM MICANS.—This is described as a cross between *D. Wardianum* and *lituiflorum*, and has sepals and petals which are shaded towards the apex with rose-magenta; the margin of the lip is of the same colour, set off by a sulphur-coloured centre and a rich purple throat. From Messrs. J. Veitch and Sons, Chelsea.

AWARDS OF MERIT went to—

DENDROBIUM MELANODISCUS.—This is a hybrid between *D. Ainsworthi* and *Findleyanum*, and is a beautiful Dendrobe, the colours exceedingly delicate and pretty. The upper portion of the sepals and petals is suffused with rose-magenta; the centre of the lip is pale yellow, passing into magenta at the margin, and within the throat the colour is rich crimson-purple. From Sir Trevor Lawrence, Bart., M.P.

CATLEYA TRIANÆ VAR.—We have seen far better varieties than this passed over without any recognition. The flowers were, however, considerably bruised in transit; the petals broad, touched with pink and ornamented by a central band of deep purple in the upper half; the richest colour is in the lip, which is deep purple. From Mr. Bruce Findlay, Manchester.

CATLEYA SCHROEDERE ALBA.—This has a medium-sized flower, pure white, except a slight suffusion of soft sulphur colour at the entrance to the throat. From Mr. Cummins, gardener to Mr. A. H. Smee, The Grange, Wallington.

HYACINTH YELLOW HAMMER.—A variety with a short spike, closely packed with comparatively large pale yellow flowers. From Messrs. Veitch and Sons.

BOTANICAL CERTIFICATES were awarded to *Masdevallia Chestertonii*, which has a brownish lip, the other portion of the flower deep green spotted with an almost black colour; and to *Masdevallia triangularis*, a yellow-flowered species. The first came from Mr. Smee, the other from Sir Trevor Lawrence.

ORCHIDS were numerous and of great interest. If there could be always good as a show of these at every committee meeting during the spring and summer, visitors would have no cause to grumble at a lack of rare exhibits. Sir Trevor Lawrence's group contained some choice kinds, comprising *Dendrobium melanodiscus* and *Oncidium superbiens* previously noted, a finely spotted form of *Odontoglossum Pescatorei* and *Cymbidium Devonianum*. A plant of this was exhibited in a basket, the pendant spike proceeding from the bottom, and bearing greenish brown flowers, the lip very darkly coloured. It is an interesting, but scarcely beautiful flower. A handsome variety of *Cattleya Trianæ* is *ebrocensis*, which has very large flowers, sepals and petals just touched with rose, the lip bright purple, except the throat, which is rich orange. There were also in this excellent series of

Orchids well-flowered spikes of the spotted *Odontoglossum Andersonianum*, *O. crispum*, and *O. Ruckerianum*, which has narrow sepals and petals tinted with sulphur and freely spotted with rich brown on the petals, the sepals being marked with a few spots of the same colour. A strikingly handsome *Spathoglottis* is *S. Kimballiana*, described in this week's GARDEN, and another plant shown by Sir Trevor Lawrence worthy of a note is *Epidendrum Stamfordianum* Wallacei, a very free-blooming kind. The sepals and petals are very narrow and greenish in colour, marked with dull crimson, the lip white with magenta on the column. Messrs. J. Laing and Sons, Forest Hill, had a silver medal for a group of *Clivias* and *Orchids*, of which *Dendrobium Wardianum* and *Cattleya Trianæ* and its several varieties, especially a very delicately coloured form named *delicata aurea*, were very fine. This firm also had the white variety of the beautiful *Dendrobium crassinode*; the flowers are quite white, except the central suffusion of yellow; and *Odontoglossum sceptrum*, the flowers of which are blotched and marked with brown on a yellow ground. Mr. Cummins had *Odontoglossum rigidum*, the flowers wholly self yellow, and more suggestive of those of an *Oncidium* than of an *Odontoglossum*—it seems very near *Oncidium aureum*—and also *Cattleya Trianæ* General Gordon, a well-coloured flower with a rich purple lip. Mr. Cummins also exhibited a splendid spike of *Cyrtomium Saintlegerianum*, its strong panicles of flowers, which are brown and yellow in colour, having a rich appearance. One of the best things in the Orchid way was the raceme of *Odontoglossum Stevensi*, shown by Mr. Ballantine, gardener to Baron Schroeder, The Dell, Egham. The flowers were of great width, large, and heavily blotched with pale brown. A more regularly disposed or noble spike we have not seen for many a day. Mr. Pickersgill, Blendon Hall, Bexley, exhibited an excellent raceme of *Odontoglossum crispum* and three finely grown and well-coloured flowers of *Lycaste Skinneri*, for the high culture of which he was especially commended. Messrs. Sander and Co., St Albans, had a plant of the free-growing and brightly-coloured *Oncidium bifolium majus*, of which the lip is very large and of the most brilliant shade of yellow. An interesting exhibit was the spike of a *Cyrtopodium* named *punctatum* from Mr. Hudd, Gordon House, Blackheath Park. It has long pseudo-bulbs and a spike of yellow flowers, crowded together at the top of the strong stem. A plant labelled *Zygotepalum Clayi*, but which seemed more like a form of *Gautieri*, came from Mr. T. H. Elry, St. Catherine's Park, Hatcham. Sir Charles Strickland showed the fragrant *Cattleya citrina*, and the Rev. E. Handley, Bath, a well-grown plant of *Oncidium macranthum*. From Mr. J. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, came *Cymbidium eburneum* Dayanum, the flower very like that of the typical *eburneum*, white, just tinted with rose; the lip yellow in the centre and spotted sparsely with lake-crimson. A species of *Cymbidium* with greenish flowers came from Mr. G. C. Raphael, Castle Hill, Englefield Green. A very richly coloured variety of *Odontoglossum triumphans* was that from Mr. S. D. White, and was well worth a name. The sepals and petals are very broad, almost wholly coloured with rich brown, but with the deep yellow ground showing through here and there.

Messrs. Barr & Son, Covent Garden, had a silver medal for a beautiful display of *Daffodils* and other early spring flowers. There were bunches of the Tenby, Ard-Righ, and some other 'Trumpet' varieties; also pans of such gems as *Narcissus minimus* and minor, and flowers of the distinct *Johnstoni*. Besides these there were *Crocuses* of various kinds, the pretty white *Scilla bifolia alba*, *Puschkinia libanotica compacta*, the pale-coloured *Chionodoxa cretensis albiflora*, *Hepatica triloba alba* (a lovely flower), *Hyacinthus azureus*, and the white-flowered *Myosotis dissitiflora alba*. Messrs. Paul & Son, Old Nurseries, Cheshunt, showed *Azalea Princess Clementine*, a white variety, but not wanted when we have *Deutsche Perle*, *Amaryllises*, and a rich series of hardy flowers.

These comprised *Hepaticas* in great variety, the Pasque Flower, *Saxifraga luteo-purpurea*, *S. coriophylla*, that has flowers as white as snow, and *Saxifraga oppositifolia* in its several phases; the major form is very bright and showy. Besides these there were forced plants of the showy *Lilac Marie Lemoine*, distinguished for freedom of bloom and purity; *Tree Paeonies*, *Puschkinia libanotica compacta*, and *Scilla bifolia rosea*, a pink-flowered form of the early Squill. Mr. Elwes exhibited, besides the *Shortia* previously mentioned, a flower of *Tulipa Kaufmanniana* (Regel), of which a plate was given in the *Botanical Magazine*, 6887. It is described as a new hardy early Tulip from Central Asia. Each segment is about 2 inches long, the lower half rich golden yellow, the other portion milky-white; the under surface of the outer segments is coloured with scarlet. Beautiful varieties of *Primroses* and *Polyanthuses* were exhibited by Mr. R. Dean. We have seldom seen a lovelier flower than the pure white *Evagil*, which has a greenish centre; also good were *Proserpine*, bright magenta, with a white stripe running down the centre of each petal. Messrs. J. Veitch and Sons had a bank of *Hyacinths*, with a few miscellaneous exhibits. The *Hyacinths* were excellent for the year, but from what we can gather, this is one of the worst bulb seasons on record, and this is seen in the irregular spikes, small individual flowers, and roughness. A few of the best sorts shown by Messrs. Veitch were *Challenge*, deep crimson; *Etna*, a fine single scarlet, excellent type; *King of the Blues*, deep blue; *alba superbissima*, white; *King of the Reds*, red; *Ida*, double yellow; *La Grandesse*, white; *Prince of Wales*, very deep blue, white centre, a showy variety; and *Von Schiller*, scarlet. The same firm exhibited plants of *Boronia heterophylla* and several new *Amaryllises*, as *Faust*, very rich in colour; *Juvenal*, pale greenish white, feathered with scarlet; *Haydn*, bright scarlet; and *Roschea*, whitish, feathered with scarlet. A silver medal was awarded. Some *Hyacinths* grown in Cocoa-nut fibre and shingle came from Mr. Robert Sydenham, Birmingham. We cannot see the object of using such a soil as this; the spikes were fairly good. A large collection of *Cyclamens* came from Mr. W. Hibbert, gardener to Mr. W. Clay, Grove Road, Kingston. Mr. B. Lowe, gardener to Earl Brownlow, Ashridge, had a well-flowered stem of *Fortune's yellow Rose*.

Mr. F. Ross, gardener to Sir George Macleay, Pendell Court Gardens, Bletchingley, exhibited flowers of the beautiful violet-coloured *Brunfelsia grandiflora*, and also of *Brownea grandiceps*, *B. coccinea*, and *B. coccinea hybrida*. *Brownea grandiceps* has the largest umbel of flowers, which are also the lightest in colour, but the brightest was *coccinea hybrida*, a supposed hybrid between *coccinea* and *grandiceps*. We appear to get size of umbel from *grandiceps*, but the brilliant scarlet from *coccinea*. *Cineraria* blooms, representing a distinct and handsome strain, came from Messrs. Carter and Co., High Holborn, who had plants of a kind named *Emperor Frederick*, with fluted florets of rich crimson colour.

A silver medal was awarded for a group of plants, comprising principally forced bulbs and exceptionally fine plants of *Calla aethiopica*, *Primula obconica*, and *Lily of the Valley* from Mr. George Phippen, Victoria Nurseries, Reading, Berks.

FRUIT comprised a seedling Apple named *Shilaton's Seedling* from Messrs. W. and J. Brown, Peterborough, and well-grown bunches of *Black Hamburg Grapes* from Mr. W. F. Hume-Dick, Thames Ditton House, Thames Ditton. They were especially good for the season.

Asbestos was shown by Messrs. C. Toope and Co. as a substitute for Moss in the culture of Orchids. It absorbs far more water than Moss, and may, therefore, have some advantage. A new fumigator was also exhibited by them.

The Gardeners' Orphan Fund.—A meeting of the joint committee, which includes a number of the stand-holders in the wholesale flower market, took place at the Caledonian Hotel on the 22nd inst. to arrange the details of the second floral fête in aid of the fund. Mr. G. Deal in the chair,

The hon. secretary, Mr. A. F. Barron, reported that H.R.H. Princess Mary Adelaide, Duchess of Teck, Her Grace the Duchess of Bedford, Lady George Hamilton, and Lady Goldsmid had been pleased to have their names announced as the patronesses of the fund. It was resolved that the fête should take place on Wednesday, May 22; that it should be opened to the public at 8 p.m.; that the tickets of admission should be fixed at 5s. each, and the number limited to 2000, exclusive of those given to the stand-holders. It was resolved that each stand-holder and committee should be presented with two tickets of admission. The committee will act as stewards, and each wear a badge of authority. Estimates were ordered to be obtained for a supply of refreshments, and other details were considered. The committee then adjourned until April 5.

NOTES OF THE WEEK.

"The English Flower Garden," long delayed by printers and others, will be published next week by Mr. Murray.

Two beautiful white-flowered Orchids in bloom now are *Lycaste Skinneri* alba and *Cologyne cristata* alba, both of exquisite beauty and delicacy.

Rhododendron eximium is flowering here. It is a wonderfully pretty and rare-coloured *Falconeri*.—O. F., *Lehenhof*.

Azalea Princess of Wales, which we recently noted in bloom, is a beautiful variety, quite double, full, of excellent substance, and exceedingly free. The plants of it were smothered with the choice blossoms.

Odontoglossum ramosissimum.—This is an old, but very beautiful New Grenada species, which we recently saw in flower. The sepals and petals are narrow, crinkled, and white, spotted with a lake-crimson tint. It is one of the prettiest of the *Odontoglossums* in flower now.

Fruit culture in England.—We understand that a paper on "Fruit culture for profit in the open air in England" will be read by Mr. Wm. Paul, F.L.S., at the meeting of the Society of Arts, John Street, Adelphi, London, on Wednesday, 3rd April, at 8 p.m.

Salvia Heeri.—This spring-blooming Sage deserves a place where bright flowers are wanted for cutting. It is of the simplest culture, and is most useful as a plant to associate with forced shrubs, Arum Lilies, &c., in the conservatory.—J. C. F.

Dendrobium crassinode.—Mr. Wm. Clarke, The Gardens, Eversley, Herne Hill, sends flowers under this name, but which represent the form *Barberianum*, one of the brightest and most beautiful *Dendrobiums* in flower now.

Camellia reticulata is flowering with Mr. Williams in the Victoria Nursery at Upper Holloway. The huge semi-double flowers are bright carmine, very brilliant and beautiful when the sun is shining full upon them. Mr. Williams says there is a growing demand for this once favourite *Camellia*.

Anthuriums are approaching their fullest beauty in Mr. B. S. Williams' nursery at Holloway. A. Wardi, a form of *Scherzerianum*, has a noble rich crimson spathe; and another fine variety is *atrosanguineum*. The plants are exceptionally robust, and promise to make an excellent show.

Cymbidium Lowi.—One of the largest specimens of C. Lowi we have seen is flowering now in Mr. B. S. Williams' nursery at Holloway. It carries six strong racemes, the flowers numbering about 1800—not a bad result. When in this magnificent condition we have few nobler Orchids than this *Cymbidium*.

Lilac Marie Lemoine.—This is the most free-flowering Lilac we have yet seen. Some of the spikes on the handsome specimen exhibited at the Royal Horticultural Society's meeting on Tuesday last were fully 6 inches long, and thickly studded with pretty white flowers. It is a desirable addition to our already rather large list of Lilacs.

Calanthe Williamsi.—This beautiful species was introduced by Mr. Williams from Eastern Asia, and is in bloom now in his nursery at Upper Holloway. The lip is the great feature of the flower; it is rosy crimson with a deeper eye; the sepals and petals white, slightly tinged with rose. Its lateness is a great advantage. C. Williamsi may be numbered amongst the finest of the *Calanthes*.

Galanthus Olgae-Reginæ.—Thanking Mr. Allen for his courteous and exhaustive note on *G. octobrensis* (THE GARDEN, March 23, p. 256), I beg, however, to maintain my statement about this

plant, though I ought to have been more precise in expression. Our late friend, the Rev. Mr. Harpur Crewe, told me he was of opinion the plant was an accidental wild sport. That it is identical with *Olgae-Reginæ* I am informed by that excellent botanist and connoisseur of the flora of Turkey and Greece, M. Victor von Tanka. Knowing the history of *octobrensis*, I expressed some doubts, but M. de Tanka told me he could positively prove his assertion.—MAX LEICHTLIN, *Baden-Baden*.

Galanthus præcox or corcyrensis.—Mr. Elwes is quite correct in stating that this *Snowdrop* came from Corfu, but it was not through Lord Walsingham. In a letter dated December 28, 1880, Mr. Harpur Crewe wrote me as follows: "I received my bulbs from my friend, Mr. Hughes, the chaplain at Corfu, and I gathered from him that it was the ordinary variety of the island." This variety is smaller than *G. octobrensis*, and like it is very delicate. It requires a light, well-drained soil and a sheltered position. I have observed that the three early-flowering *Galanths* have a distinct glaucous line or mark down the centre of each leaf. I have not noticed the same feature in the later varieties.—J. ALLEN.

Galanthus Elwesi.—Like Mr. Elwes, I find that this *Snowdrop* has a somewhat weakly constitution. In one border of very light soil, thoroughly drained, it grows well and in another bed where the soil is very stony and gritty it does fairly well, but in adhesive soil it has but a short life. Most of the collected bulbs are utter rubbish, and seedlings, even when the seed is saved from the best strains only, yield a very large proportion of flimsy, worthless flowers. Of course, I am simply giving my own experience.—J. ALLEN.

—I enclose a flower of *Galanthus Elwesi* which is exceptionally large. The other *Galanthus* I am not so sure about, and should be obliged if you would name.—EDMUND G. LODER.

** Very fine flower and exceptionally pure. The other flower was too shrivelled to identify.—ED.

Galanthus caucasicus.—In 1883 I ordered a dozen roots of *Galanthus latifolius* from Gusmus, Austria. Amongst them was an "ugly duckling," which completely puzzled me. In leaf and flower it was about double the size of *G. latifolius*, the leaf being very broad and somewhat glaucous; the plant was also very robust in growth. This spring I sent specimens to Mr. Baker, of Kew, and to my surprise I find that my stranger is a very fine form of *G. caucasicus*. According to this, I must have been the first person to cultivate this species in England, as I believe it was not until 1886 that a solitary bulb of it found its way to Kew. It is a most distinct and desirable *Snowdrop*, and I am sure it will become a favourite. The roots distributed last autumn under this name are at present very inferior to my form. Without doubt they will greatly improve when thoroughly established.—JAMES ALLEN.

Clivias at the Victoria Nurseries.—The *Clivia*, or *Imantophyllum*, is the handsomest greenhouse flower of the week, as it is now in its fullest beauty. The house of them in the nursery of Mr. B. S. Williams, at Upper Holloway, contains many specimens now carrying huge trusses of flower and representing several well marked varieties. Mr. Williams knows well how to grow the *Clivia*, and he has a rich assortment of such types as the noble *Martha Reimers*, of which a coloured plate was given in THE GARDEN, October 21, 1882. The other varieties of note are *General Gordon*, light orange-scarlet; *Meteor*, very bright; *Baron Schröder*, truss very compact, and white on the lower half of the segment; *aurantiaca*, which is quite of an orange shade; and *splendens*, one of the most beautiful of all. Many still adhere to its former name of *Imantophyllum*, but we prefer the shorter designation. At first the *Clivia* was grown as a stove plant, but experience soon proved that it was better in a cool house, and may indeed be classed amongst those that succeed in a greenhouse. In a cool temperature the flowers come brighter, stronger, and the foliage greener and healthier than when the plants are placed in much

heat. They are used largely on the Continent for the drawing-room, a use to which they might be put in England. The *Clivia* has also the advantage of withstanding a London atmosphere, as the robust specimens in Mr. Williams' nursery show. Those who have not yet a good selection will find no difficulty in obtaining one, as we have many beautiful varieties of various shades of scarlet. A pure white *Clivia* would be a prize, or any distinct variation from the shades of scarlet.

Lycaste Schilleriana is a beautiful Central American species, and very seldom seen. It was in bloom recently in Mr. B. S. Williams' nursery at Upper Holloway. The flowers stand up well, as in *Skinneri*, and show the beauty of their exceedingly delicate colouring. It is of free growth, and has leaves and pseudo-bulbs similar to those of *L. Skinneri*, with flowers in the way of those of *L. plana*. The spreading sepals, which are between 3 inches and 4 inches long, are cinnamon-brown with a shade of green, the petals much smaller and of the purest possible white—a beautiful contrast; the base of the column is crimson, but this is scarcely seen.

Hardy Saxifrages.—Mr. Baker's paper on *Saxifrages* would seem to have done much good, for never before can I remember seeing so many and distinct kinds exhibited at the Royal Horticultural Society's meeting as there were on Tuesday last. Charming indeed were several pots of that pretty form of *S. oppositifolia*, named *major*, plunged to the rim in a large pan, each specimen containing a large number of perfectly developed flowers. That this is a distinct and superior form, so far at least as size of flowers is concerned, everyone must admit, but I feel sure that I have seen particular plants amongst the hundreds that adorn the *Eidwyll* cliffs in Carnarvonshire with quite as large blooms as were some of those exhibited. *S. Burseriana* *Boydii* is a gem with creamy or yellow flowers placed on short footstalks. The foliage, too, is interesting, as being of a pleasing shade of green suffused with a silvery tint. As pot plants hardy *Saxifrages* are of great value, their neat habit of growth, beautiful grass-green foliage, and abundantly produced flowers rendering them favourites with one and all.—A. D. WEBSTER.

The Chionodoxas.—In reference to the note on these at p. 253, there are two *Chionodoxas*, viz., *C. gigantea* and *C. Timolusi*, both described by the collector as being distinct plants. The bulbs are, unfortunately, small, and are not flowering sufficiently well to enable me to fairly judge of them. *Gigantea* is in flower, one or two blooms upon a plant, but these flowers are considerably larger than those of *C. Luciliæ*, and I imagine when fully established the plants will answer the description of the collector, who states that the flowers are fully double the size of those of *C. Luciliæ*, spikes longer, and the plant a more robust grower. *C. Timolusi* appears to be a rather late one. It is just coming up through the ground. If there should be any flowers I will be glad to send them to you. I have this morning found three flowers of *Chionodoxa Timolusi*, which I have sent you for your inspection. The bulbs are remarkably small, and the flowers consequently very weak, so that it is impossible to form any idea of their real beauty. I have also sent flowers of *C. gigantea* from very small bulbs. I think *gigantea* is very distinct, and that it will make a first-class plant when we can get good established roots. I have also sent flowers of *cretensis* and *cretensis albiflora nana*.—T. S. WARE, *Tottenham*.

** The flowers of *C. Timolusi* are too weak to judge from properly. It is evidently a form of *Luciliæ*. *C. gigantea* is a lovely *Chionodoxa*, quite distinct in appearance, the flowers large, robust, blue tipped lilac. It is apparently a very distinct kind.—ED.

—I do not know on what authority *Chionodoxa Timolusi* is named. It is, no doubt, a variety of *Chionodoxa Luciliæ*, but as distinct from *C. Luciliæ* as *C. sardensis* is from *C. Luciliæ*. It differs from *C. Luciliæ* in its long narrow segments, which are

of a beautiful light blue with pure white centre. It appears to be the latest in bloom of all the Chionodoxas. Chionodoxa gigantea I consider still more distinct, and when stronger bulbs flower I think it will be the best and most distinct of this genus.—G. REUTHE.

Hellebores from Devonshire.—In this box you will receive flowers of some of my seedling Hellebores, the result of many years' selection. Perhaps the three or four to which I have attached names are the most improved, as also the most recent, viz., Eve, Unique, guttatus (A), Contour.—T. H. ARCHER-HIND, *South Devon*.

* * They are most delicate in colour, with pretty intermediate hues, many-spotted. In a good climate in the west they are charming for this time of the year. London and home county climate does not give them much chance. Therefore all the greater need for those who have the opportunity to grow them plentifully. We think some of those unnamed are finer than the named kinds.—ED.

Beautiful Dendrobiums.—There were several exceptionally handsome Dendrobiums in flower recently in Mr. Williams' nursery at Holloway, and comprised the following: *D. macrophyllum giganteum*, strongly scented of Turkey Rhubarb, has a large rosy mauve flower, and is a showy handsome form. There was also one of the purest forms of the beautiful *D. Ainsworthi* it has been our pleasure to see; the variety named roseum is very similar to the type, but the petals are flushed towards the apex with rose. Of course the old *D. nobile* was flowering freely, and one form was exceptionally highly coloured, almost as rich as in *D. nobile nobiliss*, of which a coloured plate was given in THE GARDEN, September 8, 1883. *D. crassinode* was in full bloom, also the now well-known *Wardianum* and the golden-coloured *D. Cambridgeanum*.

Conophallus Titanum.—In the note on *Amorphophallus Rivieri* published last week (p. 255) it is stated that "it is the same as *Conophallus Titanum*." The two plants are widely different. The last-named has a leaf 10 feet high, the stalk a foot in diameter at the base, and the blade 45 feet in circumference. The scape is 1 foot 7 inches high, the spathe 3 feet in diameter, and the spadix 6 feet long. These data are from the description given by Dr. Beccari, who discovered the plant in Sumatra about ten years ago. The large plant known in cultivation is that at Kew, which last year had a tuber 18 inches across, like a huge Pumpkin, and a leaf 8 feet high by 8 inches in diameter at the base. This plant is now at rest. It has not yet flowered, but hopes are entertained of its doing so this year. *Amorphophallus Rivieri* is a Japanese plant, which is almost hardy in England. Its size will not, of course, bear comparison with that of the *Conophallus*. The inflorescence borne by the plant of the former, which was exhibited by the Messrs. Veitch at Regent's Park last week, was an unusually fine one.—W.

The weather in East Anglia.—With winter closely hugging us all through March in East Anglia, and even the earliest Primroses hesitating to follow the lead of the Snowdrops, still in full bloom on this the 26th day of March, one reads with peculiar pleasure not untinged with envy the interesting note of Mr. J. A. Saumarez (p. 255) on Heaths and the beautiful old *Acacia asparagoides* in full bloom in Guernsey. These are not only very beautiful in themselves, but it is easy to imagine the perfect galaxy of spring beauty that accompanies them under the fostering and genial conditions of that enviable climate; while here the north-east wind is master of the situation, and though dethroned for a few hours by a rush of genial air, it returns to us with its ruthless vigour, as if it had obtained a fresh commission to do its worst among the venturesome spring flowers. Already it has done more injury than usual, for not only have such plants as *Myosotis dissitiflora* been destroyed by thousands, but the best of all double Violets, Comte de Brazza, Marie Louise, and the three singles, Victoria, Czar, and odoratissima, have almost been stripped bare of their leaves. The double white and Victoria have suffered the most, scores of

the latter being quite destroyed, whilst a number of plants of Comte de Brazza left under a wall to succeed those in frames look as if the leaves had been scalded. In fact, I do not remember any winter that has laid a heavier, colder hand on Violets and some other plants, notably Parsley, than the one that must surely be drawing to a close. But my object was not so much to find fault with our cold and cutting climate as to urge the claims of our older plants, such as several of the *Acacias* for greenhouse or conservatory walls, as there are few plants more graceful or even more beautiful than these. They used to be seen in almost every glass structure, and now have become almost rare. They are mostly of very easy culture, their chief foe being white scale. But surely this pest can prove no serious obstacle to their growth in an age when cures for insects are as plentiful as Blackberries.—D. T. FISH.

Lilium neilgherrense.—I saw a little while ago an inquiry by Mr. G. F. Wilson, of Heatherbank, Weybridge Heath, as to how many blooms are borne by *Lilium neilgherrense* in its native habitat. Allow me to reply that young bulbs produce usually only one blossom, but older and stronger ones have frequently three to five. Very strong bulbs have, I am told, been known to have eight flowers on one stem. I have for some years grown this Lily, and have, out of about 2000 plants, an average of perhaps fifty yielding six and ten giving seven blossoms. I have never seen more. Mr. Wilson mentioned some time ago, I think in a letter to me, that one of his plants of *Lilium polypodium* had produced thirteen flowers on one stalk. This is most unusual, and shows that he well understands how to treat this beautiful and hardy little Lily. I have never known more than nine flowers on one stem of this variety. Will Mr. Wilson kindly give us the same information with regard to *L. Wallichianum*? I think visitors to Mr. Wm. Bull's establishment in Chelsea will this summer have an opportunity of seeing many specimens of *Lilium neilgherrense* bearing from five to seven blooms.—F. GRIFFITH, *Kotagiri, Nilgiris, India, March 4, 1889*.

Rhododendron dauricum atrovirens.—Amongst the few hardy shrubs flowering in March there is none perhaps more beautiful and attractive than this old-fashioned *Rhododendron*. Plants of it 6 feet high and as much in diameter, smothered with their rich bright purple flowers, produce a very striking effect in the shrubbery at this season. It is rather odd that fine examples of it should be so seldom met with, as it does not appear to me to be at all fastidious either as to soil or situation. It is perhaps as well to give it a warm, sheltered spot where it is possible to do so, owing to its flowering very early. It is of very slow growth, and presents a very stunted, twiggy appearance when not in flower, owing to its sparse covering of foliage, which detracts to a certain extent from its ornate character. This is, however, more noticeable in aged specimens. The flowers of it have an agreeable resinous perfume, and with an outline resembling very much some of the small-flowered *Azaleas*. The typical plant *R. dauricum* was, I believe, introduced from Siberia towards the close of the last century. It is a very much dwarfer growing kind with paler coloured flowers than the one under notice. Both are worthy of a place in every collection of hardy shrubs.—J. G. M. G., *Milne Garden, Coldstream, N.B.*

Spring flowers at Highgate.—There is a beautiful show of spring flowers of various kinds in the nurseries of Messrs. Cutbush and Son, Highgate, and the arrangement is made exceedingly tasteful by embedding the plants in green Moss so as to quite hide the unsightly pots. From a large mass of flowering bulbs as here, we can judge something of the condition of the bulbs this season, and the weakest and most inferior seem the Hyacinths, the splendid dark blue-coloured King of the Blues being the best; another fine single variety is Macaulay. Such well-tried favourites as La Grandesse still hold their own. The Tulips are finer than the Hyacinths, especially such beautiful types as Ophir d'Or, Roi Pippin, white, feathered with

scarlet, and Pottebakker, white. Messrs. Cutbush also have in their display masses of the best kinds of florists' Crocuses, Lilies of the Valley, which seem unusually fine this season, Polyanthi Narcissi, the beautiful Lyre Flower (*Dielytra spectabilis*), Daffodils, and an excellent strain of Cyclamen known as giganteum, the flowers large, robust, and finely coloured, the whites especially pure. One variety of Mignonette worth noting was Machet, the plant very dwarf, robust, and having large strong spikes of powerfully scented flowers. A mass of *Primula obconica*, *Clivias*, *Rhododendrons*, *Azalea mollis*, a dwarf strain of *Amaryllis*, and *Staphylea colchica*, with pure white and sweetly scented blooms, were also in this excellent display of forced flowers.

Cypripediums of many kinds are flowering now in Mr. B. S. Williams' nursery at Upper Holloway, where will be found a rare and rich collection of the finest species and varieties. One strong recommendation the Lady's Slippers have is their long season of blooming and the length of time the individual flowers remain in condition. *C. Measurianum* has been in beauty for the past three months, and a plant was still in flower. This is one of the most beautiful of its genus, and another fine type is *C. Sallieri aureum*, which has more yellow in it than the ordinary form, and is a light-coloured flower, with a fine dorsal sepal beautified by a broad margin of white, the other portion yellow, spotted with chocolate. *C. Williamsi*, one of Mr. Warner's seedlings, and of doubtful parentage, but with evidently the venustum blood in it, has a dorsal sepal veined with green, the lip and petals suffused with brown; *C. ciliolare*, a lovely *Cypripede*; *C. callosum*, which has a dorsal sepal about 3 inches across, white, with longitudinal bands of crimson; *Io grandis*, a better marked flower than the type; *Sedeni candidulum*, *C. barbatum* Warneri, and *C. grande*, a very fine form, were also in full bloom. We must not omit that gem of Lady's Slippers, *C. oenanthum superbum*, a highly polished flower of exquisite colouring, nor *C. Amesianum*, of which the dorsal sepal is polished green, the sepals and lip suffused with light brown. Two beautiful kinds are *C. vexillarium superbum* and *C. tonsum*; the first of the two is of very rich appearance, and the other is a pale coloured flower, very light greenish brown, with a few spots of chocolate on the petals, and a fine white margin to the dorsal sepal. *Cypripedium Gardinianum* was just opening; it is described as in the way of Godefroyae, but with smaller spots. *C. Harrisianum superbum* completes the series of a few of the best in flower; it is a noble variety, finer than the type, and with the rich varnished character of *oenanthum superbum*.

BOOKS RECEIVED.

"The Pansy, and how to grow it." With coloured plates and numerous woodcuts. By James Simkins, King's Norton. Birmingham: Cornish Bros., 37, New Street. London: Simpkin, Marshall & Co.

"The Tomato: its Culture and Uses." By W. Iggulden, Marston Gardens, Frome.

"A Naturalist's Voyage. Journal of Researches into the Natural History and Geology of the Countries visited during the voyage of H.M.S. 'Beagle' round the World." By Charles Darwin. London: John Murray, Albemarle Street.

Names of plants.—Yorks.—1, *Calanthe Veitchii*, fine colour; 2, *Cattleya Trianae*, poor form; 3, *Masdevallia ignea*; 4, *M. Chimera*.—T. Workman.—1, *Dendrobium Devonianum*; 2, *D. thyrsiflorum*; 3, *Laelia flava*; 4, *Dendrobium glumaceum*.—G. Danford, *Didsbury*.—A very fine sample of *Cyclamen*, but we cannot name these; neither is it desirable. —E. L. S.—1 and 2, forms of *Selaginella Kraussiana*; 3, *S. cæsia*; 4, please send better specimen; 5, *S. Martensi*; 6, *S. M. variegata*. —J. Bennett, *Ravenscroft*.—The *Calanthe* is *C. Regneri*; the *Dendrobium*, *D. primulinum*. The flowers of *D. Wardianum* are very good. —H. D.—1 and 3, forms of *Helleborus orientalis*; 2, form of *H. guttatus*. —A. Chapman.—1 and 2, *Eucnemos radicans variegatus*; 3, *Gaultheria Shallon*. —R. Elliott.—The Snowdrop has no varietal name; a slight form of *G. nivalis*. —A. Lee.—*Bletia* Shepherdii. —W. Nelson.—*Hardenbergia monophylla*. —J. T. Strange.—Send better specimen. —J. F. D.—Please send fertile branch. —F. R. T.—*Pinus Peuce*.

WOODS & FORESTS.

HOME-GROWN TIMBER.

MR. J. SHEPPARD, in *THE GARDEN*, March 16 (p. 252), says:—

Your various correspondents find fault with the non-use of home-grown timber, but in doing this they do not specify what kind, and by their remarks leave it to be inferred that it is that from Fir trees, and if so, it is no wonder that there is little or no demand for it, as everyone knows how much superior foreign deals are to any that are grown here, and builders are not so foolish as to use timber that will cost them as much as fine foreign wood that is seasoned and ready for use.

Mr. Sheppard should know that it is not necessarily requisite that all timbers used for building purposes be thoroughly seasoned; at any rate I have supplied large quantities of rafters, joists, dividing posts, lath, sarking, &c., direct from the saw-mill after having been cut up, and I never heard the inspector of works object to their use when the wood was thoroughly matured in growth and of a close firm texture. The seasoning of wood for particular purposes is only a question of time, and there is nothing to prevent the forester in this country having his wood as well seasoned as the foreigner. With regard to foreign timber being so much superior to that of home growth, this statement is not borne out by actual experience and observation. There can be no doubt but that soil, elevation, and locality exercise a great influence on the growth of trees and the quality of the wood which they produce. I have cut up as good Pine, Oak, Ash, and Sycamore as any that I have ever seen of foreign growth, and which was allowed to be so by competent judges. This may be exceptional, and granting that it is so to a certain extent, yet I have no hesitation in saying that timber of home growth when thoroughly matured and properly selected and prepared might be used with advantage in many cases where it has hitherto been all but neglected. Mr. Sheppard also says:—

What value, I would ask, are Spruce and Silver Firs that are only too common on most estates? If *Abies Douglasi* were planted, we may by-and-by have timber that will successfully compete with that brought from abroad.

We all expect that *A. Douglasi* will have a great future, but to say that it will be superior to the common Spruce and Silver Fir is questionable. The Spruce and Silver Firs are both tried trees in this country, and we know all about them, and although *Abies Douglasi* has proved a success in some localities, yet in other parts it proved a failure unless sheltered by other hardy trees such as the common Spruce and Silver Fir. Although the Silver Fir is liable to be cut down by late spring frosts during the early stages of its growth, yet when thoroughly established it is proof against the inclemency of the weather and attains a larger size than any of its associates of the Fir tribe within the same time, and as its wood is of good average quality, it is therefore not to be despised as a useful timber tree. Under such conditions it is doubtful whether the Douglas Spruce will ever attain a higher standard of perfection in this country for utility and profit. Some time ago I inspected a forest where a number of the Douglas Spruce had been planted at an elevation of about 1118 feet above sea level, and the plants appeared to be in perfect health, and from the site of the plantation, which is sheltered by high hills in the vicinity, I have every reason to believe that the trees will attain a useful size. If *Abies Douglasi*,

however, were planted on a wind-swept hillside at the same elevation, failure would certainly result, so that locality is often a point of greater importance than mere elevation. In places where the tree thrives, its prospective value as a timber-producer is immense, but as it is unsuitable for planting on exposed heather moor and hilly ground, its value for general utility is lessened to a large extent, and it has yet to be proved whether it will be such an acquisition as some writers would have us suppose.

Much has been said for and against the common Spruce (*Abies excelsa*) as a timber tree, but the large extent to which its timber is being used for house-building, &c., shows its usefulness for such purposes. In addition to this, it has proved perfectly hardy and well suited for the climate of this country, and as it is easily propagated from seed and capable of being removed to the forest in the early stages of its growth, and inserted in the ground by the notch system of planting out at a cost of about 30s. per acre, and sometimes less, it can be highly recommended. In Ireland and elsewhere I have found it to be an excellent tree for planting on peat, bog, and mossy ground; in fact, it seems to be quite at home on this class of soil, and attains a good useful size in places where many other trees only reach the size of inferior scrub. In speaking of this tree Loudon says:—

The finest Spruce forests which I have seen were between Memel and Königsberg, growing in peaty soil resting on sand, and liable to inundation during a great part of winter.

Therefore in view of the vast area of this class of ground in Great Britain and Ireland that is unsuitable for tillage purposes, this tree might be planted with a reasonable prospect of success and profit to the owners of such lands, and as the wood is elastic, although perhaps less resinous than that of the Scotch Pine, yet it is found to be durable and capable of being used at all stages of its growth for a great variety of purposes. On the whole, the common Spruce is by no means such an inferior tree for general utility as some writers would seem to imply. To grow the tree to the best advantage it should be planted in blocks by itself, and at such a distance apart that the side branches lose their vitality through confinement and fall to the ground, by which means the stems present fine clean shafts of a pretty uniform thickness throughout.

J. B. WEBSTER.

The Scotch Fir as a timber tree.—I quite agree with J. B. Webster in all he says (p. 276) respecting the value of the timber of this tree. The tree grows well in this part of the country, and here it is used daily and almost exclusively in repairing and erecting all kinds of farm buildings, cottages, &c., and its adaptability and durability are undeniable.—J. MUR, *Margam Park, S. Wales*.

Willow for hedges.—By substituting Willow for Thorn, hedges can be made profitable; they are, it is said, more effective as a shelter, quite as strong, reared in a much shorter time, and at less than half the cost. The Willow has long been recommended for hedges, and the only way in which the neglect of such advice can be accounted for is simply that the matter has never been brought sufficiently under notice. A Willow hedge, 200 yards long, formed of cuttings 12 inches long and planted 6 inches apart—requiring 1200 cuttings, value about 25s.—became in two years a good strong fence, capable of resisting any pressure an ordinary hedge would be subject to. The Willows being crossed diagonally, rendered it almost impossible for anything to break through. The dressings or spray of the first two years were coarse and worthless, but in the three succeeding years the dressing

has been sold to basket-makers for 20s. each year, and has paid the entire cost of planting, labour, and rent of land which the hedge occupies. Another hedge planted upon the same principle has, at the second year's dressing, paid the cost of the plants.—F.

OSIER CULTURE.

I HAVE had an Osier ground for some years, and I find it to be profitable. The popular notion of an Osier bed is just any piece of land that will not grow anything else, where water stands all the winter, that you have only to dig over, push cuttings into, and take the crop off when the time comes round for that purpose. Osiers grown in this fashion will just cover expenses. To make them pay, the business must be well started, and the little that has to be done must be thoroughly done, and at the right time of the year.

First, shallow drain the land—say 18 inches or 2 feet, not deeper—with pipes; for Osiers live in dry, thrive in moist land, and die out in stagnant water. If you use hand labour instead of horse work in the draining, cut open drains and keep them clear; but, if possible, use horse work, as it will make a considerable difference in the expense. Trench the land 12 inches deep, and plant the cuttings 12 inches apart, and 18 inches from row to row. Cuttings made of one-year shoots are the best. They should be cut about 10 inches or 12 inches long, and pushed into the ground the whole length. If planted too late (after the sap has begun to rise), the bark will peel up the cutting, and it will die. February is the best month for planting. For the first year keep the weeds under with a sharp hoe, and also keep rabbits down. Do not cut the crop later than February, and replace any cuttings that may have died.

Osiers are sold as a standing crop, or in some places by weight or by the bunch. Whichever plan is adopted, let your own men cut the crop. The Osiers should be cut off close to the ground, or as nearly so as practicable. A bunch of Osiers is a number of rods tied together by two bands (made of Osier). The lowest band should be 12 inches from the butt end of the bunch, and should measure 36 inches in circumference; the other band is put round any distance up the bunch, and has no fixed length, being intended only to keep the bunch together. As soon as the crop is cut and weeds begin to appear, plough the land and harrow it, for, if the weeds once gain a good footing, it will make a large difference in the yield. About six or eight sorts are enough to grow, and about three-fourths of them should be kinds for peeling, as they fetch a better price than those that will not peel. As soon as the shoots burst use the hoe, or you may damage the plants.

Any land, however poor, will grow some kinds of Osier, but the better the soil the better the kind that may be planted. Clay is hardly suitable for them, and sand is almost as bad. The value of an Osier rod depends upon its toughness and straight length. An acre of land will take about 28,000 cuttings. The cheapest way is to grow a small bed the first year for cuttings for the next. A well-grown one-year-old rod will make three cuttings—not more, safely. Bought cuttings cost about 12s. per thousand. The shape of an Osier ground is material; it should be long and comparatively narrow, with vacant paths every now and then running quite through it, to enable rabbits to be shot as they pass over them.

T. C.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d.

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London: 37, Southampton Street, Strand, W.C.

No. 907. SATURDAY, April 6, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES ON HARDY FRUITS.

It is yet rather early to express a decided opinion upon the coming fruit season, but, judging from present appearances, crops of all kinds will be extremely partial. Those who pin their faith on a mild late spring and do not debit one of the most unfavourable summers on record, are already looking forward to fine crops of fruit, and I am most hopeful that their good wishes may be realised. I do not, however, share in this opinion, and for these reasons: The flower-buds, as a rule, are small, attenuated, and backward; the wood-buds are pushing forward and getting too far in advance, whilst wood of the past year is shrivelling, dying back, and showing signs of gumming. Wall trees of mature age which cropped well last year and whose roots were lifted are looking fairly well and may set good crops. Vigorous young trees, although quite old enough to bear good crops, are less promising, and others from which under the most favourable conditions we do not look for much fruit, will require cutting hard home to get rid of damaged shoots which cannot be expected to form the framework of useful trees. Indeed, so hard hit and unsatisfactory are young trees in some of our best managed nurseries, that only the other day a leading proprietor told me he was cutting hard home or burning trained Peaches and Nectarines by the hundred. The bad effect of a cold, wet summer is not confined to hardy fruits, that is to say, to fruits in the open air only, as kindred varieties under glass are more or less unsatisfactory, whilst the dearth of bloom upon hard-wooded plants, of which the Azalea may be taken as the type, is unprecedented. But what have New Holland or any other plants to do with our crops of hardy fruit is a question which those who have not thoroughly mastered the theory of horticulture, or think a fine April must ensure a bountiful harvest, may reasonably ask. Well, to the practical gardener, who has been watching Nature and her ways through seasons hot and dry, wet and cold, these trifling indications of machinery out of gear are reluctantly accepted as forerunners of disappointment.

Crops upon some soils and in some situations will be good, in others they will fail or fall below the average; but, heavy or light, one bad season will not justify our folding of hands or calling upon Jupiter for help. Nothing of the kind; we must put our own shoulders to the wheel by paying extra attention to the most trifling details in every department. Careful disbudding, close training to sun-absorbing walls, the removal or lightening of heavy mulches which repel solar-heat, and watering with warm water are matters trifling in themselves, but powerful when combined, and must favour quick growth and early maturity. Protection, where practicable, from morning frosts being favourable to the tender growths as well as the flowers and fruit, should not be neglected, whilst war to the knife with insect pests must be most assiduously followed up throughout the season. It is by no means unusual for disappointed horticulturists to forget their friends after they have yielded their annual crops, or to neglect them when climatal conditions are unfavourable to the formation, ripening, or fertilisation of

the flowers, and most dearly they pay for this short-sighted economy, no matter how choice or how common the plant or tree in question may be. Illustrations of the effect of this neglect may be seen in the cottage as well as the ducal garden, as we have only to picture to ourselves the humble Gooseberry bush stripped of every leaf by caterpillars; it may not die, but it is prevented from maturing its buds, with the natural result that the following year finds it fruitless. Stepping from the open quarter to the south wall, we find a fine, large, but barren Peach tree growing more strongly than usual. Having missed the restraining crop, our business should be confined to disbudding, possibly defoliating, close training, and timely destruction of insects; but, assuming that we neglect the insects, that we allow them to cripple and destroy the early growths, our chance for another year is gone, as second shoots rarely ripen properly. Indeed it is this general immaturity of the past year's wood and flower-buds, to be followed by light crops of fruit, that induces me to emphasise my remarks just now upon the importance of securing early growths, no matter how infertile the tree, and keeping them free from checks by the timely destruction of insects. If the seasons will not come to our fruit trees, we must endeavour to fit them for the seasons; first, by placing the roots in warm, well-drained borders; second, by the restriction of strong growth; third, by timely, if not anticipatory manipulation and training; and last, by the prevention early in the season of the spread of aphides, the worst of all our insect enemies. W. C.

THE COTTON WOOL NUISANCE.

OPINIONS seem to vary a good deal as to the most suitable material for fruit and flower packing, some condemning the use of wadding altogether, and others that of Moss, but there can, I think, be no question but that both are equally valuable for the purpose if judiciously applied. It will be readily admitted that ripe Peaches and Nectarines are about the most delicate fruits we have to deal with, and these are never found to travel better than when packed in perfectly dry, sweet Moss, which is elastic and springy. To get it in this desirable state and to have it free from all dirt or dust it must be gathered during a dry time, and exposed to sun and air to shrink it and drive out all moisture, after which it should be beaten on mats to soften and clean it. Before packing the Peaches and Nectarines, after they are gathered, the first preliminary is to fill the boxes they are intended to travel in moderately full of the Moss, and then make holes in it in which to bed them. Previous to this being done each fruit must be carefully wrapped in tissue paper to prevent immediate contact with the packing, which otherwise would be sure to damage the skins. This part accomplished, all that remains is to fill in around each fruit and place a layer of Moss over the top at least an inch thick, and if thought desirable a thin sheet of wadding over that, when if the lid is securely fastened and the box properly corded no harm will come to the fruit. Grapes travel well either in small round, stout baskets lined with Moss, and paper inside that, or in boxes, but the bunches should all be placed one way, with the points downwards, and be so close that there is no shifting. Strawberries travel best in shallow boxes, with a layer of Moss on the bottom, or a sheet of wadding with tissue paper over, and on that soft leaves from the plants or Vines, and the same between the fruits to keep them from touching each other. It is also necessary to have leaves on the top, and a sheet of paper and wadding sufficient to give the gentlest pressure and keep the whole firm.

With regard to flowers, I should never think of using Moss, except for the purpose of holding moisture to keep the blooms fresh, and then it should be secured below. This may easily be done by

running a few pieces of string across it. These are useful for putting the stems of flowers under, and thus holding them down, as are also wire trays to drop in and fit the sides of the boxes. These latter I generally dip in water before using and give them time to drain, and I find that when so treated flowers arrive much fresher in them. Wadding acts as an absorbent, but a piece of soft paper damped and placed over the wool prevents this, and the wadding is then useful as a buffer, and breaks the shock when the box gets tumbled about. The thing to avoid in packing flowers is having deep boxes and putting heavy and light flowers together, for though the first-named may be placed at the bottom it is doubtful if they remain there, as boxes are bundled into trains topsy-turvy and the lighter blooms get crushed by the others. —S. D.

— Having written so recently in *THE GARDEN* (Vol. XXXIV., p. 569) on packing cut flowers, I did not intend to say anything on "the cotton wool nuisance," but the remarks of Mr. Fullegar (p. 253), in which he attempts to depreciate the value of Moss as a medium for keeping flowers fresh, tempt me again to say that there is nothing to equal damp Moss when properly used for sending flowers long distances—and short ones, too, for that matter. If Moss is dirty, that is the fault of the packer, for nothing is more easily cleaned with the aid of a pail of water. The Moss can be squeezed dry enough to prevent dripping and still be moist enough to keep the flowers fresh, while as to its ever becoming "dry and dusty" during the journey, that is impossible, as it would keep damp for weeks in a fairly air-tight box, such as should be used in every case for cut flowers. In packing flowers more than one layer deep, slight pressure is needful, but when one is told to "fill the box as closely and firmly as possible," a jam is suggested, in which the white flowers at least are to be pitied. Dried Moss, Mr. Fullegar notwithstanding, is used and appreciated by a great number of "right-minded gardeners" as the best and most elastic of all packing material for ripe fruit. Some that I had gathered last summer, well dried and beaten, is to-day as fresh, sweet, and springy as it was when gathered, and would certainly remain so for a twelvemonth. In writing on flower packing, "W. I. M." gives directions for packing several layers in a box, and advises certain things for each layer—very good advice if one could be sure that railway porters, postmen, or anyone whose hands the boxes may pass through, would handle the boxes carefully. The fact is that all but the very roughest or hardest flowers should never be packed more than one layer deep, and secured to the bottom of the box in some way, while the lid should not touch them. To do this a larger number of boxes would be required, but all could be tied together and form one parcel, that would be but little larger than one box containing the same quantity of flowers, and the waste and damage would be *nil*.—J. C. TALLACK, *Livermere.*

— Cotton wool is not so bad as it is described to be. It has been more used for packing choice fruit and flowers than any other material, and, all points considered, I do not think we have anything else so satisfactory. Moss is apt to taint the flavour of delicate soft fruits. It is inclined to become mixed with the flowers, as is also hay, unless great care is taken, but cotton wool will neither taint nor damage the contents, and if one thickness of tissue paper is placed between the cotton wool and the fruit or flowers, they will invariably turn out clean and as faultless as possible.—J. MUIR, *Margam, South Wales.*

A note from Gloucester.—I send a hybrid from *Rosa rugosa alba*, and also some seedling *Polyanthus Primroses*. The Rose has, of course, bloomed in the greenhouse. I consider it very lovely; the plant is a very small one, at present only 12 inches high, and has several buds. I am very pleased with the following plants for the drawing-room; they have been in bloom for three weeks: *Pyrus Maulei*, a naturally grown bush quite covered with bloom and leaves—last year I had bloom, but small, and no leaves—and a greenhouse

Rhododendron (Javanese race), long tube, rosy blossom, and my old favourite *Primula obconica*. In my old garden, Sunny Hill, Shirehampton—a very warm position—I think bulbs ripened well last year, if I may judge by the profuse way they are blooming now in spite of their having been moved here.—C. O. MILES, *The Vicarage, Almondsbury, Gloucester*.

* * A fragrant, pretty white Rose.—ED.

FERNS.

W. H. GOWER.

LITOBROCHIAS.

THIS is a somewhat extensive and handsome family of Ferns, all of which form decided ornaments in a fernery, particularly in a naturally arranged house. Unless due care is exercised in planting them in the right positions, a great amount of the distinctive beauty of many of the kinds will be completely lost. Planting a naturally arranged fernery requires care and a knowledge of the attainments of the particular kinds used, or great disappointment is likely to arise. Of late years I must say that the kinds used have been so limited that there has been little fear of this occurring, but instead there has arisen a dreariness, which has really been intolerable, worse indeed than the confusion which was sometimes to be seen through unsuitable species being used. It is this dreary aspect which I would fain persuade my readers to avoid, and where it already exists, to set about a judicious arrangement which shall obliterate the evil. There are plenty of Ferns still to be found in cultivation, and there are plenty more to be introduced, and I would advise growers not to be satisfied with the few kinds which are easily obtained, but to gather together a good variety, be they hardy kinds, varieties for the cool house or for the stove fernery. Above all, it is necessary to become acquainted with their style of growth and their probable dimensions in order that as they grow they may produce an harmonious whole. The kinds here noted are, for the most part, strong growers and of robust constitution, so that from a judicious use of the different kinds pleasing results will follow. Litobrochias thrive well in a mixture of good light loam and peat in about equal parts, to which should be added sufficient sand to keep the whole in a porous condition. The sand should, however, not be used in sufficient quantity to render the soil poor, or starved fronds will be the result. Litobrochias also enjoy copious waterings, and, therefore, require plenty of drainage.

L. PODOPHYLLA.—This is a fine, bold-growing plant with large, umbrella-like fronds. The crown is erect, and the bare stems of the fronds are each between 4 feet and 5 feet high, and of a bright straw colour. Each frond is more than a yard across, the pinnae deeply divided, and the colour an intense deep green. It is a magnificent species, and should be planted in a conspicuous position. It is a warm house kind from Jamaica and other West Indian localities.

L. VESPERTILIONIS.—This is a widely-spread species, and is perhaps more correctly named *L. incisa*. It is a common plant in New Zealand, and will thrive well in a cool house. The fronds vary in length, and in the form now before me, from New Zealand, the stem is stout, straw colour in the upper part, becoming of a deep brown towards the base. The frond is 2½ feet high and 1 foot wide, bright green, the under side very glaucous, the sori bright red. It is said sometimes to reach more than double the size given above, so that plenty of space should be given it.

L. MACLENTA.—This is an elegant species, which delights in shade. It grows from 1 foot to 4 feet in

height. The fronds are smooth and pale green; the smaller fronds, as they stand well, being well adapted for cutting. It is usually to be found from 1 foot to 2 feet in height, and comes to us from New Zealand.

L. SPINULIFERA is a fine plant for a stove, and it attains a height of about 3 feet, bearing about nine pairs of pinnae and a long terminal one; each of the pinnae is 6 inches long and bright green. The stem is bright brown, and copiously furnished with short spines throughout its entire length. Native of Western Africa.

L. ELATA.—This is another grand plant for a collection. The naked stems of the fronds, each attaining a height of some 3 feet, are of a bright straw colour. It is a noble plant which finds a home in various parts of South America.

L. MACROPTERA is a fine species with deep green fronds, which are each from 1 foot to 2 feet or more high. The colour is very deep green. It is a native of Brazil, and thrives well in the stove.

L. GRANDIFOLIA.—A magnificent Fern for forming a background in a fernery. It is of decumbent growth, and the naked stem is from 1 foot to 18 inches high. The pinnae, each from 6 inches to 1 foot long, are smooth and light green. It comes from various parts of South America and requires a stove.

L. HETERODACTYLA.—This pretty Fern I have only seen growing upon one occasion, and that was in the Royal Gardens, Herrenhausen, in Hanover. Each of the fronds is about a foot high and deep green. It is an extremely handsome plant for a front row. Native of the Malayan Archipelago.

L. ENDLICHERIANA.—This form, a native of New Zealand, where it would seem to be abundant in the Northern Island, appears to somewhat resemble *P. tremula* in its general habit, but it is easily distinguished from that plant by its broader pinnae, and by its veins which are netted at the base. The fronds, each varying from 18 inches to about 4 feet in height, are bright green. It is also said to be a native of Tasmania and Norfolk Island, and it thrives well in the cool house.

L. TRIPARTITA.—A handsome Fern, the fronds of which are each some 3 feet or more high, the pinnae being each some 12 inches or 15 inches or more long. It is a native of the Malayan Islands and other warm countries, and requires stove temperature. It is one of those Ferns which makes a conspicuous object among shorter kinds.

CATALOGUES.

THERE are few probably who care to preserve old seed or plant catalogues. After a glance through, they are torn up or thrown aside as waste paper. In the course of forty years I have received many hundreds, every one of which I still have; of course, a large proportion of these are of no value, but there are a considerable number amongst them that I would not willingly be without, and I have frequent occasions to refer to them. In looking through some of the earlier seed catalogues lately, I could not fail to be struck with the great contrast between them and those of the present time, and not to the advantage of the latter, whose elaborate ornamentation and illustration are at the expense of the contents. I often hear it remarked, and not without reason, that a great sameness prevails in these, that for the most part any one of them is little more than a reprint of the others, and year after year there is but little variation, which seems quite unaccountable, seeing that the extent of horticultural glass has now perhaps more than doubled, and is, as well as cultivators, every year increasing. It was not so a third of a century ago; almost every catalogue contained an abundance of specialities of its own. They were simple, unpretentious brochures, in many instances coverless, and all without any attempt at ornamentation, but what precious treasures do they offer! Hosts of beautiful and most interesting things never heard of now, and most likely very many lost to cultivation. In those days, for abundance of kinds and profuseness of varieties Barr and Sugden appear to have had the lead. I have a list of theirs now before me, and a

wonderful one it is, as will be seen when I say it contains, of *Acacia*, 59 species; *Berberis*, 15; *Canna*, 57; *Cassia*, 14; *Chorozema*, 10; *Genista*, 14; stove and greenhouse *Hibiscus*, 19 (you rightly observed recently that this family is too much neglected); *Indigofera*, 14; ornamental fruit-bearing *Solanums*, 23; stove and greenhouse *Ipomaeas* (perennial), 11; *Kennedya*s, *Hardenbergias* and *Zichyas*, 25; ornamental Gourds and other cucurbitaceous plants, 117; and so on. Where are the seedsmen now that can offer us anything approaching this? Close to their heels came Butler and McCulloch, James Carter, William Thompson, and Messrs. Henderson. To wade through these catalogues, one feels it must have been a difficult matter indeed for amateurs to keep their purse-strings tied, so abundant were the temptations set before them. Why do not some of the great nurserymen, instead of ransacking the furthestmost corners of the earth for some new Orchid, or seedsmen, instead of giving us the everlasting *Cineraria*, *Calceolaria*, *Primula*, and such like—all charming in their way, but they weary by their monotony—re-introduce some of the multitude of beautiful and interesting plants cultivated in the last generation? They would be novelties to the present age, and would be obtainable at a tithe of the cost of Orchids, and, looked at commercially, could not fail, I should think, to prove a remunerative speculation. J. M.

Charmouth, Dorset.

PROPAGATING.

TUBEROUS BEGONIAS.—Although really good varieties may now be obtained from seed, it is desirable to propagate some of the best kinds from cuttings, more especially of the double sorts. A few good cuttings may generally be obtained from the old corms when they are started into growth. Where the latter produce several shoots, some of these should be taken off and they will make the best cuttings. Cut them off close to the corms, and apply a little dry sand to absorb the moisture. They may be put singly into small pots, using light sandy compost and a little sand at the base of the cuttings. They should be put into the close propagating pit, but no water should be given for the first day or so, and then only sparingly. Cuttings propagated early in the spring will make good flowering plants the same season. They also form good corms for another season, and being taken off while short, they have a number of eyes at the base; consequently they are more reliable than those propagated later on which have only one eye at the base, and often fail to start again after they have been ripened off.

SERICOGAPHIS GHIESBREGHTIANA.—This useful winter-flowering plant should be propagated as early in the season as possible. The cuttings may be taken from vigorous-growing plants, and should be cut off close below a joint and one pair of leaves removed. They will root freely in light peaty soil if placed in the warmest part of the propagating pit. As soon as sufficiently rooted they should be potted on, using good porous soil. Loam, leaf-mould, and peat, in equal parts, with sand added, is a good compost. The plants should have every encouragement to make free growth early in the season, and later on they should be well exposed. After the wood is well ripened and the flowers set, they may be removed to warmer quarters again for blooming.

PERISTROPHE (JUSTICIA) SPECIOSA.—Cuttings put in now will make good bushy plants for flowering in the autumn. Care should be taken that clean healthy cuttings are obtained, and these will root freely in the ordinary stove propagating pit. During the early part of the season the plants should be grown on in a stove temperature, but should be kept as close to the glass as possible, and stopped from time to time until good bushy plants are formed. During the summer they will do better in a cold pit, and will not be so likely to become infested with red spider and other insects, which are often very troublesome on this class of plants when grown in a warm, dry atmosphere.

SCUTELLARIA MOCCINIANA.—This is another

very pretty stove-flowering plant, which, to have it in good condition, should be propagated annually. Cuttings from young, vigorous-growing shoots will make good plants in one season. Now is a good time to propagate. The cuttings should be put in light sandy soil and placed in the warmest part of the propagating pit; they will form roots in a very short time, and should be potted on as soon as sufficiently established, using good porous soil and plenty of drainage. This plant delights in a moist, warm atmosphere, but should be grown in a light, open position, and kept free from insects.

THYRSACANTHUS RUTILANS.—When well grown, this is a most attractive plant, the long drooping racemes of bright crimson flowers, when associated with fresh green foliage, showing up to great advantage. This should also be propagated annually, and cuttings taken now will make nice plants for flowering the same season. The cuttings may be treated in the same manner as recommended for the above-mentioned subjects, but the plants should be potted in a more loamy soil, and will do well under cool treatment during the summer. Careful attention must be paid to watering, and the plants must be removed to a warmer position early in the autumn, otherwise they will lose their bottom foliage. After the pots are well filled with roots, liquid manure may be used freely, or a little chemical manure applied to the surface occasionally.

EUPATORIUMS.—This genus includes several desirable species, some of which, although not particularly showy, may be recommended for greenhouse culture, as they are of free growth and flower profusely in an ordinary greenhouse temperature during the winter. *E. Weinmannianum* may be had in flower from early in the autumn until the spring, when it will be succeeded by *E. riparium*. Now is a good time to propagate these plants. An old plant or two put into a little extra warmth will soon start into growth. Cuttings from young shoots put in light sandy soil will root freely in the stove propagating pit. They should be potted off as soon as well rooted, and any ordinary loamy compost will suit them. As soon as established the plants will do well in a cool pit, and during the summer a sheltered position out of doors will suit them. They should be kept frequently stopped until good bushy plants are formed. *E. Weinmannianum* should not be stopped quite so late as *E. riparium*, except where it is desired to retard the flowering season, or if a few plants are stopped at different times a better succession of bloom may be kept up. But in *E. riparium* the flowering season cannot be regulated by stopping. The plants may, however, be brought into bloom earlier by giving them a warmer position. *E. lanthimum* is a very distinct species with large leaves and terminal corymbs of bluish purple flowers. Except when propagated early in the season, this species should not be stopped, but two or three plants may be grown in a pot. Cuttings are not produced quite so freely, and require more care than those of the other sorts; it is also better to grow the plants under glass. A.

SHORT NOTES.—ROSES.

Rose Marquise de Castellane.—This is an excellent variety for pot culture. Plants in 5-inch pots carrying from ten to fifteen blooms, and these not more than about 15 inches from the top of the pot, are most useful. The growth is stiff, needing scarcely any support in the way of stakes. The colour is pure rose. —M.

Rose Mme. G. Luizet.—I presume to answer only one question, as my number of Perpetuals is small, simply because they do not grow so well here as Teas. But Madame Gabriel Luizet is a great favourite of mine, doing splendidly on my light soil and sunny situation. It is my system of pruning that I would relate, especially as it differs from that of many of my friends. Cutting back hard does not suit it with me. I cut out the shoots that have bloomed in July, and in the spring only cut out the weak shoots and shorten the strong ones. —F. PAGE ROBERTS, *Scale Rectory*.

Rose General Jacqueminot.—There is probably no better Rose amongst the Hybrid Perpetuals than this for planting out under glass for early flowering, as it grows vigorously and flowers with

great freedom. In Mr. John Marshall's garden at Taunton there is a fine plant now in bloom. It occupies a position under glass with other Roses along the front of a lean-to house, the roots being inside. This plant makes strong shoots over 6 feet in length. The blooms are as perfect in form as when grown in the open air, but there is an absence of that brilliant colour in the half-open flowers that we are accustomed to see in them when grown outside. Notwithstanding this slight defect, I do not know of another Hybrid Perpetual of the same colour that grows so vigorously. It would no doubt make a splendid pillar Rose. —J. C. C.

NOTES OF THE WEEK.

Scilla bifolia rosea, a rose-coloured variety, is one of the prettiest flowers on the rockery at Kew at the present time. A good clump of it would be very delicate.

Wild gardening is prettily carried out at Kew on the mound near the Cumberland Gate entrance. This is the best time to see it, as the Daffodils are in full flower.

Dendrobium Wardianum.—Mr. C. Lucas, The Gardens, Belmont, Taunton, sends us flowers of a good variety of this beautiful Dendrobe. Its increasing popularity is shown by the large displays we see of it in nurseries and gardens.

Dendrobium barbatulum, which was in bloom a few days ago with Mr. Bull, is a beautiful Indian species, the flowers of the purest white, and crowded together in dense clusters. It is an exceedingly chaste and effective Dendrobium.

Datura sanguinea.—The specimen of this planted out in the greenhouse at Kew is in full beauty just now. The mass of pendent flowers is remarkably striking. When grown in this way, there are not many handsomer plants than this old *Datura*, or *Brugmansia*, as some are pleased to call it.

Primula denticulata alba is in fine flower at Kew at present, and proves to be a handsome plant, though, perhaps, no advance on the well-known and much admired typical form. The variety is just as hardy, and flowers just as freely, and proves a useful addition in early spring.

Saxifraga aretioides præcox, introduced by Paul and Son, of Cheshunt, as the earliest form of this species, has this year come true to name, opening a clear fortnight at least earlier than either the type or *primulina*. It differs little from the typical form, unless in flowering so much earlier.

Oncidium sarcodes.—Numerous plants of this beautiful *Oncidium* were a mass of flower a few days ago in Mr. Bull's nursery at Chelsea. It does not require many specimens to make a show. One variety, named *superbum*, had much larger and richer flowers than those of the type.

The Chionodoxas.—We send you sample flowers of *Chionodoxa Lucilæ* and *C. gigantea* for you to see how distinct a plant the latter is. The flowers are from bulbs collected last year, so that naturally they are not blooming extra strongly. The variety, however, promises to be a very fine thing. —BARR & SON.
. We agree with this; *gigantea* is a beautiful variety as far as we have seen it at present. —ED.

Rhododendron barbatum.—Large bushes of this grand Himalayan *Rhododendron* have been in great beauty for some time back in the grounds of the Earl of Annesley, Castlewellan. Himalayan *Rhododendrons* are quite at home at Castlewellan, where a large collection of them are grown. R. Thomsoni will be opening its beautiful Lapageria-like flowers almost as soon as those of R. *barbatum* are over. *Rhododendron Nobleanum* has been in flower more or less since November last. —C.

Drosera cistiflora.—When Miss North's picture of this African Sundew was first exhibited most people doubted the accuracy of the drawing. A *Drosera* 5 inches high, with flowers as big and brightly coloured as those of field Poppies, seemed beyond belief. However, Miss North had the dried flowers, and in due time obtained living roots from the Cape. One of these she presented to Kew, where it is now in flower. The plant is 5 inches high, has leaves 2 inches long, exactly as in other *Droseras*, and the flower is 1 inch deep, 2½ inches across, and bright poppy scarlet. It is by far the

handsomest plant in the whole Order *Droseraceæ*, and there are hopes now of its proving as easy to cultivate as the other Cape species, of which *D. capensis* and *D. spathulata* are well-known examples.

The snowy Primrose (*Primula nivea*).—With me the snow-white *P. nivea* is always the first to flower. Some plants in 5-inch pots are now a mass of flower, carrying five and six trusses each. One of its chief recommendations is its wonderful freedom of bloom. Has anyone ever succeeded in raising seedlings from this, and with what result? I have attempted to fertilise the flowers with their own pollen, and occasionally a pod will plump up as if containing seed-grains, but seeds never reward me for my pains. —R. D.

A new Daffodil.—Herewith I send for your inspection a few blooms of a new Daffodil, which originated in the Earl of Annesley's Park, Castlewellan, Co. Down. It is more vigorous and hardy than any other Daffodil I am acquainted with. It has been in flower since the first week in January. The flowers sent are from open-air plants, large masses of them being very beautiful just now; some of the clumps have from forty to fifty flowers open at one time. —T. RYAN, *Castlewellan, Co. Down*.

. A large handsome Daffodil. —ED.

Exacum affine.—At the present time, and during the last two months, this subject has been flowering freely in the Cucumber house. The heat obtained in a house devoted to these plants seems to suit this *Exacum* much better than a cooler atmosphere. Its pretty pale blue flowers are much appreciated either in a cut state or when growing on the plant. For button-hole bouquets it is admired, being very uncommon in its colour at this time of the year. The freedom with which it blooms is remarkable, plants in 3-inch pots being so full of flower at the present time that there are no signs of being able to procure cuttings. This matters little when it is so easily produced from seed when growing in small pots. *Exacum affine* is a capital plant for edgings to the side stages in the stove at this season of the year. —E.

Lachenalia tricolor.—In the conservatory at Hazelholt, near Bishop's Waltham, I lately saw some well-grown plants of this *Lachenalia*. Five to seven bulbs were in a 5-inch pot, and had thrown up massive spikes of bloom and rich, deeply-coloured foliage. I noticed a difference in the colour of the stems and flowers of some as compared to the rest, some being quite of a sulphur-yellow, both the flower-stems and bells being alike. All had the same treatment. This difference in colouring is, I believe, peculiar to this variety. Associated with the *Lachenalias* were some excellently grown *Cyclamens*, the best of these having white flowers of great substance and beauty. In this garden were freely-flowered dark Wallflowers in pots and a good strain of dwarf *Cinerarias* with large blossoms. —E. M.

Odontoglossums of many kinds are flowering with the greatest perfection in the nursery of Mr. Bull at Chelsea. It is seldom we have seen a richer selection of uncommon species and varieties. There are some fine spikes of *O. triumphans*, one called *superbum* having flowers of very rich colouring. This Orchid is one of the choicest in bloom now, and varies much in the size and richness of the brownish chocolate blotches. *Crispum*, of course, was in full bloom, one form named *signatum* having pure white petals, the sepals blotched with pale brown; and in another, called *punctatum*, the whole flower was marked with brown. The sweet-scented *O. gloriosum*, *hebraicum*, *luteo-purpureum*, *nævium majus*, *sceptrum*, *Ruckerianum*, *Wilckeanum*, *Andersonianum*, *Pescatorei*, *Cervantesi* and the variety *decorum*, *Rossi majus*, and *pulchellum* were making a gay show. *O. hystrix* had a splendid raceme; the flower rich chestnut-brown, tipped with yellow; also the primrose-coloured *baphicanthum*, and there was a promising batch of *O. citrosium* ready to keep up the display. *O. Halli*, *maculatum*, *O. (Mesospidium) roseum*, *Edwardi*, that has an odour of Violets, *membranaceum*, and *cirrhosum* are also worth mentioning. *O. cirrhosum* was very beautiful, and yet it is rare, though why, it is hard

to tell. One uncommon species in bloom was *O. pardinum*. This is very distinct, and was flowered first by Lord Rendlesham in the year 1878. Its flowers are rich yellow, faintly spotted, the lip being of the deepest colour.

Plants in flower at Kew.—There are some interesting bulbous plants in flower at Kew just now, viz., *Crinum augustum*, a magnificent species, with large heads of crimson and white flowers; *C. Hildebrandti*, the true plant as introduced by Dr. Hildebrandt in 1875 from Johanna Island; *Coburgia incarnata* var. *trichroma*, a most beautiful plant, with flowers of the brightest scarlet tipped with green and white; *C. luteo-iridis*, yellow and green, as implied by the name; *Diets Huttoni*, with long grassy leaves and erect stalks, bearing large Iris-like flowers of clear canary-yellow colour; *Homeria elegans*, also Iris-like, but with all the segments spreading and coloured yellow with rich peacock-blue and green markings. These two last are most charming plants for the cool greenhouse or frame; they require the treatment which answers for *Sparaxis*, *Ixia*, &c. Most of the plants here named, as well as numerous interesting and pretty-flowered species of *Oxalis* and *Lachenalia*, are in the house devoted to Cape plants (No. 7).

The Dog's-tooth Violet (*Erythronium dens-canis*).—Amongst flowers in the open air few excel the ordinary Dog's-tooth Violets (*Erythronium*) for patches on the rockery. *E. dens-canis*, the commonest of all in gardens, is just now in full beauty, and the numerous fine deep lilac flowers are a great attraction. The Dutch growers have apparently been working a great deal with this plant, and they have succeeded in keeping the beautiful mottled leaves and enlarging the flowers by at least one-half. The American kinds are later than the common one, and such as *E. americanum*, *grandiflorum*, *albiflorum*, *purpurascens*, and many other forms are well worth attention. They bloom every season, and no matter what kind of a summer we have had, we can always depend on a show of bloom from these charming plants. The flowers vary from deep to pale lilac-yellow and bluish white, bright rose, white, and deep purple. A plate of varieties of the Dog's-tooth Violet appeared in THE GARDEN, December 4, 1886.

The Chilean Crocus (*Tecophylæa cyanocrocus*) is now in flower in the Cape bulb frames at Kew, and is certainly the most distinct and pretty of all the blue-flowered Liliads. It was introduced to English gardens many years ago by Herr Max Leichtlin, of Baden-Baden. Instead of being, as often believed, a very fugacious flower, it has at Kew proved quite the reverse; individual flowers have lasted a fortnight, the colour being almost as bright now as when they first opened. Unfortunately, it is never likely to prove hardy in our gardens, but it might be grown against a south border, covering it with a hand-light in winter during severe weather. The flowers are solitary; two to three flowers, however, are produced from each bulb, large, and of a rich ultramarine-blue, white clouded near the base. It is a native of mountains in Chili. There is also a variety (*Regeli*) which we have not seen, but it does not seem to differ materially from the above form. There is also a species called *violæflora*, which, we believe, is not yet in cultivation. The Chilean Crocus is easily managed in pots in a cold frame. A coloured plate of this appeared in THE GARDEN, July 16, 1881.

Two good new Daffodils (*Vicar of Lulworth* and *Ione*).—The first of these varieties originated in the garden of the recently deceased English vicar whose name it bears, and was pronounced by perhaps the most eminent authority on Daffodils now living, when first he saw it, to be the most beautiful and perfect form he had ever seen. It is remarkable for its short and well opened tube, which is beautifully frilled at its edge, and for the perfectly erect manner in which the segments of the perianth stand up behind it in the form of a corona. It is undoubtedly one of the most distinct and beautiful of the bicolor section, but still, unfortunately, extremely scarce and difficult to obtain, especially as the main stock remaining in the hands of the raiser was on his death neglected and

allowed to be trampled down by cows. *Ione* much resembles the variety *Vicar of Lulworth* in its general characteristics, but is, if possible, still more beautiful, having a distinctly broader tube, of a clear, pure golden shade of yellow, most exquisitely fringed at the edge. The segments of the perianth also, instead of standing erect, as in *Vicar of Lulworth*, lean forward round the stout, short tube, which barely exceeds them in length. It came as a chance unit amongst some 30,000 imported bulbs from the Pyrenees.—W. E. GUMBLETON.

The Swedish Juniper (*Juniperus communis suecica*).—This is at the present time one of the principal ornaments of the outdoor garden, and better deserves attention than many Conifers that are more highly prized. Just now it is covered with bloom, and it is curious to note how in the middle of the day, when the air is rather brisk, the pollen is dispersed in little clouds. The objections often made to the planting of many Conifers do not apply to this Juniper, for it is in my opinion one of the most reliable we have, as hardy as the Juniper of our own country, growing with considerable vigour, and preserving its attractive appearance when so many Evergreens suffer.—J. C. B.

Primula calycina is now flowering freely, and either for pots or for the open rockery it is very useful. It is perhaps more easily managed in pots, and may be grown without any protection unless from rain during the winter season. It is often confounded with *Wulfeniana*, which is a totally different plant, and we have also received it a few times as *P. spectabilis*, the resemblance to which is about as near as the Primrose to the Polyanthus. The only difficulty with *P. calycina* is that it must be planted in such a position as to receive a good roasting in summer, and this may be managed on most rockeries. The leaves always present a half-withered green appearance, oval, lance-shaped, the margins rough and wavy. The flowers are produced several in a bunch, of a pretty clear lilac, usually over an inch in diameter. It is also known as *P. glaucescens*, the latter being the name under which it is always known on the Continent. A native of the Southern Alps.—K.

Old friends with new names.—The old *Impatiens flaccida*, which was introduced from Ceylon about thirty years ago, has been re-introduced twice since then, and has been re-named both times. Ten years ago it was distributed as *I. platypetala*. Now it comes as *I. Rodigasi*, under which name it is figured in *L'Illustration Horticole*, t. 78. Any one who knows *I. flaccida* will at once recognise it in the figure quoted. Is there not a good deal too much carelessness shown in the matter of names? No man ought to rush to give a plant a new name until he has made certain that it has not a name already. There have been several glaring instances lately in the above journal, i.e., *Brunsvigia Massaiana* and *B. magnifica*, both of which are well-known *Crimums*; *Zamia tonkinensis*, which is a *Cycas*, and now this *Impatiens*. We have too many names already. For my part I decline to recognise any name which does not come from competent authority.—W. W.

Spring flowers from a Dutch garden.—Among spring-flowering bulbs the following choice species are now in bloom here, specimens of which I enclose. A violet-blue *I. Rosenbachiana* is blooming now, whilst another very pretty and distinct-looking reddish brown coloured variety flowered exactly between the one first mentioned and the ordinary variety sent to you about three weeks ago. This *Iris* is a very variable one. Some specimens here produced wonderfully large and brightly coloured blooms, whilst a few are of an ugly, pale lilac tinge, with narrow, flimsy-looking flowers. There cannot be any doubt as to its being perfectly hardy, and if Mr. Elwes, who mentioned his non-success in growing this bulb in your paper for March 23, happens to come over to Holland this spring, I shall be much pleased to show him my lot planted outside and without any protection whatever. *Tropeolum rhomboideum*, a flowering spray of which I enclose, is said to be a hybrid between *T. tricolor* and *brachyceras*; the spur is peculiar to *tricolor*, the golden-yellow that of *brachyceras*. These *Tro-*

pæolums look exceedingly pretty when trained along some trellis against the back part of an ordinary cool frame. It is quite astonishing how very strongly they grow, and how profusely they flower when cultivated in this way. *Tecophylæas* are now at their best. I enclose for your inspection three distinct varieties of these, viz., *cyanocrocus*, *Leichtlini*, and *violacea*, a number of which I have in flower. They are planted in square pans and stand in a cool greenhouse, the air of which is delicately perfumed by their powerful sweet Violet-like fragrance, the large, wonderfully brightly coloured flowers when they open in the sunshine completely hiding the foliage and the pot. *Chionodoxa cretensis albiflora* is a fairly good substitute for the pure white-flowered variety, which is and will likely remain a very scarce bulb. Of *Fritillaries*, the pretty white *bucharica* and the golden-yellow *armena* are conspicuous. *F. bucharica* is not so widely known, I think, as *F. armena*.—C. C. VAN TUBERGEN, JR., Haarlem.

Seedling double Daffodils.—I send you blooms of two hybrid seedling double Daffodils. They are from the same cross, but, as you will perceive, they differ somewhat not only in form and colour, but in the disposition of the blooms, one of which faces upwards and gives it a bold and rather striking appearance. A group of this ought to have a good effect. A curious point in connection with these Daffodils is the shape of the flower-buds, which resemble those of an Onion—i.e., very thick at the base and very pointed at the top. I do not know of any Daffodil that has such curiously-shaped flower-buds. It has more than once been asserted in THE GARDEN that there is no recorded instance of a new Daffodil having been raised from seed. The blooms sent are distinct enough to be called new, and are as double as those of any Daffodil in cultivation. I have other bulbs coming into bloom, the flowers of one of which promise to be larger and even more double than those sent.—J. CORNHILL.

Primula marginata in its many forms is one of the most beautiful and useful of all the early-flowering Primulas. It is characteristically called the silvery edge, from the abundance of meal which covers the serratures of the leaves, and which gives it a highly interesting appearance at all times. Its winter appearance has been likened to that of a miniature Stone Pine. This year all the varieties are flowering better than we have ever seen them, the numerous bunches of clear lilac and deep blue flowers being very attractive, and forming at the present time one of the features in the alpine house at Kew. The varieties are *cærulea grandiflora*, *densiflora*, &c., all of which are worth noting and growing where room can be spared. This species is one of the easiest to manage on the rockery, and, given plenty of loose lime rubble, good loam, and sand, the plants, if fairly strong, will take care of themselves. It is amongst the oldest of European Primulas in cultivation, having been introduced in 1781 by the Messrs. Lee, of Hammersmith. It is a native of the Alps of Dauphiny, and may be increased by cuttings.

Large-leaved Saxifrages.—These plants, which add so much to the beauty of the garden in the early spring months, are now beginning to show flower in quantity, and our enjoyment of the large masses of pink flowers will, of course, much depend on the weather. For the last few years our largest and best plants have been caught just when making their best effort, and by midday, unfortunately, were a total wreck. This is, however, the gloomy side, as we have often seen and enjoyed their beauty until the flowers have faded in the ordinary course of things. We grow our largest masses on sheltered banks, and the large leaves are always attractive during the summer months, so beautiful and attractive are they in colour. *S. Stracheyi* is one of the earliest, but the leaves are deciduous in winter, which is a little against its use in the rock garden. The same may be said of *S. ciliata*. The best for all purposes are *ligulata*, *crassifolia*, *cordifolia*, *Milesi*, *purpurascens*, &c. *S. purpurascens* prefers a bog in a shady situation, and is really a most charming plant.

CHRYSANTHEMUMS.

A NEW CHRYSANTHEMUM.

(MRS. ALPHEUS HARDY.)

A YEAR or two ago a Japanese student, entered at the Harvard University, received some ordinary social favours from Mrs. Alpheus Hardy, of Boston, and when he returned to Japan he sent her, as a slight memento of her kindness, a collection of about thirty varieties of Chrysanthemums from that country, and amongst them was the distinct and remarkable variety shown in the engraving. The first notice of the variety was accompanied by a figure in the

told, "had its florets edged very beautifully with a hair-like fringe." Whether or not this lost variety of Mr. Fortune's was the one named after Mrs. Alpheus Hardy to-day does not matter, although it is by no means improbable that other distinct varieties of this now popular flower may yet exist unknown to us in the gardens of Japan or of China. The form of this variety, as will be seen by our engraving, is boldly incurved, the florets being broad, of good substance, and of the purest white. So far it only resembles other Japanese sorts recently introduced; but it differs from these and all other known forms in having the backs or outer surface of its waxy florets rather thickly set with short white hairs or downy outgrowths, admirably

much interest for home-grown flowers of it next November.
F. W. BURBIDGE.

JAPANESE CHRYSANTHEMUMS.

BARONNE DE PRAILLY FAMILY.—This family of Japanese Chrysanthemums comprises two sorts, both of first-class quality. They are both good growers and sure bloomers, and perhaps are more valuable to the exhibitor of cut blooms than to the grower of either specimen plants or bushes for decoration. The type is a capital sort for growing in small pots about 3 inches or 4 inches across, one stem, say, 1 foot high carrying one large bloom. The variety in question is a vigorous-habited kind, the peduncles stout, supporting the flower-head without any assistance in the way of stakes, and the form of the flower is of a semi-drooping character, which is just the kind for the purpose required. The original variety of this family was introduced by Mr. Salter during the year 1868; therefore it is one of the oldest of the leading varieties in the Japanese section, and as showing how its qualities are still appreciated by exhibitors of cut blooms, it is only necessary to quote from an audit of Chrysanthemums published last year, where we find that Baronne de Prailly was staged thirty-four times in first-prize stands at the leading shows, occupying a position tenth from the top of a list of 114 varieties staged during the exhibition season of 1888. The variety is of tall growth under liberal treatment, which is the best way to develop flowers of proper character. Flowers of this variety vary very much in colour, some being rich, others of a pale lilac hue. The difference in the colouring is owing to the time the blooms develop from certain formed buds, those of the latter, which are set early, say before the 10th of August, being almost sure to develop blooms pale in colour, while the florets are narrow. In this manner Baronne de Prailly does not seem to be, by a person not knowing it thoroughly, a desirable kind to cultivate. When the bloom-buds form about the 20th of August onwards to the 10th of September, then the true colour and form of the florets are developed. The colour is best described as pale rose, varying in tint; the florets are broad, flat, and of a semi-drooping character. If the plants are not well cultivated the blooms show a tendency to thinness. Comtesse de Beauregard is a variety which is often confounded with the above sort. Whether there is any



Chrysanthemum Mrs. Alpheus Hardy. Engraved for THE GARDEN from a photograph of a flower grown in America.

Garden and Forest for February 29, 1888 (p. 5), and this was after the plant had been exhibited for the first time at the Boston Chrysanthemum show held in the month of December, 1887. It was exhibited on the first occasion by Messrs. Edwin Fewkes and Son, of Newton Highlands, Massachusetts, but very soon afterwards the stock passed into the hands of Messrs. Pitcher and Manda, of Short Hills, New Jersey, and London, by whom it is likely to be distributed during the present year. As an incurved Japanese flower it is quite distinct from anything else I have ever seen, and, I was about to add, ever heard of; but it is recorded that "one Japanese kind, which the late Mr. Robert Fortune tried to bring home in 1862 was unfortunately lost on the way," and this, we are further

and truthfully represented in our figure. A microscopic examination of these hairs was made at Wellesley College by Miss Cooley, who found them formed by a glandular outgrowth of cellular tissue, and curved like the sound-holes in a violin, their tips or apices bearing a drop of yellow resin, but almost too small to be seen without a lens. The result of these hairy appendages, from a florist's point of view, is to impart an indescribable feather-like softness to the globular apex of the blooms, and we think so distinct an innovation is sure to be welcomed and grown with the utmost care and interest by most of the now numerous amateurs interested in the "Queen of Autumn." I am informed that the plant is very robust in habit and of vigorous growth, and, with many others, I shall look with

relationship between these two varieties I do not know, but my impression is that Baronne de Prailly is often grown under the name of Comtesse de Beauregard. In many instances I have seen blooms staged which, in my opinion, were one and the same sort; the only difference to be there found was in colour, the form being exactly alike. One was of a rich hue and the other pale, this variation being caused by a difference in the bud selection, as it is a well-known fact that two blooms different in colour can be cut from the same plant at the same time in the case of this variety, as can also be done with some other sorts. What I consider to be the true variety of Comtesse de Beauregard is one which has exactly the same habit of growth, but the

form of the florets is quite distinct, all of them being toothed at the point; neither are they so long, the bloom altogether not being so large as that of *Baronne de Prailly*. The colour is lilac, with faint rose stripes, and when the two sorts are seen together, they are vastly different. I do not consider *Comtesse de Beauregard* so worthy of culture as *Baronne de Prailly*. *Carew Underwood* is a sport from the original of this family, which was brought into public notice in 1886 by Mr. Beckett, who has proved himself a skilful cultivator of Japanese varieties. Although of so recent introduction, I find it figured twenty-three times in winning stands during the year 1888—a fact which speaks well for its future. Early developed blooms betray a too pale appearance, like that of its parent. This sort is a capital keeper. It is the exact counterpart of its parent in form, the colour being bronze, sometimes tinged with rose, or shading to yellow at other times. The foliage of these two varieties is apt to become pale during the summer if the soil is heavy and the pots too large. To avoid this unsightly appearance, the pots in no case should be more than 9 inches across.

E. MOLYNEUX.

TREES AND SHRUBS.

THE DECIDUOUS CYPRESS.

(*TAXODIUM DISTICHUM*.)

THE deciduous Cypress (*Taxodium distichum*) is one of the very few Conifers that loses its leaves during the winter months, for with the exception of this, its near ally, *Glyptostrobus heterophyllus*, the Larches, and the beautiful and distinct Maiden-hair Tree (*Salisburia adiantifolia*), the whole of that extensive family are evergreen in character. The deciduous Cypress is very ornamental, and during the season it passes through distinct phases, as in the spring the freshly expanded foliage is of a beautiful soft green tint which deepens somewhat as the season advances, then in the autumn the leaves die off tinged with reddish brown and gold, while the bark of the young shoots, which is conspicuous during winter when devoid of foliage, is of a pleasing brown hue. The deciduous Cypress is, when young, generally of a pyramidal habit of growth, with slender spreading branches, but after a time the head of the specimen becomes of a more open character. *Taxodium distichum* is one of the best of all trees for planting in swampy spots; indeed, it is almost, if not quite the only Conifer that will exist therein, yet strange to say it will grow in well-drained gravelly soils, though the rate of progress therein is of course much slower than where liberally supplied with moisture at the roots. When the specimen attains a large size singular looking conical-shaped protuberances are borne in considerable numbers on the roots. They mostly vary from a few inches to a couple of feet high, and when the ground is thickly studded with them they present a very peculiar appearance. This character is only met with where the soil is moist, as I have never seen these excrescences in dry spots. They are known as Cypress knees, and being hollow are, according to Loudon, used in the southern part of the United States as bee-hives. This Cypress is a native of a large tract of country in North America, being found in considerable numbers in the swamps of Georgia and Florida, where in many cases some of the roots are always under water. In its native country its wood is much valued, but its rate of progress here is not rapid enough to give it a very high place among timber trees, so that its merits from an ornamental point of view are the prin-

cipal consideration. It is a grand tree for a damp part of the lawn or park, and one well suited for growing as an isolated specimen. Again, a group on the edge of water shows it under very happy conditions, being, as it is, so different from the Alders, Willows, and such plants usually met with there. Though the young foliage is when first expanded very tender in appearance, it is not injured by spring frosts; indeed, it is rather late in expanding, and consequently the most severe frosts are over. From the fine specimens occasionally met with it would appear that the deciduous Cypress was planted more frequently formerly than at the present day, when its merits as an ornamental tree seem to be so generally overlooked. The usual means of increasing the *Taxodium* is by seeds, which should be sown in a cool moist spot. Mice are very fond of all Conifer seeds, and care must be especially taken to guard against them, for I have had (when different Conifer seeds were protected by a frame) great numbers destroyed in a single night. I have seen several pans of seeds in which the soil had been so turned over that every seed was rooted up, and on investigating the matter it was seen that in the case of these last the percentage of good seeds was very small, and they had all been removed. There is a second species of *Taxodium*, and according to some authorities a third, for the Chinese *Glyptostrobus* is often included in this genus. Neither, however, are of any value to the British tree planter, as the first—*Taxodium mexicanum*—is too tender for the climate of England, and the *Glyptostrobus* is not only rather tender, but its value, from an ornamental point of view, is by no means high, while the beautiful deciduous Cypress requires no coddling, and passes with impunity through our most severe winters.

Agapetes buxifolia.—It is strange that this beautiful little Himalayan shrub, which each spring forms such an attractive object in the temperate house at Kew, should be so much neglected. It is nearly allied to the *Vacciniums*, and forms a compact-growing, much-branched bush, with glossy, evergreen leaves and red, wax-like, tubular flowers each about an inch in length. The flowers are borne very freely, and also last a long time in perfection. This *Agapetes* succeeds with the treatment given to the great number of *Rhododendrons* from the same region, viz., a soil composed of fibrous peat and sand, thorough drainage, and a good supply of water throughout the summer months. It can be increased from cuttings of half ripened shoots taken during the growing season and dibbled into pots of very sandy peat. If they are stood in a close propagating case in a structure at an intermediate house temperature they will strike root before winter, and may then either be potted off at once or in the spring.—H. P.

Dimorphanthus mandschuricus.—The flowering of a goodly-sized specimen of this certainly rare tree in a secluded spot in the grounds at Holwood last autumn caused me to make a note for use later on regarding the procuring of a number of plants of it for using here and there over the estate. Truly, there is not much beauty about the tree itself, for it is but a big spiny stake, with no branches and but a tuft of Palm-like foliage at the top. The flowers are, however, both large and conspicuous, and impart to the tree an appearance that is as novel as it is interesting. The flowers are of a creamy hue, small, but produced in long umbellate racemes, and when fully developed, from their being arranged in long spikes, hang to one side, this being aided by their terminal and upright formation. Usually the stem of the *Dimorphanthus* is spiny, of irregular size throughout its length, and with Horse Chestnut-like bark. The terminal bud from its large size, as if all the energy of the plant was developed or concentrated in the

tip, imparts a curious and somewhat ungainly appearance to the tree. Being of Chinese origin, I much doubt if the *Dimorphanthus* would prove hardy very far north in Britain; indeed, unless in the Southern English counties, it is rarely seen growing out of doors. The plants at Holwood have frequently been subjected to fully 15° of frost without apparent injury, and one at least flowers freely from year to year. The soil is a good rich loam, rendered somewhat warm by an underground chalky formation, but I fancy that this tree is not at all difficult to suit in that way. Wherever it will grow out of doors its peculiar tropical appearance should find for it a select spot amongst other ornamental trees and shrubs.—A. D. WEBSTER.

A HYBRID ABIES.

THE subject of this notice is the result of an experiment made by Mons. H. Vilmoren for the purpose of ascertaining the degree of affinity (if any) which might subsist between *Abies Pinsapo* and *A. cephalonica*. With this object in view, in the year 1867 Mons. Vilmoren fertilised a female catkin of the former with pollen from the latter species. This catkin developed in the usual way into a cone, which, however, contained only one fertile seed. The seed, sown in the autumn of the same year, germinated, and the seedling was planted out in the following year (1868). The tree, accordingly, is now twenty-one years old, and last year bore cones for the first time.

It resembles *A. cephalonica* more than *A. Pinsapo* in its habit and general appearance, and in the length, sub-distichous arrangement, and silvery tint of its leaves. Its cones also are more like those of *A. cephalonica*, being fusiform, brown, very stout, and showing distinctly the points of the bracts, unlike the cones of *A. Pinsapo*, which are the most pointless of any of the true *Abies*. In this it appears to follow the rule which prevails amongst hybrids of the animal kingdom, namely, that the general configuration of a mixed progeny more distinctly resembles or takes after that of the male parent. On the other hand, in the great number, length, and sloping direction of the branches the tree more closely resembles *A. Pinsapo*.

The hybrid, as mentioned above, coned last year, but all the seeds were found to be sterile; consequently, Mons. Vilmoren is still unable to solve the question of affinity, as, although mule plants are as barren as mule animals, the sterility of the seed in question may have been due to the circumstance that the first season's cones of Conifers hardly ever contain any fertile seeds. It may be added that the experiment of Mons. Vilmoren, interesting and valuable from a botanical point of view, has not resulted in the production of a tree possessing any striking value as an ornamental subject for the pleasure ground.—*Rerue Horticole*.

Gaultheria Shallon.—To anyone who can spare a space of a couple of yards square, I cannot do better than recommend them to plant half a dozen specimens of *Gaultheria Shallon*. Of no particular value as a flowering shrub, there is, however, much to admire in the neat evergreen leaves and wild straggling habit of the *Gaultheria*. Not long ago I saw a large oval-shaped bed filled with this plant, and a most interesting and unusual sight it presented, the bright, healthy-looking foliage and pretty half-hidden white flowers rendering it a conspicuous feature on the well-kept lawn on which it was placed. As a sea-side plant it is particularly valuable, thriving as it does perfectly well down to within a few yards of the water. The purplish edible fruits are also very attractive.—A. D. W.

Pinus contorta.—Among the smaller-growing Firs that do not as a rule attain sufficient size for their timber to be of any value, and therefore need only to be considered from an ornamental standpoint, must be placed this species, which forms a very handsome specimen, and the spread of whose branches is so limited (compared with many others), that it may be planted where the larger kinds would outgrow the bounds allotted to them. C.

contorta belongs to the two-leaved section of Pines, that is, those with two leaves in a sheath, which include within their number many of the European kinds, among others being our own native Scotch Fir. The leaves are rather short, but arranged thickly on the branches, and are of a deep bright green colour. The specific name (*contorta*) refers to the peculiarly twisted or contorted branches, which, though as long as many others, do not spread so far from the trunk. A specimen from 12 feet to 20 feet high usually forms a dense tree of a narrow pyramidal habit and of a deep shade of green. It is a native of the western part of North America, and is quite hardy in England.—T.

WINTER-FLOWERING SHRUBS.

MAHONIA AQUIFOLIA is another dwarf-growing and favourite shrub that well merits attention, not only on account of its flowering most freely when outdoor blooms are scarce, but for its handsome and beautifully tinted foliage. Just now many of our plants are almost in full flower, more particularly where they are growing in warm and sheltered corners of the lawn and grounds. Occasionally we find during the dull winter months a few blooming sprays of Darwin's Barberry, although the usual flowering season of the plant is not till much later in the season. Lately I noticed a large and beautifully shaped specimen of this Barberry with fully a dozen of the topmost twigs thickly studded with perfectly developed flowers, but then it is well to mention that the plant was trained against a wall and in a fairly sheltered, but by no means warm position.

FORSYTHIA VIRIDISSIMA when in full flower is a most attractive shrub, and one that merits a greater share of attention than it usually receives. Perhaps the straggling habit of the plant is against its too frequent use in our gardens and shrubberies, but as it bears hard cutting with impunity, the long and supple branches may readily be cut back as desired. The flowers can hardly be said to be ornamental, the greenish yellow of the petals being somewhat unattractive, unless when these are produced, as usually they are, in great abundance, and so as to cover the leafless twigs. We have found no difficulty in its cultivation, the plants succeeding well even in open situations and where the soil could hardly be said to be of the best quality.

ERICA CARNEA, although a shrub of small pretensions, is, nevertheless, one of the brightest ornaments of our rockworks and gardens. For planting along the margin of a shrubbery or woodland walk this pretty and easily-managed shrub has, perhaps, hardly an equal, its compact and by no means stiff habit and free-blooming nature rendering it of particular value. Coming into bloom as it does in the cold and dreary winter-time, and when few flowers are to be met with, it can be used for a variety of useful purposes, and being quite hardy and unharmed by the severest frost, still further adds to its value and usefulness. Peaty soil is not, as is erroneously supposed, necessary for the perfect development of this Heath; indeed, I have found it do quite as well in free sandy loam.

HAMAMELIS ARBOREA AND **H. ZUCCARINIANA** must on no account be omitted from a list of winter-flowering shrubs, for both are plants of great beauty, and also somewhat uncommon. *H. arborea* has curiously marked and very conspicuous flowers, these being of a light yellow with a deep claret centre, and are of large size—at least large in comparison with those of *H. Zuccariniana*, which are of an almost canary-yellow. At present the latter plant is in full flower, while *Hamamelis arborea* was in full bloom nearly a month ago. Both are shrubs that are well worth adding to any collection, for they are tolerably hardy, of free growth, easily suited with soil, and very free-flowering, although occasionally they skip a year, but bloom with the greatest profusion during the following.

CHIMONANTHUS FRAGRANS GRANDIFLORUS is far more ornamental than the typical plant, the blooms being larger, of greater substance, and consequently more ornamental. The flowers are of a

warmer and more enticing hue than are those of *C. fragrans*, being of a decided golden colour, with a claret-coloured centre. It is a rather uncommon plant; at least it is rarely found even in well-arranged collections, and this is to be regretted, for it certainly well deserves a choice spot. Towards the end of December the flowers are almost at their best, but during the whole of January, and occasionally well into February, the blooms are thickly produced.

THE NAKED-FLOWERED JESSAMINE (*Jasminum nudiflorum*) produces its showy yellow flowers from early November right through the winter, and is a favourite of one and all.

My object in bringing these winter-flowering shrubs into notice is that they may be more commonly cultivated than at present, and likewise assigned conspicuous positions, where their pretty flowers will be brought to the front when our shrubberies look cold and bare.

A. D. WEBSTER.

Ceanothus Gloire de Versailles.—M. Boisselot, writing of this *Ceanothus* in the *Revue Horticole*, describes it as a most charming shrub, of which the owners of pleasure grounds would do well to avail themselves, as it possesses the desirable qualities of hardness and vigorous growth, and produces an uninterrupted succession of handsome sky-blue flowers from spring to November. He recommends, as the most effective mode of planting it, that it should be surrounded by dwarf, dense-foliaged shrubs, so as to conceal the lower part of the *Ceanothus*, which is rather thin. The plant is cut down every winter, more or less close to the ground, in the same way as Osiers are cut down, and in the ensuing spring numerous shoots are produced from the stool. These shoots, as they extend, rest upon the dwarf shrubs which surround them, and if the season is moist are continuously laden with flowers until hard frosts set in. In a dry season the plant requires to be plentifully watered once a week.

Prumnopitys elegans.—This graceful little tree or shrub of recent introduction has proved to be quite hardy in this country and in Ireland, where I have grown it with perfect success as a covert plant. It makes a very compact little specimen, the contour of which is not unlike that of the common Yew, and as it thrives on a great variety of soils if thoroughly drained and broken up at the time of planting, and does well in smoky districts about large towns, amateurs should use it for their small gardens and Grass plots, where it forms an attractive specimen all the year round. It is easily propagated by cuttings, and as it bears pruning almost with impunity, amateurs can thereby keep it within bounds and of a suitable size and shape. This of itself is a matter of importance in all cases where the grounds are of limited extent. It is a native of Valdivia, in South America, where it was discovered by Mr. Pearce at an elevation above sea level of from 5000 feet to 6000 feet. Its discoverer describes it as a broad, bushy shrub a few feet high, but my experience of the plant in this country is, that it forms a dense, sharply conical specimen, well furnished with small branches and twigs, which are clothed with small leaves of a bright glossy green colour. Under favourable circumstances it appears to improve both in size and shape in this country. As far as I am aware this is the only representative of the genus that has been introduced into Britain.—J. B. W.

SHORT NOTES.—TREES AND SHRUBS.

The Snowdrop Tree (*Halesia tetraptera*).—Before the planting season is at a close, I would ask lovers of hardy, free-flowering shrubs to give the above a trial, for it is undoubtedly one of the handsomest and most free-flowering of North American plants.—A. D. W.

Clipping Ivy.—Now is the best time of the whole year to give the annual clipping to Ivy on walls, as the new growth will quickly be on the move. In this manner the shortest possible time is allowed for the walls to look bare, as the new growth quickly makes a

covering when exposed to light, sun, and rain. The growth of the leaf-stems is much shorter where clipping is done every year. All kinds of vermin are more easily got rid of, and the new growth is of a much closer character than where cutting is only done every other year. It must be understood that I am referring to Ivy which has been clipped for some years, as that newly planted does not need such close clipping for a year or two.—S.

FRUIT GARDEN.

MILDEW IN VINERIES.

AMONGST the many pests requiring the watchful eye of the Grape grower mildew is one of the most insidious. The germs of this destructive disease seem always to be lurking near at hand, and ready to develop so soon as the conditions favourable to their growth present themselves. The best security against its attack is, no doubt, good cultivation, for Vines in good health, receiving careful and at the same time liberal treatment, very rarely manifest any signs of mildew. Nevertheless, so varied are the structures in which Grapes are cultivated, and so frequently does their management in many cases change hands, that it is not surprising to find this dreaded enemy rampant where least expected. Where once a bad attack has prevailed, its recurrence is only prevented by careful management of the house, and by adopting measures of precaution such as are well known to counteract it. Prevention of this disease is often an easy matter; not so, however, is the cure when it becomes established, which takes place in a few days' time; at least its traces cannot be effaced during the same season when it attacks the berries. In most of the cases of mildew in vineries which have come under my notice, the footstalks of the berries have been the first to show signs of the disease; from thence it has spread to the berries. White kinds appear more susceptible to it than black, although it quickly spreads to them if not checked.

Amongst the causes which directly contribute to the development of mildew, careless ventilation is one of the most dangerous. I always consider that admitting air by the front ventilators during the early stages of growth is fraught with considerable danger, more especially when this way of giving air is resorted to as a means of lowering the temperature. It is much better to endure a high temperature for an hour or two than to lower it by admitting a volume of air at the front. Then, again, I have found assistants continue this practice as a matter of routine during the most unsuitable weather. If front ventilation is employed, it should be given by means of small sliding shutters in the front wall, and then these apertures should have a permanent covering of perforated zinc. If, however, the ventilators at the top of the house are properly regulated, front ventilation can to a great extent be dispensed with till the Grapes are near the stoning period, and thus a fruitful cause of mildew be avoided.

The reason why mildew is generally more prevalent in late vineries is often due, I think, to the absence of fire-heat. I am no advocate for artificial heat when that derived from natural sources is sufficient for the purpose, but unhappily in this variable climate the periods when we can safely turn off all heat from the pipes in our vineries are very short. So sudden, indeed, are the changes from bright warm weather to that which is quite the reverse even in the midst of summer, that enough heat for warming the pipes should always be available. If not, the temperature in late vineries is apt to

fall too low at a time when, with the dense shade of the Vines during a few days of cold, damp weather, the atmosphere will be in the best condition to develop mildew before one is aware of it. If the pipes are just kept warm, enough heat will be generated to keep the atmosphere active and sweet and counteract the sudden change in the outside air. Mildew is often communicated to the Vines from plants growing in the same house. Roses are especially dangerous on this account, owing to their susceptibility to this disease. I once had it communicated to the Vines in a late vinery in this manner, and had some difficulty in getting rid of it, and then not before considerable damage had been done. Now, however, by the constant use of weak soft soap and water upon the Roses, we are able to admit them into the vineries without danger, but no mildew-affected subject should be allowed to remain where it is likely to impart the disease to the Vines.

As a means of prevention as well as cure, sulphur in some form or other is well known to be infallible. Wherever this specific is brought into contact with the mildew its destruction is sure. It is the neglect to use so simple and inexpensive a preventive which so often entails upon us the extra labour and anxiety of battling with the pest in its active state. Where mildew has once occurred, sulphur should enter largely into the composition of any winter dressing for the Vines; or where such dressings are not in favour, sulphur alone can be used, and will be found to adhere fairly well if mixed with strong soap water. It should also be introduced into the whitewash with which the walls are annually coated. As an extra precaution, some of the hot-water pipes should be coated with sulphur mixed with milk. Where a cure has to be effected, it is often a matter of some doubt as to the best means of applying the sulphur without spoiling the Grapes. Dusting, to be effectual, must be thoroughly done, and however carefully the sulphur is washed off, some traces of the operation are sure to remain. Clear boiled sulphur water syringed on is very efficacious, but it invariably leaves some deposit upon the berries. The best mode of applying it with which I am acquainted is to the hot-water pipes, but to be effectual no half measures will suffice. Until I had occasion to deal with a bad attack of mildew, I was always fearful of the effect of a very strong application of sulphur in this manner, but having tried two or three moderately strong doses in this instance without any apparent effect, I determined to follow Mr. Taylor's advice (then of Longleat) and heat the pipes as hot as possible before coating them with the sulphur. With this object we turned the heat off both top and bottom everywhere except the house to be sulphured. Keeping plenty of air on this house until the time arrived for the operation—about 8 o'clock in the evening—when the ventilators were closed and the sulphur applied to the pipes as quickly as possible, the house was soon filled with a bluish vapour. In an hour's time we again opened the ventilators and left them open all night. Although I must confess I felt rather uncomfortable as to the result, as far as I could see not a leaf nor a berry was injured, but the mildew had disappeared. I have not had occasion to adopt such severe measures since, but should not have the slightest hesitation in doing so again. The berries at the time were green and near stoning.

A. BARKER.

Age and size of Orange trees.—According to a writer in *El Diario de la Marina*, there is still flourishing in the porch of the Convent of Santa Sabina, in Rome, an Orange tree that is said to

have been planted in A.D. 1200. Another, in the Monastery of Tondi, is supposed to have been planted by St. Thomas Aquinas in 1278. In the Moorish Alcazar of Seville, Spain, exists one that was planted during the reign of Pedro I., between 1350 and 1366. Others here known to be 340 years old are described as having a height of from 12 feet to 49 feet, with trunks from 4 feet to 4½ feet in circumference. Age is not, however, indicated by size, as in Andalusia there are many younger trees that are considerably larger than these. In Alcalá de Guadaira are two, the trunks of which at 39 inches above the ground are respectively 8 feet 1½ inches and 8 feet 4½ inches in circumference. The yield of some Orange trees in Malta and Naples is simply astounding, reaching as high as 30,000 Oranges to the tree, and on the estate known as the Huerta Grande, in Mairena del Alcor, there are two that are said to have borne 38,000 Oranges each in a season.

EVILS OF GRAFTING.

NEITHER A. Barker (p. 273) nor "A. D." (p. 274) have touched the main question in their remarks about the use of grafting. At times and under certain conditions grafting may be useful, but the fact remains that it is very often abused, and it is this abuse of grafting which it is desirable to check as soon as may be. Damsons are by no means the only fruits at present cultivated on their own roots. Grapes, Figs, Gooseberries, Currants, and many other fruits are on their own roots in our gardens to-day, and succeed well as so grown—far better, indeed, than when grafted. Grafting induces precocity in some cases without a doubt, but that it conduces to vigorous growth, fertility, and longevity in fruit trees generally I totally deny. Dwarfing stocks "produce miniature trees" certainly, but the question is whether they produce profitable trees, and we very often find that they do not. The Quince stock for Pears is propagated from cuttings or hillock layers, and not from seeds, and Pear stocks so propagated are better than any Quince stock, equally surface rooting, and the trees are far more long-lived and fertile on such Pear stocks than on the Quince, and, for all we know, might be better on their own roots than grafted on any stock whatever. Will Mr. Barker be so good as to tell us why the "vigorous" Dog Rose stock is so often killed above the ground level, while the Rose at one end and the Dog Rose roots at the other are still alive? We must never forget the main fact that all our best varieties of fruits are seedlings; grafting originates nothing, and very often does not perpetuate with success. A grafted Peach tree is not the known quantity Mr. Barker would have us believe (p. 274). How happy the gardener might be were he sure that his Peach trees would fruit the third year from the graft and bud and last a lifetime in fertility if "properly cared for." They, as a fact, do not always do this, and very often become gouty failures after a few years, and have to be cast out. So far as the indoor culture of Peaches is concerned, there can be no real necessity for grafting whatever, since if "properly cared for," trees on their own roots would in the long run be far better. Why should we throttle a fruit tree by grafting it on a restricting or dwarfing stock and then be so anxious to feed it with all manner of manures, liquid and solid, as the case may be? Is it right to check a plant's powers of taking up nourishment and then to give it stimulants, as is so generally the case now?

"A. D." tells me that root-grafting is no new thing. When he says he can find 10,000 fertile and successful grafted fruit trees in a day's journey I believe him; but I also know more than what he states. For 10,000 successful trees now living and fruitful there must have been many failures, and it is the failures in this world that influence people most disastrously after all. There are two sides to all questions, and I am as anxious to hear the one side as the other. "A. D." says take the dwarf Apple trees at Chiswick as examples of the good of grafting. So be it. Let the evidence be forthcoming, and we will gladly accept it. Just at present, however, the evidence as recorded in the last issue of

the Royal Horticultural Society's Journal is a total failure. The Blenheim Orange Apple grafted on eighteen different stocks, and "properly cared for" for thirteen years, has during that time produced less than a bushel of fruit! Even the French Paradise stock will not live at Chiswick unless grafted with a stronger growing Apple, so that I think Mr. Barker will allow that sometimes at least the scion not only does entirely over-rule the stock, but that it really keeps it alive. The main question, however, is, is it worth thus keeping alive? I am firmly convinced that were grafting abolished tomorrow by Act of Parliament or otherwise, we should obtain equally good, and I believe better and certainly more lasting results by other cultural methods well known to us all. Grafting has been used in gardens for centuries, and we have come to look on it as an unquestionable practice, but that it is not an infallible gain has been amply proved, and some of us know that it often hinders progress, and is often a nuisance and a loss to all concerned. The true test of grafting is not whether it is the cheapest and most convenient practice for the propagator, but whether it is the best and most profitable way of growing good fruit. With all our grafting we cannot compete with Canada or the Eastern States of America with Apples, nor with France for Pears. Of course climate may be against us, but I believe there are other cultural drawbacks, and that grafting is one of them. Grafting is very often a waste of force and an enemy to progress in many ways. A sucker of the original Ribston Pippin Apple tree reared from the seed of a Normandy Pippin nearly 200 years ago is alive to-day. Can anyone tell us of a grafted Apple tree two centuries old? Gardeners and fruit growers will look into this question for themselves, despite all that "A. D." or anyone else can say, and I happen to know that the practice of growing own-root fruit trees has already been begun in private gardens. If the nurserymen will not give us trees on their own roots when we ask for them, we can very readily increase them for ourselves. There are a good many of us who do not believe that the grafting of fruit trees is the best and only way. What we desire is that amateur and professional fruit growers should look fairly all round this question and frankly acknowledge its failures as well as the successes attributed to grafting, although quite as often readily traceable to other primary causes.

SCION.

THE BLENHEIM ORANGE PIPPIN.

MANY growers consider this variety much too shy in bearing for many years after planting. Admitting this, I should plant it notwithstanding, having regard to posterity. But what I wish particularly to refer to now is that perhaps many people are not aware that the Blenheim Orange Apple can be brought into bearing in about three years by grafting. Now there are many thousands of Apple trees in every fruit-growing county that are worthless at the present time for profitable market purposes. The Blenheim has an excellent constitution and is very vigorous, and this is why it makes such good scions for grafting.

Unfortunately, the Blenheim is scarcely ever seen in market after Christmas. The custom is to rush this Apple into the market before Christmas for the Christmas market. Consequently many growers are not aware that this Apple will keep, in good stores, for three months, say December, January, and February. Certainly if this Apple were grown in large quantities, so that it might be put upon the market every week for three months, it would in my opinion help towards keeping more money at home. No foreign Apple will drive the Blenheim out. Keep the markets well supplied with such good Apples as the Blenheim, and this will be a step in the right direction to meet the foreigner in the open market. The season is upon us for thinking about grafting. To those contemplating grafting, I would advise them not to forget the Blenheim; and to others who have a lot of trees of worthless varieties, which are not too old for grafting, and say from ten to thirty years of age, I may say that these would make excellent stocks

for grafting the Blenheim upon. I strongly advise the necessary stock of grafts to be procured from a distant part for the benefit of change of blood or change of soil's action. We change other seeds, and why not get a change of grafts, say Kent get a supply from the west of England and *vice-versa*?

In mentioning the grafting business to a large grower of Apples last year, the question asked was, where are we to get the necessary staff of grafters from? I would answer at once that every large fruit grower should have men as permanent hands who could do this simple work; if not, handy labourers could soon be taught how to do it, particularly at this season of the year when there is plenty of the necessary materials at hand for the lessons.

Now, if this systematic "grafting" was thoroughly taken up all over England, and the Blenheim grafted upon all the worthless varieties or sorts that do not pay to grow for the markets, what a change in a few years to all concerned in Apple growing! Of course, there are other varieties, such as Warner's King and Wellington, that would do well grafted upon the trees. Both these are good varieties and useful for storing for the winter and spring markets. But they are not like the Blenheim, which is as good for dessert as for cooking. The Blenheim is well known all over the world, and it is, to my mind, the best Apple for growing in very large quantities for the market or for private use. Let the Apple growers be convinced of this, and no doubt it would be increased largely.

The varieties that I recommend for grafting are all large Apples, when well grown, and not many small Apples of these sorts are to be found; consequently there is not much waste. Grafting is a ready means of converting the worthless tree into a profitable one in a very short time. I cannot help thinking that if thousands of bushels of Blenheim Apples were put upon the markets at once there would be a ready sale at good paying prices if the fruit was in good condition.

Now is the time to think about grafting. The planting season is over for the Apple for one more year, and I am pleased to hear that many thousands of trees have been planted this season, I might say in every fruit-growing county throughout England.

There is also much work that wants doing to the existing Apple orchards throughout the land. But it does not get done. The trees are left from year to year to take care of themselves, and when the autumn comes round fruit is expected as a matter of course, without our lending a helping hand to assist Nature in her good work. I think man should take his part of that work; that work is cultivation. But how few there are who really cultivate the Apple tree in the orchard! And yet the Press is continually reminding them of this.

The growers say it does not pay to spend much time or money, so the unprofitable trees remain from year to year, crying aloud for help. It is not heeded, and so we pass on, hoping for better times and for better prices, whether the fruit be good, bad, or indifferent. This, we are told, is human nature.

I hope the time is not far distant when only good saleable Apples will be grown. We have too many small-fruited varieties of Apples at the present time which glut the markets. I do not wonder at salesmen saying they have had Apples at 1s. per bushel during the past autumn, but these should never have been sent to market. I hope that chief among others, the Blenheim, will some day put a stop to these low prices.—ROBERT SMITH, in *South Eastern Gazette*, March 2, 1889.

Judging Melons from appearance.—Some judges are in favour of this, but I would never agree to it. All know who have judged any quantity of Melons that in many instances the most showy specimens are unmistakably the worst in flavour; and although it may cause a little grumbling that these fine-looking fruit should not win a prize, a Melon is nothing unless well flavoured. It is a mistake to assert that one can tell the flavour of a Melon from its handsome exterior. The most

beautiful looking Melons I ever cultivated were from seed received from America, but the flavour was little better than that of a Vegetable Marrow. In some cases the dessert may be put on for show, then the "Melons not to be cut" will pass. But where the flesh, as is too often the case, is insipid, they will meet with nothing but disfavour from all who judge fruit from its one great merit—flavour.—J. MUIR, *Margam*.

** What are the opinions of our readers on this subject?—Ed.

CITRUS TRIPTERA.

THIS exceptionally hardy species of Citrus is grown in the open air in France, where it suffers no injury from cold in winter. The following description of it is given in the *Revue Horticole*:—

The plant flowers profusely, sometimes even several times in the year, the foliage, which is partly



Citrus triptera.

persistent, the branches, and even the spines, the bark of which is evergreen, also contributing to its beauty. It also possesses the quality of being adapted to form hedges which not only afford shelter, but are also impenetrable, the plant being of a bushy habit, never bare of leaves, and armed with large branching spines. Although of pretty vigorous growth, it does not run wild, and, in making a hedge, it is easily kept within bounds by cutting the ends of any branches which push beyond the prescribed limits. It will grow in almost any kind of soil, but the better the soil the better it grows. It prefers a warm soil, and one that is somewhat dry rather than too moist, especially if the climate is cold and the ground is not well drained. There will be nothing to fear from dampness if the plants stand on a slope or in ground where the subsoil is dry and permeable to moisture. This species might be used as a stock on which to graft Oranges, to which it would probably communicate something of its hardness, but this remains to be proved by experiment. As regards propagation, practically the only method is by means of seed. This should be sown, immediately after it has been removed from the fruit, in pots or

pans filled with heath soil or other soil of good quality, modified as may be necessary to assist the germination of the seed, which is not long in taking place, especially if the seed-pans are placed in a house or a frame. This, however, is not indispensably necessary, as the seed may be sown in the open ground like other tree seeds. The seedlings should be pricked out in nursery beds in order to make plenty of roots before they are transplanted; they should, in fact, be treated exactly like young Quickthorn plants.

Citrus triptera fruits abundantly in the south and south-west of France, and even in some of the central parts. The fruit may be allowed to remain on the tree until spring, when the seed is generally sown. Seed can be obtained from the establishment of Messrs. Vilmorin-Andrieux & Co., 4, Quai de la Mégisserie, Paris.

WORK IN FRUIT HOUSES.

PINES.

THE month just closed has been fine, but not so bright as the Pine grower, who, forcing against time, could have wished. Early started plants, nevertheless, have made good progress, and all the fruits being out of flower, they will revel in the increased supplies of atmospheric moisture which solar heat in April allows us to give. Frequent overhead syringing before June is not, however, needful nor beneficial, as it is much easier to make the soil about the collars of the plants too wet than to get it dry again. As days increase in length and the sun gains power, the syringe may be more freely used about the walls and surface of the bed, and occasionally for an overhead dewing when the air temperature can be raised to 90° after closing. If fire-heat is now shut off rather early on promising mornings, moderate ventilation will maintain a moist growing atmosphere and render shading quite unnecessary; but, bearing in mind that the pipes soon lose their warmth, also that progress must be made by day, final closing must be extra early, when the fires may be stirred to prevent a too sudden decline to the minimum temperature, which should not be much below 75° at banking time and 70° the following morning. Tepid liquid guano and soot water will now play an important part in swelling the fruit, for, much as we deprecate a sloppy condition in the house or a wet state of the soil, these stimulants cannot be dispensed with. These, then, must be used for filling up the evaporating pans, for damping the floors and surface of the bed, for charging the axils of the lowest stem leaves, and last, but not least, for feeding the roots when water is absolutely necessary. No one can say how often Pines should be watered, as so much depends upon local conditions, independently of the size of the pots, the style of house, and the nature of the compost. In some soils the plants fill the pots with coils of white roots; in others they make very few, when any hard-and-fast line in watering might starve the first and simply saturate the second. To guard against and prevent either of these evils, the tyro should examine each plant separately, water well when absolutely necessary, and pass by those which are in a moist, growing condition. It is not a good plan to disturb a fruiting Pine after the fruit is up; neither is it necessary always. A moist bottom-heat of 85° can be maintained and the plants have plenty of head room. Work amongst them will include careful tying to two sticks to maintain the fruit in a perpendicular position, the removal of all gills, and the reducing of suckers to one or two, according to requirements for the succession. Ventilation for some time to come will require increasing attention, but two simplifying aids will be found in night covering as a preventive of radiation, and a sharp bottom-heat, which counteracts sudden external changes when the ventilators are open. A chink through the night, if possible, should be the rule, 76° to 80° the starting-point by day, 85° to 90° the maximum, and 95° for a short time, after closing with sun-heat and moisture.

Successional fruiteders, including Queens, Rothschilds, and Cayennes, will require a brisk tempe-

perature through the day, a moderate supply of atmospheric moisture, and careful ventilation during the time they are in flower. When safely through this stage each plant must be examined and liberally watered with some mild stimulant, moisture increased, and forcing accelerated by day with solar heat and light overhead syringing on bright afternoons. If Queens are plentiful the suckers may be reduced to one upon each plant, but the other two, never too numerous, may carry all they throw up at this the most promising season for starting fruit and suckers. The temperature here, as in the early fruiting house, may range about 70° at night, 80° to 85° through the day, and 90° to 95° after early closing, when the valves may be opened to let the decline to 70° at banking time be as steady as possible.

Successions potted in February and March having the benefit of increasing light and solar heat, will now require more air and atmospheric moisture; also, most likely, a supply of tepid water to the roots. The beds, too, must be carefully watched, as sun-heat sometimes causes a sudden rise, notably after watering. Should this happen, each plant must be carefully lifted or rocked to let out the heat, otherwise the soft tender roots now touching the sides of the pots may receive a check from which they will never recover. A bottom heat of 80° to 85° in a moist fermenting bed is quite strong enough for these plants, and an air temperature of 65° at banking time, 60° at daylight, and 80° through the day, whilst keeping them progressing, will not force the foliage in advance of the roots.

Suckers like the preceding which have not received any water since they were potted must now be examined and well moistened if the soil is inclining to the dry side. Plants in small pots plunged over hot-water pipes are most likely to suffer from drought, but conditions which suit them best are a sharp moist bottom-heat from fermenting Oak leaves or tan, and an atmosphere rendered moist by external linings consisting of equal parts of good leaves and well-worked stable manure. If ammonia from this material can be admitted or excluded at pleasure, the slides should not be opened until a candle will burn freely in the hot-air chambers or cavities formed along the back and front of the frame or pit. Snug night covering is a great help, not only to suckers, but to plants in all stages of growth, including those now swelling off fruit. Shading, on the other hand, should be very sparingly used, as Pines never scald where air is admitted early and the beds maintain a constant stream of moisture.

ORCHARD HOUSES.

Peaches and Nectarines in the early compartment will now be stoning, if they have not already passed this trying ordeal, and the fruit to outward appearance will be making very little progress. Good work, however, will be going on within, and once the stones are perfect the final thinning must be made, as no excuse can be found for filching from the crop by the retention of more fruits than can swell to maturity. It is impossible to say how many Peaches a pot tree will ripen up to full average weight, but of two evils it is better to crop lightly for fine fruit and strong wood than to handicap with a number of stones sparsely clothed with pulp of inferior flavour.

Disbudding having been carried on conjointly with thinning, superfluous shoots should now be few and far between, but where they are likely to crowd each other, those intermediate between the one nearest the base and the leader should be shortened back and eventually removed. Vigorous trees will require constant attention to the pinching of first shoots and laterals, commencing at the top and working gradually downwards, the first factor being the maintenance of perfect pyramids and bushes well set with triple buds for another year. Weak or heavily cropped trees will not require this incessant attention, as many of the medium growths will not make more than two wood buds, one at the base, the other at the point, the removal of which will render the shoot useless as a fruit-producer next year. By way of throwing

strength into these, others inclined to take an undue share of the sap, as a matter of course, must be pinched when about 10 inches in length, laterals and sub-laterals at the first or second leaf. By adopting this give-and-take method and cropping lightly, one set of pot trees may be forced successfully for a great number of years, that is, provided other details, such as potting, watering, and feeding, receive most careful attention. Top-dressing, one of the mainsprings of success, is commenced as soon as the fruit is set, and is continued as often as the roots appear on the surface until the Peaches are nearly ripe. Various substances of a highly stimulating nature are mixed and blended together, and thrown into a dry corner to ferment and dissolve for use throughout the season, but composts of this kind require careful application, as one overdose may spoil the crop and the tree into the bargain. Old night soil, cow manure, spent Hops, kiln dust, bone dust, and rich calcareous loam are recommended, but loam, manure, and bone dust supply all that the wood, foliage, and fruit require, whilst weak manure water, guano and soot water are invaluable for washing this mixture down to the roots, damping down, and charging the evaporating pans. Whatever is used, little and often should be the motto, and water in abundance should be used, as dry balls are fatal to fruit trees.

For syringing purposes, pure soft water, or water free from lime, answers best, as it does not leave a deposit on the fruit. Twice a day is not too often to syringe; the first time when the temperature begins to rise; the second, when the house is closed with sun-heat to swell the fruit. A bag containing a peck of soot immersed in the tank improves the water, as it stimulates the foliage, produces a dark healthy colour, and keeps aphides and red spider in check. The temperature after the fruit is stoned may be raised a few degrees, but 60° at night, 70° to 75° by day, and 80° after closing, with bright sun-heat, will be found quite high enough, no matter how mild and genial the weather.

MELONS.

Although the weather has not been severe, the absence of sun has rendered incessant firing absolutely necessary, especially where fermenting material has not played an important part in the maintenance of bottom-heat and atmospheric moisture, the best of all preventives of the advent of red spider. In dry pits the syringe can and must be freely used, but the conditions most favourable to the growth of early Melons are always found where the atmosphere is moist enough to enable the cultivator to dispense with its direct aid, and nothing, in my opinion, answers so well as Oak leaves in a state of fermentation and gradual decay. Assuming, then, that the bottom-heat stands 80° to 85°, and the female flowers are beginning to open, the syringe may be laid aside for the present, and fire-heat must be equal to the maintenance of a free circulation of air until the fruit is set. Under such conditions are free varieties set without artificial aid, but the operation of fertilising each flower about noon on fine days being so brief and simple, no one having a desire to take advantage of every minor detail should neglect it. When the Melons have attained the size of pigeon's eggs the final earthing should be performed in time for the roots to take hold before the plants feel the strain of the crop, and then the quantity of compost should not be excessive, as the best of culture will not counteract its effect when packed round the stems. Where former directions as to planting upon cones have been carried out, this need not happen, but having been neglected, rough pieces of charcoal or lumps of old lime rubble should be laid round the collars before the compost, consisting of strong calcareous loam and fine bone-dust, is applied to the roots. Feeding from this stage forward to the attainment of full size must be on a liberal scale, and the more frequent the change from tepid liquid to guano and soot water, the better the progress and the finer the fruit. The heat by night should range about 70°, that by day from 80° to 85°, and 90° to 95° after shutting up with sun-heat and a thorough syringing. Manipulation after the fruits are thinned and supported is extremely

simple, and may be summed up as follows: Preserve every premier leaf from the crown of the pot or hill to the highest point, remove all useless spray, and pinch laterals at the first joint in advance of the fruit.

Successions in various stages of growth, with one exception, come under the details given in former papers, and that is the degree of heat which may be considerably increased, especially on bright sunny days when air can be admitted. The minimum temperature should never fall below 70°, and then slight covering, if only to prevent the escape of moisture, will be found a great help. Indeed, considering the sudden changes and inclement weather we experience quite up to mid-summer, I question if we are more short-sighted upon any subject than that of night covering. If the introduction of a profusion of hot-water pipes produced conditions most favourable to healthy growth, fuel would form the main factor, but quite the reverse is the case, as we rarely see plants flourishing in a high dry temperature from which the external air some 20° to 60° degrees colder is abstracting every particle of moisture. Water colder than the mean of the house dashed about at random aggravates the evil; a bed of fermenting material to a certain extent corrects it, as vapour is constantly rising, but this, like the heat, is soon gone where the glass remains uncovered. When in free growth the plants will take liberal supplies of pure tepid water, stimulants being reserved for the swelling of the fruit, and strong pure loam previously warmed must be added as the roots creep through to the surface.

Frames.—Where Melons succeed forced vegetables and bedding plants in frames, seeds of free hardy sorts should be sown at short intervals to secure extra strong plants for turning out early in May. Melon plants are not improved by remaining a long time on hand, the greatest evils being colonies of red spider and a pot-bound condition. As neither of these contribute to success, they should be avoided by liberal shifts into larger pots, by generous watering and syringing, and the maintenance of top and bottom heat from fermenting materials. Plants put out some time ago and now growing freely must be well sustained by good external linings, by the addition of more soil little and often, and beaten very firm as the roots require it; also by very early closing with sun-heat and a gentle dewing overhead with pure water. Cover well with mats at night, pinch the points out of the vines when within a foot of the extremities; also all spray and useless laterals at the first leaf, as all the space will be wanted for the premier foliage. Fly does not often get into frames, but if it does, smoke lightly with Bloxham's fumigator.

HARDY FRUITS.

PEARS.

In my remarks last week I purposely omitted Pears, not that they are less valuable than Peaches, but simply because I was dissatisfied with the quantity and quality of the flower-buds. When these are long, pointed, soft to the touch, and display undue haste in opening, the prospect of a good crop of fruit is far from satisfactory. Some of our trees on south walls even which bore full crops last year are very sparsely budded, a condition which puts them beyond anxiety as regards the fruit; not so the set of blossom buds for another year. Some trees of Josephine de Malines, Winter Nelis, and Marie Louise, which cropped heavily and required a great deal of thinning, are very shy indeed. Jargonelle and Pitmaston Duchess are thin, whilst kindred varieties trained upon iron trellises are fairly full of bloom, but far from promising. Half a loaf being better than no bread, a thin blossom which almost invariably sets well, that is, provided the flowers are perfect, is worth protecting from the elements, the ways and means depending entirely upon the materials at command. Having already expressed my views upon what may be termed the rough-and-ready or makeshift method, I may just repeat my faith in broad coping boards for throwing off sleet and wet and double or treble fishing nets for catching hoar-frost. Through this the

sun on fine days penetrates and is absorbed by the bricks, and although barely perceptible to the hand, this dry warmth often saves the crop when trees minus the coping are seriously injured. Existing flower-buds of course claim our first attention, but assuming that a portion of the trees are barren, they should not be left to take care of themselves, as the protection of the early tender leaves is an important factor in the production of future flower-buds. Some varieties of Pears which throw out shoots 6 inches or more in length with a flower-bud at the end should be allowed to retain all these solitary growths until after the fruit is set, and then, provided any or all of them fail, they may be cut back to within two or three eyes of the base to form spurs close to the wall. This mode of spring shortening may be practised more or less in the most fruitful years, but the season now before us being the reverse of promising, thinning and working out weak and straggling pieces of spur wood should receive special attention.

PEACHES, NECTARINES AND APRICOTS,

later than they have been for a great number of years, should now be examined every day, and if perfectly clean and free from aphids they may be left alone until the fruit commences swelling. If, on the other hand, curled leaves indicate fly or blister, those leaves, or possibly the whole shoots, should be removed, as it is better to sacrifice some fruit than to allow insects to spread. As it is yet too early to commence the application of liquid insecticides, all faulty leaves as they are pinched off should be dropped into the apron, carried away, and burned, when tobacco powder dredged into the parts affected will "scotch" further progress until the syringe can be used. If it be true that an adult green-fly becomes a grandfather in twenty-four hours, and a promising young shoot which falls a prey to a family attack hardly ever ripens properly, the force of my remark respecting daily picking and dredging should set the most careless on the alert. Curl and blister years ago were more prevalent than they are now, and mildew often destroyed large trees in a single season. The cause was assigned to unpropitious weather, but our springs and summers have not improved, and yet these diseases are on the wane. To what change in our management, then, must we attribute our escape—nay, more, our progress? for no one can deny the fact that open-air Peach culture has made rapid strides. Frost, wet, and cutting draughts aggravated these diseases, but the prime cause lay beneath the surface, and this, by annual root-lifting and relaying within the influence of solar heat and air in fresh compost, by thin extension training and thorough cleansing not only of the trees, but also the walls, has been removed or weakened to an extent which leaves frost at flowering time our greatest enemy. Here, again, thorough drainage, borders 2 feet in depth where formerly they were 3 feet, copious watering and quick growth, which in ordinary seasons ripens well—one and all tell, as perfect flowers upon ripe wood withstand with impunity frosts which annihilate weak and imperfect ones. We do not often fertilise wall Peaches, especially when the flowering period is late, and insects, which perform the work so well, are plentiful as most likely they will be by the time the flowers open in April. Noblesse, Walburton Late Admirable, and other large-flowered varieties generally considered more tender and less fertile in pollen, are, nevertheless, improved by an occasional brush over with pollen from the old standard sorts, including Royal George Peach and Elruge Nectarine. If insects go before and follow after no harm can result, as we always find thoroughly fertilised fruits swelling to their fullest size, whilst those subject to stone-splitting when nearly ripe and dropping when forming kernels are more or less improved out of these bad habits by careful fertilisation with foreign pollen.

W. C.

Seedling Blenheim Orange.—Raising the Blenheim Orange Apple from pips is not practised in this neighbourhood that I am aware of, nor have I ever heard of trees being raised in this manner in the western counties. Still there may

be cases, and it would be interesting to learn from those who have raised and fruited them in this way how long it takes from the time the pips are sown until say a bushel of Apples can be gathered from a tree. It is not surprising with such a fine Apple as Blenheim Orange that cottagers, amateurs, and children should sow the pips from an extra fine specimen. I have done the same thing when a lad, and have seen the seedlings come up, but whether they ever fruited I cannot say. There is no doubt, however, that some of the fine specimens of this Apple to be met with at exhibitions, in fruiterers' shops, &c., are from seedling trees, although soil and locality have a great influence in this respect. With those who have leisure time and ground to spare, the raising of Apples and Pears from pips is to be commended, not that more varieties are wanted, but with the view of still further improving our best kinds.—A. BARKER, Worcester.

ORCHIDS.

W. H. GOWER.

PONTHIEVA MACULATA.

THIS is a member of a small genus, which in these days of large flowers one seldom meets with, and to me it marks a red-letter day to find this species in two collections in one week, viz., in the garden of Sir Trevor Lawrence at Burford Lodge, and in that of Mr. Tautz at Shepherd's Bush, where it was flowering. The only time I have seen it previously was in the collection in Altona, when Consul Schiller's plants were under the charge of Herr Stanger. It is a member of a terrestrial genus nearly allied to *Goodyera*, *Listera* and *Neottia*, and it was named in honour of a M. de Ponthieu, who was interested in these plants in the days of Sir Joseph Banks. The plant in question is a small growing species with strongly ribbed leaves, which are somewhat hairy—in fact, it looks much like a *Neottia*. The spike is erect, many-flowered, the flowers being long-stalked and rather loosely set upon the raceme. On the one before me, however, there are twelve blooms, so that in a well-flowered plant the display is one of no mean pretensions, although altogether the flowers would not make as much show as a single *Cattleya* bloom of the *Trianae* or *Mendeli* type. The blooms of *P. maculata* are solely dependent upon their lower sepals for ornamentation, and these are white, like frost, and over their surface are scattered numerous somewhat regular spots of brownish green. The dorsal sepal is small, erect, reddish green, streaked with deeper lines of dull red, the petals being small, connate, standing erect at the back of the column. This plant is very ornamental, and deserves to be more widely grown.

The cultivation is very easy. The tubers should be planted in a mixture of loam, leaf-mould and peat made sandy. Drain the pots well and during the growing season water may be given liberally. The plant requires the heat of the *Cattleya* house, but after the plants have cast their leaves the pots must then be removed to the *Odontoglossum* house, and at this season water must be very sparingly given. It is at this season that mischief is done to these and many other deciduous plants by roasting them, an idea which seems to pervade the minds of so many. The cool Orchid house will be found to keep them quiet, and a little water occasionally will keep the tubers from shrivelling. How much roasting, I would ask, do our own British kinds receive throughout the winter months?

Dendrobium crepidatum.—Although this plant has been introduced to our gardens for some forty years, it is seldom met with in flower. This is much to be regretted, as it flowers about the

middle of February, and proves very useful during the most dreary months of the year. I recently saw it in the Burford Lodge collection. The growths vary from a foot to 18 inches in length, and the flowers, borne on the pendent stems two and three together, are white, suffused with a lilac tinge towards the extremities; lip deep yellow with a white tip. It is a native of Northern India.—W.

Cattleya Dowiana.—The end of the month of March is a curious time to find this species in flower, yet amongst the quantity of *Cattleyas* now blooming, in the St. Albans Nursery a very fine variety of this beautiful plant is now in bloom, affording, with its bright nankeen-yellow sepals and its deep crimson-purple lip streaked with gold, a lovely contrast to the immense quantity of *C. Trianae* which still maintain their beauty. The *Cattleyas* in this establishment are very strong, and the manner in which they root is simply marvellous.

Oncidium obryzatum.—A cool house species from Peru, which some years ago was to be found plentifully in collections, but of late it has not been so frequently to be found in bloom. I, however, recently noted it flowering in the St. Albans collection in great beauty, its very fragrant bright-coloured blooms rendering it worthy the attention of all growers of cool Orchids. The spike is much-branched and profusely laden with blooms of a very bright yellow, the long narrow sepals and petals being blotched at the base with bright brown. On the claw and beneath the crest is a broad blotch of bright brown, and about the crest and on the side lobes are numerous spots and dots of the same colour.—W. H. G.

Cattleya Harrisoniae.—Fine examples of this plant are now producing their flowers in Mr. Sander's collection at St. Albans, and although we have now many species of this genus which far exceed it in size and in the richness of colour, this old plant is by no means unworthy of a place in the choicest collection. It is one of the very first *Cattleyas* introduced to cultivation, having appeared in our gardens upwards of fifty years ago. The sepals and petals are rosy purple, unspotted, and the lip is of the same colour, wrinkled on the surface, stained with yellow in the centre, and prettily frilled round the edge. The flowers are some 4 inches or more across, thick and fleshy in texture, and last long in full beauty. The flowers are borne three to five on a scape, and the plant when growing vigorously blooms twice in the season, for after the next growth is made flowers will be produced from it in the beginning of autumn. The ease with which this plant may be managed and its free-blooming qualities are special recommendations for it to amateurs, more particularly those just beginning the culture of Orchids.—W. H. G.

Dendrobiums from Cheltenham.—From Mr. J. Cypher, of the Queen's Road Nursery, comes a magnificent lot of forms of *Dendrobium* nobile. Amongst them are *D. n. pulcherrimum*; the large mass of this is truly charming; the sepals and petals are nearly pure white, faintly tipped with mauve; lip white, saving the large dark blotch at the base, and with just the faintest tinge of mauve on the recurved tip. This beautiful form was originally introduced to cultivation by the late Messrs. Rollisson, of Tooting. *D. n. giganteum*.—This Mr. Cypher says is the strongest grower of all the nobile section. The flowers are large; the sepals and petals are long, heavily suffused with rich rosy-purple, which becomes pale towards the base; lip long and pointed, the edge in front being boldly margined with rosy-purple and stained at the base with deep maroon-purple. *D. n. pendulum*.—This is an old and very distinct growing kind, and its flowers are large, well coloured, broad and distinct, the upper half of the sepals and petals being heavily marked with brilliant rose-purple, which passes into white towards the base; lip large, broad and recurved at the edge, the deep purple-maroon blotch coming well forward. *D. n. superbum* has larger flowers than the last and the colours are more distinct, the upper half of the sepals and petals being heavily tipped with rich rose-purple,

the basal half white; lip large, the blotch at the base very dark, leaving a broad border of pure white, the recurved tip being heavily marked with bright rose-purple. With the above also comes a beautiful bunch of *D. Ainsworthi*, which looks charming beside the rich colours of the last-mentioned kind. In this form the sepals and petals are pure white; the lip is creamy-white in front, the base being heavily blotched and streaked with amethyst-red. These *Dendrobies* are extremely useful plants; they make a brilliant display for a very long time, while for cutting from they are extremely valuable.

Oncidium superbians.—This is another of the *O. macranthum* section, well deserving the attention of growers of cool house Orchids, although it at present appears to be confined to the best collections. The spike grows several feet in length, branched, and many-flowered; the blooms, although smaller than those of *macranthum*, measure between 2 inches and 3 inches across; the sepals are all of a rich deep brown hue, the dorsal much the largest, petals yellow, the basal portion blotched and streaked with bright brown; the lip, as in all this section, small and of a deep rich purple. It comes from New Grenada and thrives in the coolest house. It was recently very fine in Sir Trevor Lawrence's garden.

Lycaste Measuresiana is just now exceptionally fine in The Woodlands collection at Streatham. Here likewise I find the richest-coloured forms of this plant, and it undoubtedly is the finest variation of the fine old *L. plana*. The sepals are of a reddish bronze with green points; the petals project forward and are white, this almost covered with bright rosy-purple dots, which are arranged in lines, but do not extend to the edge, and thus leave a marginal border of pure white. The lip is smaller than the petals, but similarly coloured. In the worst forms the spotting is less dense, but all are beautiful. The great number of flowers borne by a single bulb renders it a very gay and ornamental plant. It thrives best under cool treatment.—W. G.

Cypripedium Hornianum.—This seedling, which was raised by and named in honour of the gardener to Baron N. de Rothschild, I recently noted flowering in Mr. Measures' collection at Streatham. It is a hybrid between *C. Spicerianum* and *C. superbians*, with leaves faintly tessellated in the way of the last-named plant; the flowers are medium-sized, and in this respect will, no doubt, improve, as the plant was a very small one; the dorsal sepal is white, with a very deep central band of blackish purple, and tinged with green; the petals, freckled with purple on a light green ground, are flushed with lilac towards the edges; the lip is of a dull lilac-purple, the incurved portion lilac, freckled with black; staminode lilac, with a white border. This plant will, no doubt, improve by another season, and I look forward to seeing it introduce a fresh shade of colour to the family.—H.

Cattleya Trianae Measuresiana.—This is perhaps one of the very finest forms of this species which has yet been flowered, and certainly it is the very finest coloured variety which I have seen. The bulbs are short, and, like the leaves, are deep green, the peculiar style of the plant rendering it distinct; the flower is upwards of 7 inches across, whilst the petals themselves are 3 inches in diameter. The colour is rosy lilac; lip large, beautifully frilled round the edge; the colour on the outside of the side lobes is rosy purple, the front of the middle lobe being bright clear brilliant purple, with two orange spots inside the throat, somewhat resembling a *C. gigas*, although, of course, distinct from that plant; the rich purple markings are continued along the throat to the base of the lip. This unique gem is now flowering in The Woodlands collection at Streatham.—H. G.

Odontoglossum Schillerianum.—By its name being associated with the Mr. Schiller, whose celebrated collection of Orchids was in existence until a few years ago, one would imagine this to be an old plant, but it was not until about six years ago that it became an inmate of our gardens, having been introduced by the Messrs. Sander, of St.

Albans. It first flowered, I believe, in the Burford Lodge collection, but the finest form which I think I have yet seen was flowering a short time since with Mr. Sander. The flowers are upwards of 2 inches across; the sepals and petals are yellow, blotched irregularly with bright brown; lip large for the flower, bright brown, with the front portion yellow. This very pretty species was discovered in Venezuela upwards of thirty years ago.—W. H.

ORCHID FLOWERS FROM BATH.

FROM Mrs. Studd, 4, Royal Crescent, Bath, comes a beautiful assortment of blooms, which from their size and brilliancy of colours at once disclose the purity of the atmosphere and the condition of the plants. Amongst this group are many fine forms, to wit a grand bloom of *Cymbidium Lowianum* from a plant bearing ninety-eight flowers, a superb form of *Odontoglossum maculatum*, the plant bearing four spikes; the flowers are large, measuring nearly 3 inches across, the sepals rich chocolate-brown, the petals and lip rich yellow. The lower half of the lip is transversely blotched with chocolate, marked round the edge with flaky streaks of the same colour, and spotted on the disc with reddish chocolate. I have often wondered why this beautiful plant is so sparsely grown. The gathering also includes an immense bloom of *Dendrobium Wardianum* measuring upwards of 4 inches across, the petals very broad, and the lip very large, deep rich orange in the centre, with the two usual spots of maroon-purple at the base—this is truly called giganteum; excellent forms of *Odontoglossum triumphans* and *O. Wilckeanum*, the latter from a plant with thirty blooms; a grand *O. Halli*, and also of *O. luteo-purpureum*, from a spike of eighteen flowers; a magnificent flower of a dark *Dendrobium nobile*, almost as good as the variety called *Sanderianum*; numerous flowers of the beautiful hybrid *D. Ainsworthi* from a plant bearing upwards of 100 blooms, and which must have been a magnificent sight; an excellent variety of *D. Brymerianum*, its flowers large, rich yellow and the lip very heavily fringed with its mossy appendage; and the beautiful yellow-flowered *D. Cambridgeanum* with a very heavy stain of crimson-maroon. A spike of bloom of the old *D. fimbriatum oculatum*, from a plant bearing upwards of a hundred such, is noteworthy. The spike in question bears ten of its rich orange-yellow flowers, which are heavily blotched in the lip with crimson-maroon and fringed, showing well that old plants must not be despised. *Cypripediums* are also well represented by *C. Sedeni superbum*, an extremely rich-coloured form of this excellent hybrid; *C. hirsutissimum*, a grand flower, large, and very highly coloured, and with a very broad dorsal sepal. If the lip of this beautiful kind was as bright as its petals it would be the finest of its race. The size of the bloom and its broad dorsal sepal lead me to suppose this is from the last importation of the Messrs. Low and Co. A very highly coloured and heavily spotted form of *C. Argus* and a beautiful form of the French *C. Regnierii*, which is pure white, heavily spotted with bright carmine, complete the set of the Slipper Orchids. Amongst other things in this superb gathering are good *Cattleya Trianae*, one or two forms of *Lycaste Skinneri*, *Dendrobium nobile splendens*, *Phalenopsis amabilis*, a grand *Masdevallia Veitchiana grandiflora*, &c.—a truly grand box of blooms, but giving only a small idea of the beauty of the whole collection. W. H. G.

SHORT NOTES.—ORCHIDS.

Cœlogyne conferta.—This close-growing, pretty species is now completely covered with its chaste white flowers, which at first sight have somewhat a resemblance to those of *C. ocellata*, yet when examined they are very distinct. The side lobes of the lip are streaked with orange; the front of the lip is yellow, narrowly bordered with orange, leaving a broad white front portion which is recurved at the tip. It is a veritable gem.—G.

The white Lælia anceps.—Plants of this in Sir Trevor Lawrence's collection are growing vigorously, and have, I believe, flowered fairly well this

spring. The secret appears to be that a greater amount of heat is given these varieties than to the ordinary forms. It has occurred to me for a long time that this was required by these delicate forms, and I again beg to draw the attention of those growers of them who have not yet succeeded with them in a satisfactory manner.—W. H. G.

Dendrobium Waltoni.—I have to thank the Rev. F. D. Horner, of Kirkby Lonsdale, for a flower bearing the above name, and which he says he received as a supposed natural hybrid between *D. crassinode* and *D. Wardianum*. It is not the same form referred to by me (*GARDEN*, March 23, p. 232), and I cannot but think that both Mr. Horner's and Mr. Tautz's forms are but poor varieties of the superb *D. Wardianum*. I am quite unable to say if Mr. Horner's flower is correctly named, as I have never before seen one under that name.—W. H. G.

GARDEN FLORA.

PLATE 695.

LÆLIA ALBIDA.*

THIS is one of the Mexican *Lælias* which, having been introduced to this country upwards of fifty years ago, has become well known to all growers of Orchids, although it is only within this last year or two that any of our gardeners have obtained a mastery over this species, and have been able to flower the same plant for three or four years in succession. This difficulty in cultivation undoubtedly arose from a want of knowledge of the climatic conditions under which the Mexican *Lælias* grow in a state of Nature. Now, however, we are told that these plants are subjected to a severe change during the year, and that there is something like 100° of difference in the temperature between the growing and the resting season. This will bring my practice and advice nearly right with these and most other kinds of Orchids, for I have long ago proved that Orchids rest in a far better manner and with better results if they are subjected to a reduction of temperature instead of in a dry, hot atmosphere. To the improvement in the management of the Mexican *Lælias* I think horticulturists are indebted to the Messrs. Backhouse, of York, who have imported great quantities of these plants, and who struck out a system of treatment as nearly in accordance with their natural surroundings as could be obtained in this country, and their labours have been crowned with marked success. As, however, in the majority of gardens these plants are not grown in sufficient quantities for large houses to be devoted entirely to them, the next best results I have found in the following treatment: In the house devoted to the growth of these plants from Mexico the temperature should be kept at about 65° by day and 58° at night by artificial heat. In the summer months air should be freely admitted, and the plants should be subjected to the full influence of sunshine and light, and during this time they will require syringing two or three times in the course of the day. After growth is finished the water supply must be gradually reduced until at last it is stopped altogether, when the plants may have a total rest for a time. Do not carry this drying system to the extent of shrivelling the bulbs, for in this matter, I think, lies the secret of success with these Mexican *Lælias*, but at the same time care should be exercised to avoid a premature awakening. During this resting season the temperature by fire-heat must be considerably reduced, the heat of the *Odontoglossum* house being ample, but the sun should be allowed to

* Drawn for THE GARDEN at Mr. Sander's, St. Albans, January, 1887, by H. G. Moon. Lithographed and printed by Guillaume Severeyns.



shine upon them at every possible occasion. *Lælia albidia* should be grown upon a raft or in a shallow basket, and these must be well drained; the plant or plants should be firmly fixed, and a small quantity of rough peat fibre and *Sphagnum Moss* placed about the roots, but do not commit the too common error of overloading the roots with soil.

L. ALBIDA is found growing in the neighbourhood of Oaxaca, at an elevation of from 7000 feet to 8000 feet. It is a somewhat small-growing species, with roundish-clustered pseudo-bulbs; these are smooth when young, becoming ribbed with age, and bearing one or a pair of leaves, which are leathery in texture and deep green. The scape is borne at the top of the bulb, and bears from five to eight flowers, which are arranged in a two-ranked fashion and are delicately fragrant with the odour of *Primroses*, and last long in beauty. Sepals and petals pure waxy-white, the latter slightly recurved at the tips; lip obovate, being of a soft, pleasing rosy hue, and streaked with yellow in the centre, whilst the inside of the lateral lobes is veined with reddish-pink. There are several coloured varieties of this species now in cultivation, of which the following are worthy of note:—

L. ALBIDA SULPHUREA.—The best form of this variety which I have seen is somewhat stronger in its growth than the typical plant, and the flowers are also larger, but in shape they are identical; the colour of the sepals and petals is deep sulphur-yellow; the lip is also sulphur-yellow, with a narrow border of rose, and the disc streaked with orange-yellow raised lines, whilst the interior of the side lobes is transversely streaked with rose.

L. ALBIDA BELLA.—This variety produces somewhat larger flowers than the type, but they, like all the *albida* section, yield a delightful odour of the Chinese *Primrose*. The sepals and petals are creamy-white, faintly bordered with lilac; lip white, the intermediate lobe broadly bordered with deep bright rose, and bearing on the disc three ridges of rich yellow.

L. ALBIDA MARIANÆ is a form in which the sepals and petals are flesh colour on first opening, but change with age to delicate salmon colour; the lip is lilac-mauve, the side lobes streaked with yellowish buff.

L. ALBIDA and all its varieties produce their flowers during the autumn and winter months, thus rendering the blooms especially valuable, and as the type is imported in large masses it has become plentiful, and thus comes within the reach of all *Orchid* growers. A more beautiful little gem it is scarcely possible to grow.

W. H. G.

Lycaste Skinneri.—From a number of readers of *THE GARDEN* I have received flowers of this species for an opinion, but although there has not appeared a bad one from amongst the whole consignment, and every flower has been different, there really has been nothing to call for extra notice. It is a most beautiful species, extremely variable, and in collections which have been established sufficiently long the plants are found to produce an immense quantity of blooms, which last some two months in perfection. This, combined with the fact that it blooms during the winter months and grows best in the cool house, should commend it to every grower of this order of plants.—H.

Cypripedium tonsum.—This species, which is not at present common, is usually notable for its want of colour, and I believe in former notices of this plant I have expressed the opinion that the absence of this detracted from its beauty. I recently, however, noted a departure in this direction in a plant distinguished as *Jules Heyes'* variety. The plant in question had the upper part of the dorsal sepal pure white, the lower portion being streaked with deep brownish purple and flushed with rose, while the petals were more heavily spotted with black than in the type. It is one of

the Messrs. Veitch's importations, having accidentally been collected and sent home from Sumatra.—H.

FLOWER GARDEN.

AURICULAS—YELLOW SELFS.

WITH reference to "W. S. B.'s" allusion to the above, *Sunshine* is a seedling of mine which I raised some years ago and gave away, and so also was *Hetty Dean*. *Buttercup*, of which I have nine plants, is a seedling of 1887. It is such a beauty, and so far ahead in yellows, that I resolved to keep it, and if it is in bloom for the London show, I will bring it with me. *Stadtholder* I have grown for many years, but the more I grew of it, the more yellow selfs kept appearing among my seedlings, and at last I gave all my plants of it away. I do not know where it may be found now; Mr. H. Wilson, of Halifax, had the plants I last saw of it. *Stadtholder* has beautiful snowy foliage, and the flowers are of a *Buttercup* complexion, but of a lemon-gold. By that complexion I mean that the petal surfaces are not velvety, but hard and glittering. The tube is a rich gold, but beyond that, *Stadtholder* as a florist's flower has no good points. The paste is miserably thin and scattered, and narrow to downright meanness. It would hardly pass *Standard I.* in the *Auricula National School*. The petals also are deeply notched and have a ribby uneven surface. It is a most handsome plant in flower, making literally a golden ball of bloom erect above its snow-white leaves. I gave it the liberty of a wild species, and allowed it to carry all the bloom it liked to make. Yellow selfs appear to be difficult to obtain with anything like the smoothness, softness, roundness of other selfs, and particularly with anything approaching their dense white paste. That is why I kept *Buttercup* as being the only good self in yellow that I have raised. Even *Buttercup* is reminded of its undue influence as a parent among selfs and edges, and is removed from among them to flower.

Why does "W. S. B.," with the very page before him, so carelessly misquote Mr. Douglas? Mr. Douglas is right, and "W. S. B.'s" dislocated version is wrong. As poor *Artemus Ward* would have said, "Why this thushness?" Mr. Douglas (p. 605) never said that a new all-round collection could best be raised from a couple of the best *Auriculas* to be had. But, speaking of the self class only, he does say (and I agree with him) that he

Would rather have Mrs. Potts and Heroine than the whole dozen selfs named by "W. S. B." I would raise seedlings from them, and soon be abreast of the times—

In selfs, of course! So in green edges, with two of the best green edges accessible, and so all round the classes. I do not see how "W. S. B." could miss that inference. It is simply his own misconstruction which appears to him "absurd in the extreme," which we will innocently allow! Now, give me two of the best *Auriculas* in each of the classes, and from my experience with the *Auricula*, I will say the flower would contradict "W. S. B.'s" assertion that it "would take ten years to get 100 presentable plants." Long within that time, and with only the old sorts to work from, I had many seedlings equal to the second and third-rates of the day. But I said nothing about them, because I would not turn more of such into the world, my aim with the flower being to lead it on to the higher attainments, only to be reached from seed. But I can say that every single seedling has repaid the cost of raising it, not so often in complete satisfaction in classical

honours, but in beauty, variety, oddity, and inventiveness of habit, always.

Burton-in-Lonsdale.

F. D. HORNER.

JACKS-IN-THE-GREEN.

PROBABLY the introduction of rich and many coloured border *Polyanthuses* into gardens has served to check the cultivation of these old-fashioned forms known as *Jacks-in-the-green* and *Jackanapes*. Relatively there is little difference between these assumed forms, because from seed saved from one form will come both, assuming, as is usually the case, that *Jacks-in-the-green* have large leaf-like sheaths surrounding the flowers, whilst with the *Jackanapes*, sometimes also termed *Galligaskins*, the sheath or calyx is much split and presents a very odd appearance. Certainly in earlier days the flowers produced by all these erratic *Polyanthus* forms were poor and almost inconspicuous. They were regarded as curious if not attractive, and having regard to the average quality found in garden *Polyanthus* flowers, were not so much out of the running. But in gardens now, the *Jack-in-the-green* is a great rarity. Very likely few people know that even these oddities have not escaped from the improving hand of the florist, and that in some cases seedling plants will produce flowers of fine form and rich colouring set in a huge collar of green leafage. One of the very best of this type—*Crimson Beauty*—certificated a few years since at South Kensington, has flowers of the best form and of a deep crimson colour, and is, indeed, in relation to the particular section of spring flowers to which it belongs, a perfect gem. It is true that, owing to the length of flower tube, as is the case with the *Hose-in-hose* forms, fertilisation is not free and seed is scarce, as compared with its production by the ordinary forms of the *Polyanthus*. I have found true *Jacks-in-the-green* now and then to come from the border *Polyanthus*, but still rarely. On the other hand, the *Jack-in-the-green* will usually produce some 60 to 70 per cent. of flowers with the inordinate calyx, and some few come as ordinary *Polyanthuses*. The development of the green sheath or calyx into a huge green leafy ruff or collar for the flower is as odd an element in plant development as is the change found in the *Hose-and-hose* flowers, wherein the sheath becomes a lower floral pip. If one tithe of the attention given by some amateur gardeners to show flowers were bestowed upon these interesting spring flowers, it is impossible to indicate what charming forms may not be produced. The *Hose-in-hose* *Polyanthuses* seem to be somewhat less set in character than are the *Jacks-in-the-green*, for the former vary a good deal in the production of both single and twin flowers. That, however, may be to some extent due to the contiguity of large quantities of ordinary *Polyanthuses*. The plant physiologist might find matter for an instructive paper in dealing with the three peculiar developments from ordinary form found in the *Polyanthus*, viz., abnormal sheath, or calyx; the production of twin flowers, as in the *Hose-and-hose*; and doubling, as found rather rarely in these plants, but more so in the *Primrose*. Doubling of the *Polyanthus* so far has been an uninteresting feature, whilst oddly enough in such allied plants as hardy *Primroses*, alpine *Auriculas*, and Chinese *Primroses*, we have many beautiful forms. But then these three kinds very rarely if ever indeed give those quaint forms of floral development found in *Jacks-in-the-green* and *Hose-in-hose* flowers. Generally the *Jack-in-the-green* types are robust growers, and with ordinary care may be fairly rapidly increased by division. In some gardens propagation by division and by seeding is not sufficiently attended to, hence old plants disappear during adverse seasons. Dividing and replanting should be done every two or three years, and always in the autumn. A. D.

Iris reticulata.—The flowers of this are valuable when cut. In these days when the demand for cut flowers continues to increase, such useful hardy bulbs as this should be more grown. It is of free growth, as I recently observed at Didlington Hall some good patches of this lovely early gem in full

beauty. Some of the patches had from twenty to thirty blooms open at one time. I need hardly say what a grand show these made surrounded with Snowdrops, Crocuses, Primroses, and other spring flowers. Mr. Stocking, the gardener, told me it increased in a remarkable way with him, as a few seasons ago he only had a very small patch, but the plants had increased so fast that at the present time I counted about ten very large clumps. It is evident that from the way *Iris reticulata* succeeds here it is not particular as to soil. In this garden the soil is light, dry, and sandy. Mr. Stocking holds this *Iris* in high esteem for cutting from. The treatment is as follows: In the autumn when the foliage has died off, the roots are taken up if they are crowded, divided and placed in fresh positions in the border. The strongest are planted in one clump. This *Iris* is generally in bloom in February, but this season it is almost a month later.—J. CROOK, P.S.—I ought to have mentioned the lovely scent this *Iris* has; to-day as the sun was shining on it the perfume was very powerful, and quite perceptible at a good distance from the plants.

The Caucasian Scabious.—I was surprised to see in *THE GARDEN* that some readers experienced a difficulty in the cultivation of this beautiful and useful plant. But it is only another instance of how soil and situation influence the behaviour of some plants. I first became acquainted with this *Scabious* about five years ago, and never had the least difficulty in getting it to grow. Last spring I had occasion to move a plant, but it never checked it in the least. It quickly recovered and commenced to flower, and was in full bloom when the frost came and cut it down. I have cultivated it in a soil of a medium character, neither very light nor very heavy. Those individuals who are inclined to believe that the illustrations of flowers given by the horticultural press are not always truthful representations have certainly no reason to think so of the figure of this *Scabious* given recently in *THE GARDEN*. The individual flowers, when not disfigured by rain, are quite as beautiful as those represented on the plate. The peculiarity of the colour must have rendered it difficult of reproduction.—J. C. C.

Seedling Petunias.—Years ago hardly anyone thought of raising seedling *Petunias*, and the few then grown were named sorts raised and perpetuated by cuttings. But now the thing is quite reversed, and the most of what are met with are seedlings, and very beautiful they are, especially such as have been raised from good strains. The flowers of these are not only large and of fine substance, but exquisitely coloured and marked, some being dashed or striped with white or cream colour on a rich dark ground. Not only are there plenty of these single varieties to be had from a packet of seed, but double ones, equally showy, or perhaps more so, may be raised in the same way, as those who make a speciality of this class of plants hybridise them for the purpose, and use pollen from double flowers to fertilise the singles, and then the seed from these gives a goodly number of doubles. Some of these come exquisitely fringed, and are admirably adapted for pot culture; and so, too, are the singles, which are also of great value for large beds and borders. The best way, I think, of managing them in the last-named position is to run a piece of coarse meshed wire netting round each plant, through which the branches of the *Petunias* run, and so support themselves and quite hide the netting from view. Trained *Petunias* to sticks entail a deal of work, and do not look so effective or natural. If left to themselves they run about on the ground too far and are beaten down by wind or rain. To raise seedling *Petunias* it is necessary to be particular about the sowing, or rather the preparation of the pots, which should be drained and partly filled with soil, finishing off at the top with some fine compost mixed with silver sand. This should then be pressed smoothly and firmly, and after being watered, the seed scattered thinly and covered slightly, and a frame of glass laid over the pot. This keeps the soil uniformly moist by preventing evaporation, and also maintains regular warmth, thus assisting very materially

in the germination of the seed. As soon as this takes place the glass should be removed that the seedlings may have air and full light, or they become drawn at the start. As soon as the plants are large enough to handle they should either be pricked out or potted singly into 3-inch pots and placed in a warm house till they get good hold of the soil, after which any pit or frame will suit them till they will bear standing out in the open. This they will do by the end of May or early in June, and the growth they make under such conditions is sure to be stocky. If kept under glass they must have full exposure and plenty of air to induce the same habit and keep the plants dwarf. For fair-sized specimens 8-inch pots are quite large enough, and good sound loam is the best potting material.—S. D.

THE AURICULA.

THE critical season for these plants is now upon us. The show varieties, as they are called, are very delicate subjects to handle; the flowers are crowded with farina, and in many instances so also are the leaves. The object aimed at by the cultivator is to produce perfect trusses and the farina on the leaves untouched. We have a few plants at present in frames, but much the largest portion of them is in the Auricula house, where they can be attended to in all sorts of weather. When we had nothing but frames in which to grow our plants, it was found that they required constant attention in the way of covering and uncovering with mats, &c., and what was worse, when the plants really wanted water at the roots, it was almost impossible to reach them owing to the high winds or driving rain, sleet, or snow. The cold, damp atmosphere would also sadly injure the flowers sometimes. I well remember having something like a dozen lights filled with Auriculas in full bloom, and for two days a close, yet cold atmosphere with drizzling rain prevailed, and the flowers became, even through the closed lights, covered as it were with a fine dew, and when the change came all the selfs were spotted with decay and quite useless; while the green, grey, and white-edged varieties suffered a good deal, but were not rendered quite useless. Wherever the farina was thickest the flowers were somewhat protected by it. In a small heated house this would not have happened, as the atmosphere could have been kept dry by the pipes, and the lower ventilators might have been open. The plants of all the best varieties are growing with great vigour, and give promise of a good display of bloom, but unless the weather changes very soon the blooming season will be as late this year as it was last. We may expect warm weather soon, and coming after such long-continued cold and dull weather, the plants will suffer if they do not have a thin shading thrown over them. The alpine are much more hardy, and we do not even trouble to take them out of the cold frames, as they stand both wind and cold well; indeed, some of the very best varieties, such as *Diadem* (Gorton), have formed immense clumps in the rock garden, and there they produce scores of trusses of their lovely flowers without any shelter whatever.

We find plenty to do amongst our plants just at present. The main collection of flowering specimens requires to be kept well supplied with water at the roots, and it is necessary to look over them daily for this purpose. Do not water any unless they really need it. The offsets put in last autumn are now all ready to be re-potted, but they must not have too large pots—rather under than over-do it, especially when dealing with some of the small-growing varieties. Some of them, like the new *Heroine* (Horner) or *Rev. F. D. Horner* (Simonite), will not be injured by having rather more pot room than *Acme* (Read) or *Conservative* (Douglas). All the offsets that were ready to take off last month and this have been seen to; they were mostly planted singly in 2½-inch pots and placed in hand-lights on the north side of a wall, where they require very little attention indeed. Seedlings are coming up freely, and most of them have been potted off, or rather pricked out, a dozen or more in a 3-inch pot. They are in the Auricula house, and require to be grown on carefully. They will

all flower in the spring of 1890 if they are grown on without any check through the coming season, and will do best in frames after the middle of next month. J. DOUGLAS.

Polyanthuses.—As I have been taking advantage of dry, open weather to dibble out *Polyanthus* seedlings, I have thought it was worth making a note of, as some writers on flower gardening advise the sowing of seed of *Polyanthuses* in the spring. Of course, where no seed has been sown, better sow now than not at all, and save a year as far as possible. I advise the summer sowing of seed—that is, as soon as thoroughly ripe, for many reasons, but specially as several months are thereby saved. The plants I am now putting out are as far advanced as seedling plants would be at midsummer from a spring sowing. These, now dibbled out in rows a foot apart, will become established before the summer drought sets in; therefore, whilst summer-planted seedlings would be in the heat hanging between life and death unless well watered, the spring-planted ones can resist drought, make fine plants, and produce big heads of bloom the following spring. The seeds in my case were sown in beds in the open ground; then later on the plants were lifted and dibbled up into frames, and thus kept growing all the winter. When the soil is good and the autumn favourable, many of these seedlings will bloom the first year. The work incidental to sowing and transplanting falling at a time when other duties are not so pressing is also of advantage. Strong plants lifted from the open ground now and planted into frames or potted will bloom earlier and very beautifully.—A. D.

The common Snowdrop.—In his most interesting notes on *Snowdrops*, page 209, Mr. Melville, of Dunrobin Castle Gardens, mentions two acres of this in full bloom under the old trees. As this appears in *THE GARDEN* of March 9 it was probably written in February, or very early in March. Writing from East Anglia on March 20, this same *Snowdrop* is barely as yet in full bloom under trees. This seems to confirm an idea that I have formerly ventilated in *THE GARDEN*, viz., that the *Snowdrop* is earlier in Scotland than in certain parts of England—Suffolk, to wit. I should like also to ask Mr. Melville whether the single *Snowdrop* doubles at all at Dunrobin Castle. My recollection of the *Snowdrop* in a state of Nature in Scotch woods is that it was always single. In East Anglia in a state of Nature it is nearly always double. More singular still, here the double multiplies fast, the single slowly, or not at all. Can any reasonable explanation be offered by botanists or others of these curious facts? To me a *Snowdrop* doubled is more than half spoilt. Can it be that the single Crimean has caught a weak taint from its single sister *ivalis*? So much is certain, that this fine *Snowdrop* grew like a weed here for many years, but this last two or three it has become miffy, and this season we resolved to replant a number of small bulbs in fresh soil. We had difficulty in finding a sufficiency of bulbs from the old beds from which we could have dug a bushel or two of bulbs a few years hence. Bulbs and leaves alike also appear puny, in indifferent health, and of inferior size. D. T. F.

Lathræa clandestina.—Last June I sent you flowers of the above for naming, in doing which you remarked that this is “an extremely rare plant, probably the only established piece in England.” This being so, you may be pleased to hear that the plant is now throwing up several strong growths, and covering a space more than three times as big as was covered by it last year, for then only one piece about 4 inches across was found, and now there are several crowns spread over about a square foot of ground, the habit it has of appearing at some distance away from the original place apparently accounting for the name. This increase is the more remarkable, as I believe the original bit was planted several years ago, but it could not have increased much in size till this year. Some of the readers of *THE GARDEN* may be interested to know the conditions under which it is growing. It was planted about 2 feet above the water level at the

foot of a deciduous Cypress, which is growing almost at the bottom of a slope and within 6 feet of the edge of a pond. The ground about here can never be very dry, as the pond has always a good depth of water and gets the natural drainings from a garden near. The slope is covered with Grass and Moss; the Lathrea nestles amongst this and is completely hidden till sought for, except at flowering time. The only attention I have given it has been to pull away the Twitch Grass, which seemed likely to strangle the growths, leaving the finer Grass and the Moss. The whole growth is very curious at present, being of a creamy white with just a little purple head—the coming flowers—at the axils of what may be called the leaves. In shape it reminds me most of the tip of an open Spruce cone. The flowers are very much like those of a rosy purple Crocus in shape, height, and general appearance. They come in bunches, and might easily be mistaken for a clump of Crocus if not carefully looked at. All the new growths are made farther away from the tree and nearer the water than that of last year, a significant fact that may well be remembered by anyone trying to establish this very curious and remarkable plant.—J. C. TALLACK, *Livermere Park*.

Clematis Madame Furtado Heine.—A new variety of Clematis, which promises to prove an important acquisition to the hybridist, is announced in the *Revue Horticole*. Hitherto the only Clematises which bloomed more or less continuously until stopped by the early frosts were the various coloured varieties of *C. lanuginosa*, but the new Clematis, Mme. Furtado Heine, raised by M. Christen, nurseryman, at Versailles, will doubtless be the means of introducing a distinct race of large-flowered continuously-blooming forms of this genus of plants. The newcomer is the offspring of an improved form of *C. lanuginosa* crossed with *C. Viticella rubra grandiflora*, the latter being the pollen-parent. It produces very large symmetrical flowers of a vinous red colour with crimson reflections. The plant is of vigorous growth and remarkably free flowering, and is well adapted for embellishing walls and arbours, especially when planted in soil that is of good staple, sandy, moist, and half-shaded from the sun from ten a.m. to four p.m. It is propagated from cuttings or by grafting. The cuttings are taken from young wood of the current year, placed in heath soil under a cloche and rooted in a propagating house without artificial heat. When grafting is employed the scions are side-grafted or cleft-grafted on pieces of root, which are then planted close together in the open ground, or they may be planted in pots and placed under cloches, where a union of the graft soon takes place. Clematis Madame Furtado Heine will be sent out by M. Christen in the course of next May.

Yellow ground Carnations.—I am pleased to see that at the annual exhibition of the Carnation and Picotee Union, which is to take place as usual in Mr. E. S. Dodwell's garden, Stanley Road, Oxford, on Tuesday, August 6, prizes are to be offered specially for yellow ground Carnations. Three new classes have been added, one for six blooms of Mr. Gye's Kilmurry yellow ground seedlings, for which nine prizes are given out of a special prize fund, not less than three blooms to be dissimilar; also a class for six blooms, any raiser's flowers, these to be dissimilar; and nine prizes are also offered, and eight prizes are awarded for one bloom only. These prizes should bring a thorough representation of a beautiful class that is rapidly increasing in the number of varieties. A note appended to these classes states that the judges are instructed to award these prizes to the best and most effective flowers, whether selfs or with markings, and whether the markings be longitudinal or curvilinear, or of mixed character. This wide range should secure a thorough representation of the yellow varieties, and as the demand for the Kilmurry seedlings has been large—should the season prove favourable—a large number of flowers will be certain to be staged in competition. There is one great advantage in having the exhibition in Mr. Dodwell's garden; his large collection is in bloom at the same time, and visitors have the opportunity

of inspecting the habit of growth of any particular variety they may fancy. Generally, it may be said of the newer yellow ground varieties that they are of robust growth, and therefore of comparatively easy culture. Germania, Will Threlfall, Amber, Mrs. Reynolds Hole, Almira, Annie Douglas, Agnes Chambers, Colonial Beauty, Dorothy, Miss Proctor, and the Kilmurry seedlings among others come under this description, so that there is no lack of vigorous growing varieties. At the meeting of the Oxford Union, for the first time the premier yellow ground flower will be selected, and the selection will be made from all classes of yellow grounds.—R. D.

FLOWER GARDEN NOTES.

PYRETHRUMS.—There are few hardy perennials that do so well as Pyrethrums under the most ordinary conditions both of soil and situation. As regards the former, we have them planted in light sandy loam, that may be described as poor and dry, as well as in a low-lying, damp position, and, except that in the flowering season those in the light soil require an occasional watering, there is really little difference either in the growth or flowering of the plants. Those in the damp soil are somewhat more vigorous and the flowers continue longer in perfection, so that of the two the moist, heavier soil is to be preferred. As to varieties, they are so numerous and many of them so nearly alike, that I long since gave up the preservation of names. Of a large collection of named kinds, bought some five or six years ago, the names have all been allowed to disappear, and with that disappearance the bother and labour of labelling without any diminution of beauty. The variety of colour is great, ranging as it does from pure white to the deepest maroon. The double-flowered forms are most generally grown, and are, I think, the most telling border flowers. The single varieties are very good, and for use as cut flowers are more telling than the double forms, which being weighty do not show themselves in the vases as do the lighter single flowers. Moreover, the single-flowered forms grow so freely that plenty of greenery (their own foliage) can always be cut to arrange with the blooms, and the foliage being light and Fern-like, it should be used in preference to any other green. The finely-cut foliage and dense tufty growth of all the kinds, even when not in flower, render them excellent subjects for herbaceous borders. As to increase of stock, nothing is more easy, as a moderate-sized tuft will make half-a-dozen nice plants. The best way of doing this is to lift the plants entire, and with a sharp knife cut up the tufts. Replant firmly at once, water well, and the plants will at once start into growth. Some clumps that we have just done we expect to flower by the end of June and onwards. Most excellent kinds can be had from seed sown now in the open border or in handlights. If the seedlings are pricked out on a warm border and planted out finally in the autumn, abundance of flowers may be had next year.

IRIS.—The several sections of Iris are so puzzling to all but experts in hardy flowering plants generally, that it would be well could a plan be devised for giving to the various sections a distinctive name by which the nature, habit, and flowering season of the various groups could be understood. I know for a fact that many otherwise good gardeners are only able to recognise as Irises the germanica section (Flag Iris). The bulbous sections, English and Spanish, are by many unknown, though now that the revival of hardy flowering plants has made it profitable to insert these in bulb catalogues they may in future be expected to become popular. Irises of the germanica section are, I think, the most useful both as border plants and for cutting, and the ready manner of their increase, together with their doing well in all descriptions of soil, make them acceptable plants for every garden. The thick fleshy foliage and roots betoken their moisture-loving propensity, and therefore if there be one part of the hardy plant borders more moist than another, there should the German Flag be planted. The varieties of the recently introduced Kämpferi section

are veritable gems and are as amenable to division of the roots and adaptability for any sort of garden soil as those of the first-named section. A sunny aspect and abundant moisture are necessary to the perfect development of the plants and especially of their flowers. I have had many of the flowers 9 inches across and the foliage fully a yard in length. Of the Siberian dwarf early-flowering sections, my experience does not warrant mentioning, but my impression is that they are too small, and in bad weather so liable to prove a failure that they are never likely to become popular spring-flowering plants. They are, however, so beautiful as to be worthy of any amount of pains by those who have time to attend to them. We have lately been taking offsets from those of the germanica and Kämpferi section to plant in the

HARDY FERNERY in places where the Ferns do not as yet furnish the ground. The moisture will be ample to the well-doing of the plants, but, unfortunately, sunshine will be at a discount and flowers poor; but at any rate the plants will be growing larger and enable us to increase our stock of plants, which will in due time be wanted.

THE DOUBLE SEASON.—If I may call it so—that we get out of our small hardy fernery would, did labour admit, be largely extended—I mean as to space. For the most part the Ferns are deciduous, and from time to time plants and bulbs have been planted amongst the Ferns, so that from February till new Fern fronds push there is constant gaiety. We began with Snowdrops and shall end with wild Hyacinths and Forget-me-nots. Winter Aconites, Daffodils, Primroses, Crocuses, Arabis, wood Anemones, Violets, &c., all help to heighten the gaiety. I ought to add that the green and variegated Periwinkles, a few Retinosporas and Euonymuses add materially to the effect of the flowers. Some few of the Ferns where the rain has washed away the soil would be all the better for a dressing of fresh material, but circumstances hinder its application, and they must wait another season.

GENERAL WORK.—A well-kept lawn is the first requisite to the enjoyment of a flower garden; coarse Grass, weedy, or Moss-grown walks, uncut edgings, and weedy borders spoil the enjoyment of the rarest flowers, and rather than that such a state of matters should prevail it would be better to curtail gardens within limits that means can be afforded to keep in perfection, and let the remainder go. The enjoyment of the little, done well, would be infinitely more than would that of the whole in an untidy state. Too large gardens are by no means the least of the troubles that practical gardeners have at present to contend with. It is now safe to sow annual flowers in the open borders, and here the same remark applies: a few well done will give greater satisfaction than numbers of varieties that lack of labour hinders due attention being paid them. Sweet Peas, Mignonette, Candytufts, Eschscholtzias, Silenes, Nemophilas, Larkspurs, Lupines, Poppies, Scabious, and Salpiglossis are about all we attempt, and these we strive to have good. The manner of sowing is all-important. The soil should be made fine and the seeds sown evenly in drills an inch deep, then filled in with light, finely sifted soil and pressed firmly. Slugs are the only foe to this mode of raising seedlings, and they object to cross rough sawdust and cinder ashes, either of which should surround the little plots, then success is assured. Bedding plants pot off as struck and seedling subtropical plants should from the first be brought up sturdily by being given plenty of room and a place as near the glass as possible.

W. WILDSMITH.

SHORT NOTES.—FLOWER.

Narcissus nobilis.—In my notes on this variety, on page 277, I appear to say that "five" new Daffodils are to be found in the Auvergne. I meant to write "fine" Daffodils, the specimens sent, only one or two in number, being of large size. Please allow this correction to appear, as I know I shall be cross-questioned about these Daffodils by more than one examiner.—C. W. DOD.

Golden Valerian.—How very effective are clumps of the foliage of this fine hardy plant just now.

It is for border decoration one of the most useful among five-foliated plants, the rich golden hue of the leaves standing out conspicuously among the green-leaved plants. To secure a stock of this *Valerian* it is only needful to divide the plants yearly until a sufficient quantity of clumps has been obtained. Even when these have become strong, it is well to lift and replant them every three years at least.—A. D.

CHRISTMAS ROSES.

LIKE Mr. Kipling, of Knebworth, we have had an unusual amount of bloom on our plants this season. On most cultural points we agree with this writer, though hardly on the very vital question of sun or shade sites for the plants. On the necessity of liberal culture and non-disturbance of the roots we are quite at one. Our estimate of the comparative uselessness of coloured varieties for decoration is also alike. A purple Christmas Rose is about as incongruous an anomaly as a purple Snowdrop. In such plants the colour, or rather the absence of all colour, constitutes the very essence of our estimate of the plants' decorative value and beauty and our sentiments in regard to them. On the same principle, a red Lily of the Valley however fragrant would be commercially and decoratively valueless at least for several generations.

As to sun and shade, for many years I grew most of the Christmas Roses in shady places. For the last few years I have grown the two varieties, *Helleborus niger* and the larger variety *H. niger maximus*, at the foot of a Tea Rose wall and also another wall with a southern aspect. The effect on the size of their blooms has been most satisfactory. No doubt the soil has also been good, the treatment somewhat liberal, for, of course, the Christmas Roses have shared in the liquid manure and other good things distributed with no niggardly hand to the Tea Roses above them. That this rich feeding has suited the Christmas Roses is obvious from the fact that other plants on the same aspect, but partly shaded by golden and common pyramidal Yews and not fed with liquid dressings, have neither grown so strongly nor blossomed so profusely. But nothing could have proved more successful so far than this mixture of Christmas and Tea Roses. Even in summer the fine foliage of the former hardly disfigured the base of the Rose wall, while in the later months the leaves are removed and a dressing of manure or rich compost given to keep up the blooming succession of the Teas and prepare the Christmas Roses for their winter work. The only drawback to the combination in this form is the difficulty of protecting the Christmas Roses in bloom without unduly stimulating the Tea Roses on the wall. Very narrow lights, however, laid on their sides do something in this direction, or even a screen of Spruce or Yew boughs. The frosts, however, this winter injured quantities of the bloom, and the specially cold, damp weather kept the flowers rather close to the ground. This shortness of stalk and liability to injury are avoided by planting in beds and covering them with frames, as described by Mr. Kipling (p. 214). But apart from the value of the blooms for decoration, this white sheet of bloom at the foot of the Tea Rose wall was one of the most pleasing sights of this exceptionally dreary winter.

Writing of Christmas Roses, has no one raised or found a pure white variety a little more than half the size of the common *niger*? This would be far more useful than the larger form or any number of purple or flesh-coloured varieties, as it might be used for button-holes. Anything new in this direction would prove invaluable in establishments where the resources are strained to turn out button-holes at the rate of a score a day, and where the cry is ever for more and yet greater novelty. D. T. F.

Hybrid Hellebores.—Your editorial note on Mr. Archer-Hind's Hellebores (see p. 301) suggests that I should say a few words about their cultivation. I have had some of them in my garden for many years, and when planted in exposed places they were nearly always disfigured by the weather whilst in flower, or had the buds damaged before opening. I noticed, however, that when planted

close against a north wall they fared better, especially in sheltered positions. The flowers will stand many degrees of still frost without injury, but they are always crippled if exposed to east winds associated with hard frost. I have never had them flowering so fine as this year, and though many were in bloom before the end of January, they have continued nearly uninjured to the present time. About six years ago Mr. Archer-Hind sent me a large packet of seed saved from his best varieties. From this I raised 200 or 300 plants, which began to flower when three years old. Some of them are as good as any named varieties I ever saw. They seem happy anywhere if the soil is deep and good, and if they can never see the sun or feel the wind, but they do not like to be in the dark. As I said before, they do best when pushed close up to a north wall so as to rest against it. Until I tried this treatment, I felt disposed to root out the whole tribe, they always looked so unhappy after a cold storm from the east.—C. WOLLEY DOD, *Edge Hall, Marsh 31, 1889.*

STOVE AND GREENHOUSE.

KENTIAS AS HOUSE PLANTS.

THE taste for furnishing rooms and halls on festive occasions has done much to show the



Kentia Canterburyana.

suitability of Palms for the decoration of dwellings. There is one difficulty attached to the use of many species in halls and rooms if required to remain for any length of time, except just during the hottest part of summer, and that is their unsuitability for being kept long without heat. The Kentias are amongst the few species that will bear keeping cool. The ability of these Kentias to grow and preserve a fresh, healthy appearance for months in a room, when they stand sufficiently near the windows to get a fair amount of light, is such as to render them especially adapted for use in this way. I have seen a plant of *K. Belmoreana* that has been kept in an ordinary sitting-room for nearly three years, and that has made only a little less growth than if it had been in a greenhouse, each succeeding leaf increasing in size as much as they usually do under greenhouse treatment, whilst in substance and in colour they are in no way deficient. The plant is now over 5 feet in height.

The difference in the varieties of *Kentia* appears to be more in the form and size of the leaves than in any essential distinction that there is in them. *K. Belmoreana* is the best for room decoration, as the leaves are smaller and do not spread so much. They are also more erect; consequently, when the plants get large, or even of medium size, when stood in vases or on pedestals, a person can walk under them better than in the case of the varieties that carry their leaves lower. Another advantage which these Palms possess is that their leaves are remarkably tough in texture, so that they bear a great deal of knocking about without injury. In this they are much superior to *Seaforthia elegans*, the Palm that hitherto has been most sought after for indoor decorations where large or medium sized plants are required. The *Seaforthia* does not maintain its colour like the *Kentia* when kept for any length of time in a room, the leaves turning a yellow sickly hue. Until the last two or three years the high price that the Kentias commanded doubtless stood in the way of their being used in rooms and halls to the extent that they otherwise would have been. But they are now so plentiful that their price has been much reduced, and from the quantities that are now in the hands of the principal growers

Kentias will no doubt soon become much cheaper, and it is likely they will to a great extent take the place of all other Palms where large specimens are required for the purpose in question. *K. Fosteriana* and *Canterburyana*, of each of which an illustration is given, are also good kinds. The Fan-leaved Palms, such as *Latania borbonica*, *Chamærops Fortunei*, or *Corypha australis*, are too spreading, and occupy too much room until the plants get old and very large to admit of being used in the way that the *Kentias* and other more elegant habited kinds are. The *Kentias*, like most other Palms, are easily grown and will bear being kept under-potted for a length of time, provided a little manure water is given them in summer at the time their growth is most active, though the plants are never wholly at rest even when in no warmer quarters than a living-room or a

greenhouse. The best way to manage *Kentias* is to push on their growth whilst they are small by giving them a fair amount of pot room until they are about 5 feet in height. Twelve-inch pots are quite large enough for plants of this size. Afterwards additional root-room should only be given when it is seen that the growth would be stunted unless larger pots were supplied.

Kentias are not very particular in the matter of soil; good rich yellow loam of a somewhat holding nature does the best for them. It should have enough sand mixed with it to ensure the quantity of water which the plants require after they have attained a large size passing freely away, for there should be no attempt at shaking the soil away with the object of renewing it, as the roots are impatient of disturbance. In potting, the soil should be made quite solid in the pots; if it is left loose the plants rarely do well. When repotting is re-

quired it is best to do it in the spring before the growth begins to move freely. T. B.

Thysacanthus rutilans.—A great many Acanthads are now in cultivation in this country, and among them are some whose showy blossoms cause them to be justly valued as flowering plants. One of the very best is this *Thysacanthus*, that blooms during the first three or four months of the year. The flowers, which are tubular in shape, are of a rich bright crimson colour and borne in long drooping panicles, so that a plant of it is more effective when above a yard in height than when it is dwarf. It usually runs up with a straight stem, that becomes devoid of foliage towards the lower part, and consequently the flowers are especially noticeable. It is by no means a novelty, nor is it a difficult subject to cultivate, as cuttings strike easily enough in the spring if the young shoots are selected for the purpose, and having been dibbled into pots of sandy soil are kept in a close propagating case till rooted. In its more advanced stages the plant will grow well in a mixture of loam and leaf-mould, with the addition of a little decayed manure and silver sand. Old plants may, if desired, be grown on year after year, and treated in this way they are very free-flowering.—H. P.

Aotus gracillima.—This leguminous shrub is nearly allied to the *Pulteneas*, and, like the members of that extensive genus, is a native of Australia. It is a plant that produces long, slender shoots, whose upper portion for nearly a foot, or sometimes more, is densely packed with blossoms. The individual flowers are Pea-shaped and of a bright yellow colour with a reddish keel, while the leaves are small and linear. A well-grown plant of this deserves the specific name of *gracillima*, as the long, slender branches dispose themselves in a very graceful manner if they are not tied up in any way. Like most of its class, this *Aotus* will do well in a mixture of peat, fibrous loam and sand, while it requires especial care in watering, as the roots are delicate and easily injured either by drought or by an excess of moisture. After flowering it should be cut back somewhat severely, otherwise it is very liable to run up naked at the base. A rather dry house during the winter is essential to its well-doing; indeed, an atmosphere suitable for Cape Heaths and similar plants will suit it best.—H. P.

Centradenia rosea.—While many melastomaceous plants are remarkable for their large and showy blossoms, the same cannot be said of this, the flowers being small, yet they are borne in such profusion, that a well-grown plant forms a very pretty object in the stove just now. The flat or slightly pendulous, much-divided branches are clothed with long narrow leaves suffused especially on the undersides with a purplish tinge. The small pink flowers nestle thickly among the foliage. A few well-grown plants of it are very useful for decoration, especially indoors, as it stands fairly well, is very effective by artificial light, and grows quickly, so that should it be injured the loss is not great. If cuttings (which strike in a very little time) are put in early in the spring they will make good specimens for flowering the following year, with the ordinary treatment accorded to the general run of stove plants. This *Centradenia* is by no means a novelty, having been introduced from Mexico nearly half a century ago.—H. P.

Hibbertia stricta.—Like most of the members of the genus to which it belongs, the flowers of this are yellow in colour, but they are without the disagreeable smell which is present in some of the *Hibbertias*. The species under notice forms a wiry,

much-branched specimen, clothed with linear leaves and plentifully studded with its bright yellow blossoms. It forms a very pretty object in the greenhouse just now, and where grown with other Australian subjects the colour of its flowers renders it distinct from most of its associates, as yellow blossoms are but little represented among the *Pimeleas*, *Boronias*, *Grevilleas*, and various other subjects that bloom during the spring and early summer months. Like the rest of the *Hibbertias*, this species is by no means particular in its requirements, for cuttings are not difficult to root, and the plant will grow freely in ordinary potting compost, care being taken that the pots are well drained and not too large, as the *Hibbertia* is not a particularly vigorous rooting subject.—T.

CARNATIONS IN POTS.

"YORKSHIRE" (GARDEN, March 23, p. 268) inquires about the management of these plants in pots. He does not seem to have been very successful with them, the reason being very probably that the soil was too heavy and the plants over-potted. Another grave error is committed by some growers in giving too much water at first. The Carnation likes a clayey loam to grow in, and if the fibrous portion



Kentia Fosteriana.

from turf is used, an addition of one part manure, one of leaf soil, with sand and crushed charcoal, should not be too heavy; in fact, it is what we use in our garden here. An error may have been made by over-potting. Two plants of moderate growth should be planted in an 8-inch pot, but suppose they are turned out of a large or small-sized pot, and after having been repotted water is applied almost immediately, the new soil would become over-charged with moisture and the roots would not start away in it. I do not give any water for three or four weeks after potting. I grow three weak or moderately strong plants in a 9-inch pot, and a pair of very vigorous ones in the same size. The compost is pressed in moderately firm over the roots, and we are also very careful to pick out all the wireworms that may be in the soil; in fact, this is one objection to using fibrous loam, as it frequently contains wireworms in various stages of growth. The large ones are easily observed, but the smaller ones escape notice. I have been told that a little mortar or plaster refuse added to the compost is excellent for keeping it in a porous condition, and it also suits the plants. Many persons do not pot their Carnations until the end of

March or early in April. I like to have them in the pots wherein they are to flower at least five weeks previous to this. On the remark, "that the roots had not taken full possession of the soil," I may say that some varieties produce roots much more freely than others, and it is usual to find at the end of the season that many plants have not taken full possession of the soil. These weakly constitutioned plants also require greater attention than the others, more care in watering, and a light, warm, sheltered position to grow in. A good aid to the growth of the plants is to surface-dress them with rich light soil in May. I use for this loam, leaf-mould and decayed manure in equal portions.—J. DOUGLAS.

— Presuming "Yorkshire's" inquiry (GARDEN, March 23, p. 268) concerning the above refers to the perpetual kinds or those grown in pots for winter blooming, he has no doubt made a mistake in his treatment by potting them so firmly in heavy soil. Compost of a heavy nature always has a tendency to run together and become firm without ramming, when Carnations seldom take kindly to it. If he cannot obtain loam of a lighter character, he will do well to allow quite one-third of sharp sand when mixing his compost and avoid manure, using instead half decayed leaf-mould, with the finest part sifted out of it. Evidently, too, "Yorkshire" overpotted his plants, for unless they were strong and healthy, which they do not seem to have been, 8-inch pots were not required for them. I find 6-inch a very convenient size, and in most cases large enough. The cultivator must, however, be guided in this matter by the condition of the plants. When the soil is heavy, it is better to proceed by small shifts as the plants need it than to repot into a certain size at a given time, whatever the condition of the plants may be. Ample drainage is also desirable; 2 inches of crocks or charcoal may be placed in the bottom of the pots and these should be covered by a thin layer of Moss to keep the drainage clear. When the pots become filled with roots, weak liquid manure will prove beneficial, that made from sheep's droppings and used in a clear state being very good. The roots of Carnations are very fine; consequently, they soon suffer injury if liquid manure or other fertilisers are applied too strong.—A. BARKER.

* * With the above were received blooms of a seedling Carnation, *Mme. Carle*, white, and *Zouave*, a flaked variety. The seedling is of a rich scarlet colour and very sweet-scented. Mr. Barker says he finds it very useful for winter flowering.—ED.

— The compost mentioned by "Yorkshire" (GARDEN, March 23, p. 268) should grow Carnations to perfection. The plants, if they are to thrive, should not, of course, be loosely potted, nor, on the other hand, is a system of ramming and jamming the soil into a hard impacted mass about them likely to be conducive to their well-being, especially in a season of excessive wet like the last. Firm potting is the reasonable medium between these extremes. If the loam is fibrous its heaviness is not a fault, and can be easily modified by a little extra addition of sharp sand. An 8-inch pot is a suitable one in which to place two full-sized plants that have been grown separately in small pots during the winter, but a rather smaller size may be preferable for smaller plants, and especially in the cases of pairs grown together in single pots. In this matter one must be guided by the habit of the variety and by the size and root-development of the plants.—M. ROWAN.

Grape Hyacinths in pots.—Among bulbous plants that are not commonly grown in pots for the embellishment of the greenhouse, and yet which succeed well with this treatment, must be included the *Grape Hyacinths*. They form a very pretty feature under glass much earlier than they make their appearance out of doors. Half a dozen or more bulbs in a 5-inch or 6-inch pot is a very convenient way to grow them, as they then form good little clusters of bloom, which are available for various purposes. All that is required to succeed with them in this way is to pot up the bulbs in the autumn at the same time as the Tulips, and give

them both the same treatment, that is, stand them on a bed of coal ashes and cover with the same material. When the pots are filled with roots the plants may be placed under cover of a frame and gradually introduced into a gentle heat, but they will not bear severe forcing.—H. P.

CAMELLIAS.

It has been laid down on good authority that the first principle underlying the successful culture of Camellias is, never to take them out of the house in which they are growing. On this point considerable change of practice has taken place during the past twenty years, although some growers still hold to the opinion that they ripen their wood better outside than indoors. One grower who has a fine collection of Camellias under glass assures me that he has found the most successful plan is to keep them under glass all the year round. Abundant evidence of the wisdom of this course is seen in the case of plants planted out permanently, or of specimens in tubs and boxes that are too large to move.

I once saw some remarkably fine and luxuriant plants growing in a house placed against a south wall in the pleasure grounds, plants that had undergone the process of renovation with astonishing success. They were in a southern part of the country, and climate favoured their development. The plants were originally growing in tubs, the bottoms of which had become so rotten that they could not be moved. When the plants had done blooming, the surface soil of each tub was removed, and a top-dressing of two parts turfy loam, one part peat broken with the hand, and a liberal share of charcoal and silver sand was given; these were mixed together and firmly pressed down about the roots. The plants in pots were turned out, the sour soil removed, and the pots received fresh drainage, with an addition of coarse charcoal, covering it with Moss, in order to prevent the drainage being choked with soil; the plants were placed in the pots again and surface-dressed. Those requiring larger pots were shifted in the usual way. Then the house was closed. There was no light save from the roof and front sashes, the remainder being surrounded with Evergreens. The temperature maintained was about 76° by day, allowing it to fall during the night by keeping the air on; the trees were syringed morning and afternoon, and plenty of water was given when required. As soon as the plants had made growth half-an-inch long, liquid manure, composed of deer manure, soot, and guano, put together in a barrel, stirred up well for three or four days, then left to settle for a day, and afterwards poured off into another vessel for use, was given once a week. The result was the plants made a luxuriant growth, were pictures of perfect health, and set a fine crop of buds. Air was increased daily, until the house was left open night and day. The syringe was used freely morning and afternoon, and the leaves occasionally sponged.

Under such circumstances a free circulation of air is absolutely necessary, and so the plants need to be allowed plenty of room, that air can pass freely among them. The house must be well ventilated, and during hot and dry weather water should be poured over the floor and borders. A good fumigation is necessary once in three or four weeks, and in this way insect pests will be kept at bay. Although Camellias require at certain seasons of the year a good supply of water, and always appear to thrive best in a humid atmosphere, still they are impatient of too much water at the roots, and therefore it is necessary that the drainage be efficient.

Camellias are noble plants in a conservatory when well attended to, but if they are permitted to grow straggling and form naked shoots, they are then far from ornamental. Such plants should be headed down. March is the best time of the year to do this. I have known plants cut down to within 2 feet of the surface soil, but they were started into growth in a vinery and plunged in a bed with a gentle bottom-heat. When they begin to make growth frequent applications of

the syringe will be found very beneficial. When the young shoots are 5 inches or 6 inches long the tops may be pinched out; this secures a sufficient supply of wood at the bottom, and ultimately results in well-furnished bushes. R. D.

Tree Carnations.—These now demand attention as much or more than the border and show varieties. The cuttings have been put in during the months of January, February, and March. They are usually placed thickly in 4-inch and 5-inch pots, and they must be potted off as soon as the roots are well formed. Most of the cuttings may be planted in 2½-inch pots. I use for this class of Carnations a mixture of light fibrous peat in the soil, and the plants seem to grow more vigorously in it. There is no doubt that the fine fibrous roots of the Carnations push more freely in an open compost than in one of a closer character. If we observe the nature of the soil in which the wild plant luxuriates, it is generally high and dry, and where water cannot possibly stand over the roots. It is often found growing at the base or even in the crevices of old walls in England. It is a native of the Swiss Alps, where it may have to suffer from intense cold, but not from wet. I find that for all classes of the Carnations a close, damp, and cold atmosphere causes much injury to tender varieties. The sooner the plants can be inured to the open air the better, as the most satisfactory growth is made out of doors.—J. DOUGLAS.

Azalea mollis.—Besides the large quantity of *Azalea mollis* that is grown in this country, an immense quantity is imported every year from the Continent in the shape of little dwarf bushes bristling with flower-buds. They find a ready sale for forcing, for which such plants are well adapted, and in the greenhouse or conservatory make a good show. Most of the imported plants appear to be seedlings, as there is a considerable amount of variation in the colour of the flowers, and also in the habit of the plant and tone of the foliage. For forcing, the plants should, if possible, be potted in the autumn just before the leaves fall, for though they force readily enough if they are not potted till the new year, still those that have had time to become established retain their blossoms when opened very much longer than those that are simply potted and taken into the forcing house. This remark, indeed, applies with equal force to most plants that are induced to bloom prematurely, and many failures in forcing are to be traced to the neglect of this simple rule. After the *Azaleas* have lost their blossoms the plants should not be ruthlessly turned out of doors, as the tender delicate foliage is sure to be severely injured, while if protected by a frame till the sharp frosts and cutting winds of spring are over, they may then be planted out, or, if preferred, retained in pots. I have seen good results where the plants were kept in pots year after year, being during the summer plunged in the open ground, but, of course, they are far less trouble when planted out. If kept in pots, water must be liberally applied during the summer, and an occasional dose of some weak stimulant is also of service.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Abutilon Firefly.—This variety of *Abutilon* is well worthy of attention where this class of plants is in favour. The flowers are large, of a pale red colour, very showy and useful either in a cut state or as growing on the plants. This variety is of a much neater habit of growth than some of the large-flowered sorts of *Abutilons*.—E. M.

Solanum jasminoides.—I have not found this hardy. We have a plant that is partly out and partly inside a conservatory. In scrambling over the roof, some shoots of it find their way through between two lights to the outside every spring, and grow with great luxuriance until the frost comes, when they invariably die back until the protection is reached. Inside, where artificial heat is rarely employed, the plant always remains green and healthy. One of the authorities from Kew who saw it two years ago said he had never seen a more desirable specimen, and as a greenhouse

climber, where plenty of head room can be given it, nothing is more graceful or satisfactory.—J. Muir, *Margate*.

Hebeclinium atrorubens and ianthinum.—These plants are not often seen in good condition. They are strong growers, and when recently looking over the gardens at Lyndford Hall, Norfolk, my attention was drawn to some plants of these *Hebecliniums*. They were grown in 8½-inch pots and were associated with *Azaleas*, bulbs, and other spring-blooming plants.—J. CROOK.

Azalea linearifolia.—Your note on the above in *THE GARDEN*, Feb. 16 (p. 153), reminds me of a batch of seedlings I possess out of a cross between *linearifolia* and *Hexe* (anemona variety of my own raising, see *GARDEN*, September 14, 1886). Some of the seedlings possess the Hose-in-hose character of *anemona*. They are all very free-flowering, the flowers being in umbels of from four to eight, and are very agreeably scented. Strangely, none of about 100 seedlings have the linear foliage of the mother plant.—O. FORSTER, *Lehenhof*.

WORK IN PLANT HOUSES.

WINTER-FLOWERING STOVE PLANTS.—**PLUMBAGO ROSEA.**—This free-flowering winter bloomer deserves a place wherever a moderate stove temperature can be maintained. Without this it is better not to attempt its cultivation, for unless it can have a fair amount of heat it does not flower satisfactorily. Plants that were cut back after flowering and have since been kept warm will now have made young shoots that will be in right condition for striking. They should be severed at the bottom, so as to secure the firm wood which will be the most certain to root. Three or four cuttings may be put in a 4-inch pot; half fill the pots with a mixture of sand and loam, the top all sand. Cover with propagating glasses or confine in a cutting frame. Keep close enough to prevent the leaves flagging. When well rooted give them more air, and put them singly in 3-inch pots. Grow them on for a time in a similar temperature to that in which they were struck. When the tops have made some progress, pinch out the points of the shoots. It is necessary that this should be attended to early enough so as to have the plants furnished with from four to six shoots each, for though it is not well to attempt to form them into bush-like specimens, it is necessary to get them to branch out near enough to the bottom. The old plants that were headed back after blooming may be partially shaken out and grown on in pots about two sizes larger than they have been in hitherto. With ordinary treatment and the help of manure water later on, they will again flower well.

SERICOGAPHIS GHIESBREGHTII.—This bright red-flowered *Acanthad* is a conspicuous object in the stove during the late autumn months. The flowers are also useful for cutting. Plants that have been kept during the winter in a temperature of 60° will now have made shoots suitable for cuttings. These should be taken off with a heel and put three or four together in 5-inch pots. When the cuttings are potted off, pinch out the points, and this will need repeating later on, as the plant is naturally inclined to run up thin of branches, and it is best grown in bush form. A light position in a pit or house where the plants can be kept well up to the glass is requisite during the summer. This *Sericographis* is a free grower, and by the beginning of June will have made enough progress to require moving into 8-inch or 9-inch pots, which size will be large enough to flower them in.

ERANTHEMUM PULCHELLUM.—Blue flowers are scarce in winter, and on this account, coupled with its freedom of growth and blooming, this *Eranthemum* is one of the most useful plants for the dull season. The only fault it has is that the flowers individually do not last so long as those of some things, but as they are produced in succession for a considerable time this is less objectionable. Plants that have been wintered in an ordinary stove temperature will now furnish cuttings; they may be taken off at a joint with about three leaves attached. Put them singly in small pots filled with sand. When well rooted move them into 4-inch or

5-inch pots, and as soon as the shoots have made two or three joints, pinch out the tops. They will again require stopping once or twice during the summer, and will need 9-inch or 10-inch pots by the beginning of July.

THYSACANTHUS RUTILANS.—The distinct habit of growth and character of the flowers of this plant afford a striking contrast to all other autumn and winter-blooming subjects. Cuttings put in now and grown on in a stove temperature until summer will do without much fire-heat afterwards until the weather again gets cooler. Cuttings composed of the young shoots when about 4 inches long should be put in 3-inch pots, filled with a mixture of sand and loam. They will strike in a brisk heat in three weeks if kept close, moist and shaded. When the pots are moderately full of roots move them into others about 5 inches or 6 inches in diameter; at the same time stop the shoots. The plant is a spare erect grower, and it is not advisable to attempt to form it into a bush further than to furnish it with three or four branches. To do this a second stopping early in the summer will in most cases be necessary. To check the natural disposition to spire up, the plants should be kept near the glass and have as much air as possible without drying the atmosphere too much. All the above plants require to be shaded a little in bright weather. The syringe should be used daily to encourage growth and keep down insects.

SALVIAS.—Amongst the autumn-blooming *Salvias* there are three kinds that are especially deserving of cultivation—*S. splendens* Branti, scarlet; *S. Bethelli*, rose; and *S. Pitcheri*, blue. Flowering as they do at a time when *Chrysanthemums* are in, the *Salvias* afford a better contrast than any plants I can call to mind. Cuttings put in before the middle of the month will have ample time to gain sufficient size and strength to give an abundance of flowers at the time they are wanted. Plants that have been kept in a little warmth during the winter will afford plenty of shoots that will root readily. They may be put five or six together in 6-inch pots filled with sand. They will strike in a temperature of 60° if kept moderately close, moist and shaded. When well rooted move them singly into 3-inch or 4-inch pots, and pinch out the tops as soon as a little growth has been made. To have the plants bushy and sufficiently furnished they require to branch out near the base. Keep them in a growing temperature after they are potted off until the weather gets warm enough for them to do without artificial heat; stand them near the glass or the shoots will be drawn up weakly. As soon as the pots are filled with roots give a liberal shift. *S. splendens* Branti is the strongest grower of the kinds named, and requires the most room.

CELOSIA PYRAMIDALIS.—In this the flowers are unrivalled for using in a cut state, their feathery, plume-like character being such that they improve the appearance of almost any combination of cut flowers that can be arranged. But to have this *Celosia* in the best condition more than ordinary care is necessary in selecting the plants from which seed is to be obtained, as it often happens, even in a fairly good strain, that some of the plants produce flowers that have more or less of the small Cockscomb-shaped heads amongst the feathery spray, and if seed is saved from any that show this disposition, the produce is sure to be affected in the same way. Seed should alone be gathered from plants that are free from this fault. A moderate stove heat is better for raising and growing on the plants than a very high temperature, as even when they are kept from the time the seeds vegetate close to the glass they are liable to grow too tall if too hot. As soon as the plants are large enough to handle they should be potted off singly, for if they remain for only a very short time crowded in the seed-pan the lower leaves will be so weakened that there will be a difficulty in keeping them on the plants until the blooming is over.

COCKSCOMB.—This formal flower has still many admirers. The present is a better time for sowing the seed with a view to having dwarf, compact plants than if it was shown earlier when there was

less daylight. From the time the seedlings appear all through their growth, the plants, if not plunged, should be stood on a moist bottom. If on dry shelves, the leaves are almost certain to be affected with red spider, the presence of which quickly spoils the appearance of the plants, however fine and well shaped the flowers may be. The deep crimson form of Cockscomb is preferable to the red variety, and regularly formed flowers of medium size are superior to larger ones that are mis-shaped.

ACHIMENES.—Plants that were started a few weeks ago will now be ready for putting into the pots and baskets in which they are to be grown on and flowered. Avoid crowding them, as if they have not enough room it is impossible to preserve a healthy green colour in the leaves, in addition to which the bloom will be much sooner over, when more plants occupy the soil than it is capable of supporting. Some of the oldest varieties are still the best, there having been less improvement effected in new sorts than in most plants that can be readily raised from seed. More tubers should now be put in heat, as where the plants are wanted in flower for a considerable part of the summer, it is better to start them at two or three different times.

FUCHSIAS.—Small-flowering plants are often preferable to large ones, as they come in for use in many cases where large specimens would be unsuitable. To have them in good condition during autumn, some cuttings should now be put in. This late-blooming stock should, if possible, be grown in a house or pit where they will have no more direct sun upon them than cannot be avoided, as when much under the influence of the solar rays, the naturally free disposition to bloom is such that there is a difficulty in getting the plants to make the requisite amount of growth. Medium and large-sized plants that are yet insufficiently furnished should have the points of their shoots again pinched back. In this stopping, all the shoots, the strong and also the weak ones, should be treated alike, as if any are left untouched they will flower before the others, and in this way an even sheet of bloom will not be obtained. T. B.

The Snake's-beard in pots.—In making any selection of plants for a dwelling-house, some forms of the Snake's-beard (*Ophiopogon*) must be included, as they are first-rate subjects for the purpose, and will keep in health for years with but little care and attention. Not only will they thrive where the atmosphere is pure, but even in London I have seen them doing well in an ordinary sitting-room. This is the one known as *O. japonicus* (or *spicatus*) *argenteo-variegatus*, rather a spreading-habited kind, with white flowers and leaves prettily variegated. Another variety in which the foliage is also variegated is *O. Jaburan variegatus*, which has fewer and more upright leaves than the preceding and violet-coloured flowers. The ordinary green-leaved form is also a very useful indoor plant. The smooth texture of their leaves renders these *Ophiopogons* much less liable to an accumulation of dust than many other plants, and owing to this they can be very easily cleaned. They do well in ordinary potting compost, such as loam, peat or leaf-mould, and sand, and when once established will remain in health for a long time in the same pot. The fact that they are almost if not quite hardy is another point in their favour when kept in rooms where the temperature gets rather low during frosty nights. —H. P.

Eurya latifolia variegata.—A very pretty greenhouse shrub, remarkable not for its flowers, but for its handsome evergreen foliage, is this *Eurya*, whose leaves are somewhat like those of the *Camellia*, but longer. They are of a bright shining green colour, marked with creamy white, and in the young state beautifully flushed with pink when exposed to light and sunshine. It is of a neat bushy habit of growth, and may be stood out of doors during the summer months; indeed, it is almost hardy enough to stand the winter where favourably situated. I have had it pass two or three winters without any protection, but very severe weather kills it. It is a native of Japan,

and has been known in this country for many years, but it is very seldom seen. Probably the reason of its being rarely met with is the fact that it is by no means a very easy subject to strike, and even when successful in propagating it in this manner it generally stands a considerable time before rooting. The best cuttings are furnished by the shoots of the current season, taken when they are in a half-ripened state, which will generally be about May, and inserted into pots of very sandy soil. They should then be put into a close propagating case in a gentle heat, and when fairly treated most of them will root in time to be potted off before winter. On no account must the cuttings be allowed to flag before insertion, and after they are put in, shading must be carefully attended to, as if they once shrivel it is very difficult to revive them.—T.

Books.

REPORT ON INSECTS INJURIOUS TO CROPS.*

THE agricultural adviser to the Agricultural Department (Mr. Chas. Whitehead) has just issued his second annual report to that department, on the insects and fungi which are injurious to our crops. It is of decidedly greater interest than its predecessor, and is written in the particularly clear and simple style that renders the author's writings on this subject specially useful to non-scientific readers or, perhaps it should be said, to non-entomological readers, and it reports on a larger number of injurious insects. This year fungi are not reported on, but they are mentioned in the introduction, where Mr. Whitehead remarks, "Fungi were not reported as actively injurious during the season, except in the case of Hop plants, to which, in some parts of the plantations, mildew or mould caused by the fungus, *Podosphaera castagnei*, was particularly injurious. Hundreds of acres of plants were left unpicked by reason of this visitation; the fungus appeared on the burr and prevented it from turning into Hops." Last spring and summer were so notable in the eyes of fruit growers for the swarms of caterpillars of various kinds which infested our fruit and forest trees too, no doubt owing to the very fine summer of 1887, which enabled an unusual proportion of insects to arrive at maturity and deposit their eggs in safety, that it is not surprising that out of the sixteen different kinds of insects reported on, no less than twelve were found attacking fruit trees. The bad weather of last spring and summer was unquestionably responsible for a certain amount of the mischief, for when the growth of a plant is checked by inclement weather just at the critical period when the young leaves are unfolding, and the latter are attacked by insects at the same time, the amount of injury to the plant is sure to be much greater than if the attack occurred when the plant was in vigorous growth, as the leaves would then open faster than the insects could devour them. Still, last year the enemy were present in such numbers that however propitious the weather might have been, the trees must have suffered severely. Owing to the habits of certain moths, whose caterpillars were the chief delinquents last year, Mr. Whitehead published an illustrated circular in October, which was distributed among fruit growers of Devon, Gloucester, Hereford, Kent, Somerset, and Worcester, in which he pointed out the peculiarities of certain species of these destructive insects, and recommended prompt action to prevent the wingless female moths from ascending the trees to deposit their eggs in the late autumn and early winter months. The attention of the readers of THE GARDEN at the time was called to this circular, and we have now much pleasure in recommending them to obtain this report. Although, contrary to the expectation of some persons, the Hessian fly is not reported on, the following consolatory remarks on this insect in the introduction will be read with much interest: "Happily but little was seen of the Hessian fly in the past

* "The Second Annual Report of the Agricultural Adviser to the Lords of the Committee of Council for Agriculture." London: Eyre & Spottiswoode.

season, though careful observers were continually on the watch for its appearance. It was only discovered in a few places, and in these merely a few puparia were found. I have notes of only six places infested. Although the Hessian fly, according to authorities in America, where it has been known for over 100 years, is an insect of moist climates and mild latitudes, the excessive rains and abnormally low temperature of the last spring and summer months have without doubt checked its propagation, and may even have stamped it out altogether. In a recent publication Prof. Riley holds that there is very little danger of any such injury in England as is suffered in America and in portions of continental Europe, as the Professor says that it is very injurious only under conditions where two annual generations are pretty uniformly produced, and he is satisfied that in England, as a rule, only one generation will be produced." Mr. Whitehead had empty and premature ears of wheat forwarded to him from different parts of England. On gently pulling an ear of this kind he says: "Its stem slipped easily out of its sheath, and was broken off 6 inches from the base of the ear just above the first joint; it was certainly not the work of an insect, but showed signs of decay caused by a fungus." It is hoped if this disorder occurs this year that specimens may be sent in earlier stages to the agricultural department.

The moths whose caterpillars proved so injurious to fruit trees last year are divided into two divisions in this report—those which can be frustrated in their attempts to reach the shoots and buds and lay their eggs there by placing a band of some sticky substance round the trees, and those which cannot be prevented in this manner. In the first division six species of moths are enumerated, all belonging to the family Geometridæ. Most of the moths of this family may be known by their large ample wings and small bodies, and the caterpillars by the way they walk. Having no legs on the middle joints of their bodies, when they wish to move they do so by extending their heads and front part of their bodies as far forward as possible, and then arching their backs advance their other legs up to the front ones. From this peculiarity of movement they are known by the name of loopers. The female moths of these six species are quite unable to fly, being practically wingless, and consequently can be stopped by the sticky bands already alluded to, and which are fully described in the report. The moths in the second division cannot be hindered in this manner, as both sexes can fly well. Full details of the best means of destroying them are given. The other insects reported on are the leaf beetles, or it would have been more correct to say one of the leaf beetles, for this is, unfortunately, the only kind of weevil which may be found injuring the leaves of trees. This species (*Phyllobius maculicornis*) was found attacking the leaves and flowers of Apples, Pears, Cherries, Damsons, Nuts, White Thorns and forest trees. The attacks of the ribbon-footed corn fly (*Chlorops teniopus*) are said to be becoming more frequent than they used to be. When a crop is attacked there does not seem to be any satisfactory remedy, but certain means are recommended for their prevention. The frit-fly (*Oscinis frit*) was the cause of some injury to Barley and Oats last year. One reason for the damage, no doubt, was that, owing to the cold weather, the plants could not make much progress in growth at first, and so felt the attack more than they otherwise would. Another fly, the Wheat bulb fly (*Anthomyia coarctata*), is also reported on.

The Pea and the Bean weevil (*Bruchus rufimanus*) was more than usually abundant last season, and the report states that "it was difficult to find, at least in the south-eastern counties, samples of Bean ticks, Mazagans, and Broad Beans that were free from black specks and holes, showing that they were attacked by these beetles. Some samples had forty or fifty per cent. attacked, others from fifteen to twenty." Mr. Whitehead says the plan recommended by some economic entomologists of putting Beans and Peas into water, that the infested ones being lighter might float and

be easily separated from those that are sound and sink, is not reliable, recent experiments having proved that this cannot be depended on. As it is useless to sow Beans or Peas which are infested, it is not worth while to use any means to destroy the insects and not injure the seed unless the percentage of infested seed is very small. Mr. W. Linton Wilson has written lately to various contemporaries advocating steeping infested Beans or Peas in paraffin and water, but if a quantity of these seeds is badly infested it had much better be destroyed, for the infested seed will never produce satisfactory plants, and though a larger quantity may be sown per acre than would otherwise have been the case, the crop is sure to be patchy and the healthy plants will be interfered with by the others. The author mentions, in the conclusion of this report, that American entomologists are much surprised that arsenic is not more often used in England as an insecticide. On the other side of the Atlantic enormous quantities are used. "Paris Green," arsenate of copper is the best form either as a wash or in powder. As a wash, 1 lb. is dissolved into 100 gallons of water, and as a powder, 1 lb. is mixed with 30 lbs. of flour or plaster of paris, and about 20 lbs. distributed over an acre. Or "London Purple," another and cheaper arsenical compound, may be used in the same manner. It should always be remembered that these compounds are rank poisons. This report should be in the hands of all fruit growers, and its price is so low that no one could plead poverty as an excuse for not procuring it. G. S. S.

KITCHEN GARDEN.

GLOBE ARTICHOKE.

WHY are these not more generally grown? They are to be found in most well-managed gardens and in many of medium size, but, as a rule, they are either unknown or are not valued by the proprietors of smaller establishments, though why this should be the case we have yet to learn. In France Globe Artichokes are far more popular, the markets also being kept well supplied with them. No doubt our markets would soon be equally well supplied with Globe Artichokes should there be a demand for them, and there is no good reason why as many as are required should not be grown in the gardens of the less wealthy classes. A taste for them has certainly to be acquired, but, according to my experience, those who have once succeeded in this cannot well have them too often, and they are slowly gaining in popularity. Complaints are often made of want of variety in the way of hardy vegetables, but in very many instances those who make them are slow in availing themselves of what change there is. Much depends upon the quality of the article and the way in which it is cooked and served, and if Artichokes are either cut from starved plants or are too old when tried, and in addition badly cooked, it is not surprising if they are condemned at the table. I can point out how good Artichokes may be grown, and every good cookery book ought to include the most approved methods of preparing them for use.

There are two distinct varieties favoured in this country, these being known as Purple and Green Globe. Both vary considerably, the latter especially comprising several more or less superior forms. In France the green form known as Large Laon is most extensively grown, and there are a considerable number of gardens in this country where the same variety is to be found, although not kept distinct. In some instances plants have been imported, but more often the Laon variety has been obtained from seed in company with other much inferior forms. The heads of the Large Laon have pointed, somewhat reflexed scales, and these are more succulent than is often the case with

the more incurved forms. The Purple Globe is rather earlier than the rest, but that is its only recommendation, and if my advice is taken, the stock of it in many gardens where most extensively grown will be gradually reduced and more of the superior green varieties grown. In any case starvation treatment is sure to lead to the production of puny, worthless heads, and another frequent cause of the discontinuance of the cultivation is the loss of the stock by severe frosts. Every autumn the old stools ought to be well banked up with straw litter, ashes, or some kind of protective material, without, however, actually burying the late formed suckers or young shoots. Thus treated, there would be plenty of the latter either for planting or retention on the old stools, and now is the time to attend to the plants. The old plants are not often profitable after being four or five years in the same position, and a few or many, as the case may be, ought to be destroyed and fresh rows formed every season. If this is properly carried out, a long and continuous supply of heads of superior quality will be obtained in most seasons, the young plants put out in the spring producing in the autumn in succession to the older plants and till cut down by frosts.



Large green Paris Artichoke.

Some cultivators appear to think any out of-the-way spot good enough for these Artichokes, and they certainly are not fastidious in this respect, but if, in addition, they are also much neglected, they are of no service whatever. They are essentially gross-feeding, moisture-loving plants, and ought, therefore, to be planted on freely manured, deeply dug ground. If the ground is trenched for them, as it may well be, the manure should be well mixed with both top and bottom spits of soil, and the whole made rather firm. If the surface soil is at all lumpy, some fine light soil ought to be had in readiness for surrounding the young suckers, or otherwise they will not take well to their fresh quarters. It is not necessary to lift old clumps for the purpose of dividing them, unless they can well be spared. Instead of this, clear away the soil from them and detach some of the strongest suckers from the old stems. The best time to do this is when the young leaves are about 12 inches long, and the most suitable suckers for planting are those with roots attached to the buried stems, the latter being shortened somewhat, and if they are easily cut there is a better prospect of their thriving. Those with very hard black stems rarely recover quickly from the check given, and should be rejected when those with softer stems are plentiful. After the

loss of many old clumps by extra severe frosts we have found it advisable to place a number of suckers singly into 6-inch pots, and after being kept in gentle heat till well rooted these were hardened off and planted out. Thus treated they arrive more quickly at a productive state, but as there are no losses this season, those who have a good stock of plants need not take this extra trouble. Being of a spreading nature, good room must be given to them. The rows ought to be not less than 3 feet apart, the same distance dividing each group of three suckers, or the distances may be 4 feet and 2 feet respectively. The suckers should be arranged triangularly, and about 9 inches apart each way, and ought to be planted rather deeply, the hearts, however, not being buried, care being taken to well surround them with good fine soil. If at all dry, a watering may be given, and a little temporary protection will not be thrown away on them. Subsequent culture consists merely in mulching early with strawy manure, or a good substitute, watering occasionally in dry weather, and keeping clean. There is nothing to prevent Kidney Beans, Lettuces, Turnips, or other dwarf quick-growing crops being grown between them during the first season.

Those commencing or making a fresh attempt at Artichoke culture should endeavour to procure suckers, or one or more old clumps from a neighbouring garden at once, and, failing these from a nursery, splitting them up and replanting, as above advised, before they are much injured by drying winds. A stock can be very easily raised from seed, only in this case a considerable number of worthless varieties will be obtained, and which ought to be destroyed as soon as detected. Those reserved will grow more vigorously than do plants from suckers, and should produce a crop of fine heads late in the season. The seed may either be sown in pans and placed in heat, the plants being duly potted off singly into 5-inch pots, and when well established in these be hardened off and finally planted out before they become badly root-bound, or the plants may be raised where they are to grow. In the latter case, sow at once thinly in shallow drills, 3 feet apart, and cover with fine light soil. Thin out the seedlings at first to about 18 inches apart, the spurious forms being cut out when they are sufficiently advanced to show their worthless heads, and in the following spring all can be regulated, one row being broken up, if need be, to make good the rest. In no case ought Globe Artichokes to be allowed to mature all the heads that show on the side shoots of stems.

W. IGGULDEN.

Onions.—Last spring I sowed seed of an Onion sent me for trial as a very early kind. It was of the Queen type, possibly the same under another name. Oddly enough, some of the plants produced tiny bulbs which ripened off, whilst other plants without appreciably developing bulbs remained green, and are now green, having withstood the winter without harm. Some of the tiny bulbs being too small to make it worth while to lift them, also made fresh growth, and these also have stood the winter. The plants have been thinned, and I now await with interest to see what will result. I have no doubt whatever but that the stock was good, and that this erratic growth was the product of an extraordinary season. Some white Spanish Onions really of the Rousham Park Hero selection have done very much the same thing, but in this case all the matured bulbs are large enough to store and dry. It is interesting to note that whilst frost will materially injure ripened Onion bulbs—indeed, if left exposed to the winter all would soon be rotten—growing plants which have not bulbed and con-

tinue green do not suffer at all. With respect to seed, I find that some of my own saving is not germinating well. Possibly that experience may be exceptional, but it was very difficult to get the seed hard and thoroughly ripe. Very possibly the old seed of the preceding year's crop, on which dependence has chiefly to be placed this year, will prove to be far more reliable than the best seed of last year. In any case it would be a good plan to sow some thickly in a shallow box and stand it in a frame or greenhouse to assist germination, so that reserve plants may be had to fill up continuing vacancies in the Onion rows.—A. D.

CULTURE OF ASPARAGUS.

FORMERLY Asparagus roots were planted much too closely; consequently they became matted and the shoots smaller every year. Good gardeners nowadays set the plants widely apart in deeply trenched and liberally manured ground, with the result that large crisp Asparagus, instead of the pipe-shank-like stuff that was to be met with not many years ago, is secured. I have known very good Asparagus to be cut from a piece of cultivated bog-land. One gardening friend of mine grows his Asparagus in rows 4 feet apart, and at the same distance in the row, with the most satisfactory results. But as there are but few gardeners who can afford to give even half this space to their plants, I will mention two or three successful ways of planting Asparagus. Assuming that the ground was got ready, as indicated some time between this and last October, so as to afford time for the settling down of the soil, trenches 5 feet wide and 9 inches deep, with alleys 2 feet 6 inches wide between them should be opened. In these trenches make three rows of hillocks 2 inches high and 3 feet asunder, the first hillock being made at 3 feet from the end, and those on each side at 18 inches from the central row and from the end of the trench. This will give the plants more room to grow than if they were planted opposite to each other. Arrange the plants on the mounds, spreading out the roots all round, covering them with a few inches of fine soil, and afterwards filling up the intervening spaces. Then cover the surface of the soil with decayed manure to the thickness of 2 inches. This will preserve the roots in a healthy growing state, and prove advantageous to the plants if a dry season should follow. In planting, press the soil firmly about the roots, and, if practicable, the work should be done in showery weather, just before the crowns have pushed into growth. Insert a yard long flower stick 9 inches or 10 inches into each hillock, to which secure the young plants as they require support. Not unfrequently a large percentage of the young plants resulting from freshly planted roots are broken off by the wind for want of the support indicated.

The second plan is to mark off the desired number of beds 4 feet wide, with alleys 2 feet wide between them. Fork over the beds, and throw over them 6 inches of soil from the alleys, breaking it fine as the work proceeds. This done, draw two drills about 4 inches deep at 15 inches from the side of the bed, which will give a space of 18 inches between the two rows, and in these plant the roots 18 inches apart. The third method of procedure is to plant three rows of roots in each 4-foot wide bed, at 18 inches in the row, one row in the middle and one on either side at 14 inches from the centre one.

To anyone not having old beds to cut from, and who contemplates making new plantations at the end of the present or early next month, I would advise the planting of one or two three-row beds with good two-year-old roots in the manner recommended above. For the supply of plants for forcing, plant in rows 15 inches apart and the same distance in the row diagonally, so that those in the second row stand anglewise to those in the preceding row, and so on with each succeeding row. Should a spell of dry weather follow, frequent supplies of water should be given until the plants are established. Summer and autumn treatment consists in keeping the beds free from weeds, and in the case of established plantations of Asparagus, free from seed-

ling plants, which should be pulled up as soon as they appear. The cane-like stems will be ripe by the end of October. They should then be cut off close to the ground, saving a few of the best berried ones for seed. This done, draw 3 inches or 4 inches of the surface soil off the bed into the alleys, and place on instead a like thickness of the best manure at command. Early the following March cover this with 3 inches or 4 inches of soil from the alleys, breaking it fine as the work is proceeded with.

RAISING YOUNG PLANTS.—Sow the first week in April, in drills 2 inches deep and 12 inches asunder, in light, rich soil, to supply young plants for transplanting into permanent beds the following year, and also for supplying plants for forcing when three or four years old. The seed should be sown thinly in the drills, the soil closed over with the feet, trodden, and afterwards raked over. The young plants resulting from this sowing should, like the plants in the beds, &c., be kept free from weeds during the summer and autumn months.

CUTTING THE ASPARAGUS is an operation requiring great care on the part of those engaged in the work, otherwise a large percentage of the heads will be destroyed with the knife before they appear above ground. The soil should be drawn back from the Grass to be cut preparatory to working the knife carefully down to its base, so as not to injure any of those undeveloped surrounding growths. When the heads have pushed 2 inches through the soil cut them. The stems will then be about 8 inches long. They should then be washed, sized, and tied up in bundles consisting of from 25 to 100 heads, and stood on end in saucers containing a little water in a cool shed or cellar until required for use.

H. W. WARD.

Pricking out seedling vegetables.—For some years I have discontinued the practice of pricking out seedling vegetables, and am satisfied that better results are obtained with a less amount of labour by preparing the seed beds and allowing enough room when sowing for the plants to remain in this position until transplanted into their permanent quarters. I am, of course, referring to Cauliflowers, Cabbage, Kale, Lettuce, and other kindred subjects. In addition to the tap-root, all this class of plants forms a mass of fibrous roots near to the surface of the ground, and if some light material, such as burnt refuse, leaf-mould, or old soil from the potting shed, is mixed with the soil before the seeds are sown, the plants may be lifted with quite a ball of roots, and when replanted quickly take hold of the soil. When pricked out, unless this operation is carefully done, and a trowel instead of a dibble used for transplanting, it often proves a difficult matter to move the plants again with any quantity of soil or roots adhering. The soil falls away, carrying the roots with it, leaving nothing but a long almost bare stem; consequently, much time is lost. Generally speaking, a great many more plants are raised than is requisite, as when planted into their permanent quarters 3 feet apart it is surprising how few out of the original number are used. Instead, then, of sowing a bed of each kind, from which only a few are pricked out, the rest cumbering the ground and going to waste, it is better to form an estimate of the number of plants required—of course, allowing a good margin—and sow a little more space than usual, afterwards thinning the plants down to the number required. If the plants are allowed to remain until wanted for planting out, sturdy stuff with balls of roots will be the result. A saving of ground will also be effected, as although a little more space will be needed for the seed beds, none will be wanted for pricking out, as this operation will be done away with.—A. BARKER.

Sowing Tomato seeds too early.—What Mr. Gilbert has to say upon any subject connected with horticulture is always acceptable. He does not agree with me as to the advisability of delaying sowing Tomato seed as late as the first week in April, but in spite of his success with earlier raised plants, I still maintain that he is an exception to

the rule. Very few take the trouble, although it pays to do so, to give Tomato plants intended for open-air culture a shift, and otherwise take such good care of them as Mr. Gilbert does. More often than not the plants have a very rough time of it from the first, and instead of being healthy, straight plants furnished with one or more clusters of fruit, or similar to those of Mr. Gilbert, they are starved, crooked, and neglected. Such miserable plants are very late in setting and ripening crops, and I hold that unless Tomatoes can be exceptionally well treated, the wiser course is to sow later, as I advised.—W. IGGULDEN.

KITCHEN GARDEN NOTES.

PROTECTING ASPARAGUS.

WHERE the old-fashioned plan of raising or planting Asparagus close to the surface on raised beds is followed, the young shoots are especially liable to be injured by frosts. This often happens without being observed, the consequence in any case being a later and lighter crop. Deep planting or early and heavy moulding over is not a safe course on heavy soils, but where the French system is adopted there is much less need to protect, the shoots being fully grown by the time their heads show through the surface. A good surfacing of straw litter will frequently save several valuable cuttings of Asparagus, but the plan of covering the beds with 2 inches or more of fine light mould answers even better, this, in addition to affording protection, also ensuring a better length of shoot. Leaf-soil, fine peat, spent tan, and any mixture of these and fine soil are suitable. Where the plants are grown rather widely apart on the level, these may first be banked over with fine soil if need be, and more of the ordinary soil drawn up in the form of a ridge over this. When thus covered or where the soil is loose, the shoots ought to be traced down to the roots and twisted off in preference to using a knife with the consequent risk of damaging the younger growths.

GLOBE ARTICHOKE.

Old stools of these may in most districts be safely either partially or wholly uncovered. When cleared of the protective material early and suddenly, the plants are liable to be crippled by a late frost, and where thick coverings are applied these ought therefore to be gradually removed. In most instances many more suckers will be forming on each plant than should be left. If not thinned out the bearing stems will be crowded, the result being a heavy crop of small heads followed by an early collapse. Gluts are altogether unprofitable, and to avoid these a more intelligent method of culture must be adopted. Vigorous young plants or any not more than four years or five years old are the best, and not more than three, or at the most four, suckers should be allowed to develop at each clump. These, other conditions being favourable, will grow strongly and produce fine heads, a good succession being had from them. Now is the proper time to thin out the crowns and also to manure the plantation. Instead of digging in the manure we prefer to well bare the surface roots, the soil being returned after a liberal dressing of half decayed manure has been applied. The manure is thus near the roots, and it also serves to keep the roots cool and moist in hot weather.

PREPARING SEAKALE FOR EARLY FORCING.

In large gardens many hundred Seakale roots are annually prepared specially for lifting and early forcing, the later supplies only, or say such as may be wanted in March and April, being forced or forwarded in the open ground. Seeing how readily Seakale may be forced in heated houses and pits as well as in Mushroom houses, there is no reason why more should not be annually prepared for that purpose in small gardens than is now the case. On fairly strong, well-manured ground fine roots can be prepared in one season, and on poorer soils in two years, and these are the best for lifting, the older clumps yielding the best dishes when not disturbed. Plants can be raised from seed sown now thinly in shallow drills drawn not less than 12 inches apart, the seedlings being duly thinned out

to a distance of 6 inches apart. Seedlings, however, seldom attain a serviceable size in one year, and the usual and best practice is to raise the stock from root cuttings. In anticipation of this all the stout white roots that were broken from the old stems when these were lifted for forcing ought to have been saved, and more could be cut from them after they have been forced. If at once cut into 4-inch lengths, dibbled rather thickly into boxes of good soil, and set where they could be protected from frosts, all would have commenced forming shoots and roots, and a clear gain of two or three weeks at least be the result. These root cuttings may yet be made, and in warm districts should be dibbled out where they are to grow. The leaf growth proceeds from the thickest end, and in order to avoid burying them the wrong way uppermost, a small notch should be made in the smallest end. Whether previously started in boxes or not, the cuttings ought now in most districts to be planted on rich well-worked ground, 12 inches apart in rows 18 inches apart, just below the surface. All will soon commence to form buds, and if several shoots develop these should be pulled off, as one good crown in each instance is sufficient. Slugs are apt to be troublesome among young Seakale plants, and ought to be either trapped or kept off with the aid of soot and lime.

FORMING PERMANENT SEAKALE BEDS.

Well-established plants, each with three or four large crowns, can be made to produce the finest Seakale, and any not forced, but merely moulded over or covered with pots, so as to exclude all light, is even more succulent and tender. The sooner the beds are formed the better. Small and medium-sized roots that have been lifted and forced are suitable for replanting, these quickly growing to a large size. Seedlings and any cutting-raised roots are, however, the best, and these can be bought if need be from most nurserymen. An outside plot of ground is the most suitable place for a permanent Seakale bed, especially when a portion of it is forced with the aid of heaps of heating material. The site ought to be well manured and deeply dug, and the ground must not be very lumpy at planting time. In arranging the plants the aim should be to put them out so as to enclose several crowns under one pot, and as many of these in one hotbed as possible without unduly crowding the plants during the growing season. If several beds are formed, each may consist of two rows 2 feet apart, with 3 feet spaces between the beds. The group may be 2 feet apart and consist of three small plants or one strong plant with several crowns, the former being arranged in a triangle 6 inches apart each way. Any young plants employed that have not been forced this season should have the crown cut cleanly off, otherwise they will weaken themselves by forming flower-heads.

OLD SEAKALE PLANTATIONS.

It is possible by good cultivation to keep the permanent beds in a profitable state for many years, but not if they are hard forced and also made to produce a second cutting of blanched growth in one season. Any that it is intended to root up this spring may be cropped to their fullest extent, but all that are required for forcing next winter ought to have the heating material cleared off them, and the pots removed soon after they have been cut over, a light surfacing of rough litter being left over them by way of protection from frosts. When the forcing material is finally cleared off the whole of the beds the Seakale ought to be gone over and all straggling stems cut back, the aim being to keep the crowns as near the ground as possible. A liberal dressing of good manure should then be lightly forked into the beds, and in addition a sprinkling of salt may be given with advantage. Shoots will soon form thickly on the stems, and these ought to be thinned out, two or three on each being ample. Flower-heads should also be prevented from growing, the flowerless shoots only forming crowns.

RHUBARB FROM SEED.

Rhubarb can be readily propagated by seed, but unfortunately no dependence can be placed on

seedlings, a single packet usually containing several varieties. If strong plants are wanted quickly, the seed should be sown at once in boxes of fine soil and placed in heat. If not raised thickly, the seedlings, after being hardened off, may be transplanted direct to a good piece of ground, but, as a rule, they move best out of 4-inch or rather larger pots. If planted first in a trial bed with the idea of weeding out the inferior varieties, they may be arranged 2 feet apart each way, but if intended for permanent beds the rows should be 3 feet apart, and groups of three plants formed a similar distance apart in the rows. Seedlings may also be raised on a warm border. Sow the seed at once thinly in shallow drills 18 inches apart, thin out the seedlings where at all crowded, and in the following winter transplant the roots to a good open piece of ground. It is not too late in backward districts to divide and replant old clumps, the divisions being put out on deeply-dug, well-manured ground the same distances apart as advised for seedlings. The varieties most deserving of general culture are Early Red, of which Early Albert, Royal Albert, Prince Albert, and Crimson Perfection are said to be synonymous, Linnæus or its synonym Johnston's St. Martin's, Paragon, and Victoria. W. I.

Hardy Broccoli.—When I learn of the frightful mortality wrought amongst Broccoli plants in gardens, and note, on the other hand, how admirably they have stood out in the open fields here, I have to come to the same conclusion at which not only "C. C." (GARDEN, March 30, p. 296), but many others in the past have arrived, and that is in favour of planting on comparatively shallow soil and much harder than are the deeply trenched rich soils of private kitchen gardens. Not far from where I am writing, in a very exposed place on soil that is naturally very stiff, is never other than ploughed, and which gets very wet in the winter, is a piece of white Broccoli several acres in extent, over which it would be difficult to find a decayed leaf much less a frosted plant. To myriads of gardeners who have now to lament the loss of their white Broccoli even but a few of such plants as these would be an invaluable boon. White Broccoli naturally is hardy, but may be made comparatively tender by very gross culture. So far as Autumn Giant Cauliflower and Self-protecting Broccoli are concerned, high culture may be given to them with comparative impunity, as they are usually cleared off before hard weather sets in. White Broccoli, however, have to endure the severities of the worst three winter months of the year, and unless the stems are very hard and the leafage not too gross, there is little hope that the plants will pull through should the winter be even moderately severe. Gardeners would do well to plant white Broccoli rather more thickly than usual on poorer soil and which is very hard. It is better to aim at the raising of many small heads than a few big ones. The anxiety to get everything big is a mistake, and but for this there would perhaps be fewer mistakes over white Broccoli culture.—A. D.

SHORT NOTES.—KITCHEN.

Preserved Peas.—In answer to "M." (GARDEN, March 2, p. 203), the French firms who preserve Peas use chiefly the following varieties: Serpette, Michaux, Sabre, Clamart hâtif, Clamart, Leopold II.—M.

One stem to Tomatoes.—The Tomato is now one of the most popular of all garden subjects; many succeed in growing it well, and some fail, but success would be ensured in a great measure if the plants were prevented from making so much superfluous growth by rigidly restricting them to one stem. Light and air are absolutely necessary to their bearing clusters of fruit at every joint.—J. MURR.

A reduction of soil for Tomatoes.—I am of opinion that Tomatoes grow more sturdily, bear more quickly and more freely, and yield a heavier crop in a limited quantity of soil. We have grown them in borders where the roots never found the limit, in huge pots and large boxes, but the best crops were always secured from plants grown in a small quantity of soil. Each plant was placed in a little mound on a slate

stage, and, compared with others, the results were extraordinary.—J. MUIR.

MARKET GARDEN NOTES.

THE present is a very busy time in market gardens, and the weather being favourable for outdoor operations all hands are busy getting crops into the ground or clearing the land preparatory to getting in successional ones. The most important crops now claiming attention are—

CABBAGES, which are now being planted out in large quantities. Those planted out last Michaelmas are now making rapid growth. Cauliflowers that have been wintered in frames or under hand-glasses are now being put out thinly either under glasses or in deep drills, with some Evergreen branches placed round them to break the force of the wind.

CARROTS of the Early Horn kinds are being sown in sheltered places and in well-worked soil. The main crops will soon be put in. The soil is made very fine for Carrots. The variety in greatest favour for market is James' Scarlet Intermediate, which has nearly superseded the very long kinds, such as the Surrey and Altrincham.

LETTUCES, both of the Cabbage and hardy Brown Cos kinds, that have stood during the winter in seed-beds, are being planted out in quantity, and sowings are being made for main crops.

ONIONS are being sown in large quantities, James' Long Keeping and Bedfordshire Champion being the favourite kinds for winter and spring use, and Silver-skin for pickling. The autumn sown crops are being transplanted into very rich soil to make large bulbs for summer use.

PARSLEY is a profitable crop in some seasons, and a good deal is grown in sheltered positions under fruit trees and bushes, so that if a severe winter comes on and prices are high enough to make it profitable, the produce is sent to the London markets.

PEAS for main crop now claim attention. The blue wrinkled varieties are in great favour. Telephone and other large-podded sorts have nearly superseded the small-podded ones, that are not only very tedious to pick, but do not sell so readily as the large ones.

PITS AND FRAMES are now crowded with Tomato, Cucumber, and Vegetable Marrow plants, which are being pushed on so that no time may be lost when they can safely be trusted in the open. If before being planted out they are well hardened off by exposure to the outside air whenever the weather is genial there is less danger of any check after they are put out.

FRUIT PROSPECTS are at present very good; the buds are strong and by no means forward, and as the trees mostly had a very light crop last year, they have plenty of healthy vigorous young wood that ought to carry a fine crop of fruit.

BUSH TREES are looking unusually full of fruit, and Strawberry beds have not looked so promising for years. The beds are now being cleared of weeds and a mulching of long manure put between the rows, for the soil being light and naturally well drained the effects of drought are soon visible, unless precautions are taken to keep the moisture in the soil by external coverings. J. G. Hants.

One advantage of deep culture.—There is one point in connection with deep cultivation that deserves more consideration than it usually gets. In many soils, especially those of a light nature, there is not far removed from the surface a hard pan, into which roots cannot penetrate. It is a notable fact that the mere breaking through of this hard soil has in many cases sufficed to convert land hitherto useless to a condition that has rendered the production of good crops practicable. I know of an instance where a considerable tract of land was considered so utterly bad that it was given up to its own natural vegetation. It was of a light, sandy nature, and even common trees and shrubs did not remain in good condition in it for any time.

It came at last into the hands of a gentleman who, having the means, resolved to try what could be done with it. At a distance of about 18 inches from the surface there was a hard stratum of reddish sand that required good strong blows with the pick to break through. None of this hard pan was brought to the surface, but it was thoroughly broken up. The effect was really magical, for exotic trees, shrubs, and plants of all kinds that could not before be kept alive in it flourished amazingly. Some of the finest Conifers in the country grew there. This hard stratum of earth had effectually prevented moisture from rising up from the bottom, so that the roots were entirely dependent on the slight amount contained in the surface soil, which in a dry time soon evaporated or was drawn out, and nothing came from below to take its place. It is evident that if no moisture could find its way upwards to the roots of plants they would not be able to bear long periods of parching weather, for all plants are not of a deeply rooting nature, and the surface soil to a depth of nearly a foot not infrequently becomes so dry as to cause wonder that anything can live in it. The soil in this neighbourhood is mainly light, some of it very sandy. At a depth of about a foot there is a hard pan that prevents moisture going down in winter and keeps it down in summer. Agriculturists wedded to the ways of their forefathers generally will not break through this crust, and the result is that in the growing time the crops need rain every week or ten days. It is sad to see crops going bad for the want of a little common sense in the management of the land.—J. C. B.

RAINFALL IN 1888.

I BEG to send rainfall for 1888 at Belvoir Castle and at Belvedere House, near Mullingar.

Month.	Total depth.	Greatest fall in 24 hours.		Number of days on which 0.1 or more fell.
	Inches.	Depth.	Date.	
January ...	0.49	.19	21	9
February ...	2.01	.64	15	17
March...	2.92	.64	12	20
April ...	1.73	.33	21	10
May ...	0.72	.24	30	15
June ...	1.58	.41	22	15
July ...	4.53	.62	16	23
August ...	2.54	1.22	29	14
September...	1.13	.27	6	12
October ...	0.62	.15	5	12
November ..	3.29	.48	3	19
December ..	1.03	.40	9	13
	22.64			179

—WILLIAM INGRAM, *Belvoir Castle, Leicester.*

Month.	Total depth.	Greatest fall in 24 hours.		Number of days on which 0.1 or more fell.
	Inches.	D pth.	Date.	
January ...	1.95	.49	1	7
February65	.28	3	10
March...	4.11	.80	10	13
April ...	2.42	.49	19	18
May ...	2.30	1.17	19	8
June ...	4.48	1.17	11	15
July ...	5.94	1.39	27	21
August ...	2.46	.62	19	15
September..	.95	.28	14	5
October ...	1.47	.35	1	16
November ...	3.59	.48	4	20
December ..	3.87	.73	2	18
	34.19			166

—JAMES BAYLISS, *Belvedere, West Meath, Ireland.*

The rainfall in Ireland exceeded that in England by nearly 12 inches; but again the number of rainy

days in England were 179 against 166 in Ireland. It is interesting to compare these numbers with the rainfall in other parts of the world. In a very valuable paper read at the Royal Geographical Society on the Gran Chaco, the large forest district in the Argentine Republic, Colonel Church states that at the lower fall of the Madeira River the rainfall was 91 inches per year, and that the Gran Chaco was almost a lake district in the rainy season. In the southern part of the Argentine Republic the rainfall was only 18 inches; while at Buenos Ayres it was 34 inches or 35 inches per annum. In seasons of extraordinary floods, the Paraguay, the Pilcomayo, and Vermejo overflow their banks, and create a vast sea far exceeding in overflow the area of the Nile, the upper Paraguay becoming a great inland ocean, varying in depth from 3 feet to 10 feet.

BRINSLEY MARLAY.

The Gardeners' Orphan Fund.—At the usual monthly meeting of the committee, held at the Caledonian Hotel on the 29th ult., Mr. George Deal presiding, Mr. H. B. May handed in the sum of £51 0s. 6d., the proceeds of a concert held at Edmonton on behalf of the fund, and Mr. W. G. Head the sum of £7 1s. 6d., collected by card at the Crystal Palace. The receipts for the month from all sources amounted to £83 7s. 11d. On the recommendation of Mr. Clayton, of Grimston Park Gardens, Mr. Lawton, Wilton Gardens, Brough, Yorkshire, was appointed local secretary for that district. The quarterly allowances to the orphan children upon the fund, amounting to £35 15s., were ordered to be paid. The chairman reported that the president, Sir Julian Goldsmid, M.P., had consented to preside at the annual dinner, to take place at the Cannon Street Hotel on July 19, and it was resolved that the dinner should be carried out on the same lines as last year, the tickets to be 5s. each. The following were appointed stewards: Messrs. Assbee, Bates, Bishop, Cannell, Sen., R. Dean, W. G. Head, H. Herbst, Laing, Sen., W. Richards, J. Roberts, W. Roupell, Walker, and B. Wynne.

Lawns and bowling greens.—As a subscriber to THE GARDEN, I should be glad if any reader could answer the following questions as to lawns and bowling greens, more especially the latter. 1. When a bowling green abounds with worms, what is the best, cheapest, and yet at the same time most expeditious way of getting rid of them without injury to the Grass? 2. What kind of seed is the best to use for a bowling green? 3. In case of bare or small patches appearing in odd places, would you advise sowing with seed or relaying the turf? 4. During the winter when the green is not in use, what is the best thing to have it covered with? Is ground charcoal suitable?—T. HALL.

The habits of slugs.—Mr. H. Wallis-Kew, F.E.S., of 112, Hanley Road, N., writes that he is making an especial study of the habits of the British slugs, and he wishes to invite correspondence from those who have experience in gardening, particularly as to the food, times of coming abroad, &c., of slugs. Perhaps some of our readers may be inclined to co-operate.

Mushrooms in old pasture.—Will any reader of THE GARDEN kindly say what is the best and least expensive method of introducing Mushrooms into an old pasture?—E. A.

Cymbidium Lowi.—The plant of this described at p. 300 bore 180 flowers, not 1800, as reported.

Names of plants.—P. I.—Senecio Petasites, Pittosporum crassifolium.

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WOODS & FORESTS.

THE TEACHING OF FORESTRY.

I QUITE agree with the editor's comment in THE GARDEN, March 23 (p. 276), on forestry schools, for I have myself discounted their value in your pages before, but the question that continually forces itself on the minds of those who see what is being done and written on forestry in this country is, "What is to be done to systemise and effectually apply the knowledge and experience we already possess to render the practice of forestry more uniform and more successful?" If forestry is to be taught practically, it must be in the forest under capable men, but on a subject on which no recognised "theory and practice" exists, what guarantee are you going to have that the forester, who is to be the teacher, will teach the pupil correct practice, or anything else than his own prejudices, it may be? Those who propose to establish schools also propose to supplement these by practical instruction under foresters of repute, as the word goes, but as practice is carried on at present, it is just a chance that the forester to whom the pupils may be sent will carry out in practice the principles the school has instilled, and the pupil may have all his schooling upset before he finishes his probationary career. Foresters differ among themselves radically on almost every important point in forestry, as I shall show. Each member of the craft, where not controlled by an intelligent employer, doeth just "what seemeth right in his own eyes," and getting anything like an accurate and trustworthy account of his practice and its results from a £ s. d. point of view is simply impossible. Even the select committee with all its powers got little else than hypothetical estimates on this head, and what they got forbade them encouraging anyone to expect profits from planting as forestry is conducted at present, although the committee were disposed to be sanguine on the subject from the beginning. The prodigious gulf between the opinions of foresters on the subject of profits is itself sufficient to denote utterly diverse methods of practice or gross misrepresentation of facts calculated to deceive planters, of which examples anon.

The subjects on which foresters differ most widely are the profits and losses of timber production—planting, thinning, pruning, and the kinds of trees most suitable for planting. As to the profit and loss question, it is well known that the Select Committee on Forestry which sat lately examined the best men it could find connected with forestry, and amongst these the most noted members of the Royal Scottish Arboricultural Society, headed by Dr. Cleghorn. The result of the committee's examination of these witnesses was, as has been stated above, that no great hopes could be held out of profits from planting, whatever other advantages might be expected. The committee's report, with all its faults and omissions, is the only trustworthy report of its kind, and indeed the only report that gives us any reliable insight into the subject of profit and loss at all. But, as giving an idea of the divergence of opinion on this point, or what better deserves to be called the rash and ill-digested utterances of those who should know better, it may be noted that the Royal Scottish Arboricultural Society, at its general meeting last August, with the select committee's full report at its disposal, sought to persuade landlords that "millions of acres" of land in this country could be "quadrupled in value," after paying all risks and costs, by planting trees. This statement was supplemented, in a contemporary,

by that of another member of the same society, a Mr. McKenzie, a factor or forester, who declared the profits of timber growing to amount to from 5 to 300 per cent. in his own experience, which, however, is not particularised, nor likely to be. This, in turn, has been supplemented by that of another member of the same society, who, in a circular addressed to planters, feels so assured of the profits of planting (data not given), that he suggests "that the ratepayers might be asked to bear the cost" of the planting, and that it will be an interesting question for our new county councillors to consider, seeing they will have extensive powers "in the raising and in the spending of money." When any candidate for county council honours can be found to handicap his prospects by such a proposal, we should like to see him. This is the kind of stuff that passes muster for forestry literature, penned without the least regard to published facts that we know are true.

Next take the thinning of plantations, a very important matter, as upon a correct understanding of the subject depends whether we shall have much or little timber to the acre—whether it shall be a profit or a loss, and whether the timber will be good or bad. When I state that the extremists on thinning differ to the extent of thinning freely and no thinning at all, and that another section differs as to whether thinning should be sufficient to admit the light and air down to the ground in all parts of the wood, or only sufficient to prevent smothering without breaking the continuous leaf canopy overhead, it may be guessed how wide the divergence is, how difficult it must be to decide upon a mean, and how disastrous such differences are likely to be to the practice of forestry.

The admissions of Mr. Michie, in his lately issued book ("Practice of Forestry") emphasise the significance of these remarks. Mr. Michie is one of our oldest and most experienced foresters, and his opinion of thinning is "that, like pruning, it may justly be regarded as a necessary evil, a cure for a disease, or, at the most, art doing under an artificial system what Nature can usually better accomplish if left alone," p. 127. He also refers (p. 124) to patches of natural forest he knows, "several acres in extent of Scotch Pine and Birch, and also patches of Alder, wherein the sound of the woodman's axe was never heard, and which, in point of value, acre for acre, considerably exceed any plantation he had ever seen." Notwithstanding this opinion, however, the author, no doubt recognising the unwarrantable importance foresters attach to thinning, devotes nearly one-third of his book to the subject in its different aspects. Shortly, if I wanted a forester to grow timber, I should have nothing to do with a man whose hobby was much thinning—he does not pay. The sermons that have been written on thinning, and the grave way the subject has been dwelt upon by its advocates, are things well known, and I only give examples like the above on that and other matters to show what the schools and schoolmasters of forestry are like and the results of their teaching.

I confess to being almost hopeless. A forestry school would probably not affect our woods sensibly for 150 years to begin with. If you could provide a code of rules of practice for foresters, teach forestry in THE GARDEN on intelligent lines, and get every country gentleman to thrust these teachings down the throats of their foresters, I would have hopes of good results soon; but when you have to contend with a body of men of which the heads are not given to either reading or travelling, and

whose subordinates are practically illiterates, what are you to do against the adverse influences I have referred to and other evils?

YORKSHIREMAN.

Tapering Oak.—There is a tapering form of the common Oak (*Quercus pedunculata fastigiata*) which deserves attention from the planter, not only from its interest as a very remarkable variety of the British Oak, but also from its distinct and picturesque appearance. The best specimens I have seen were in Central France; but doubtless there are many good ones in various parts of England. It is to be regretted, however, that trees of this character are so rarely found in our pleasure grounds, as this proves that they are either not planted, or so badly placed that they are either unnoticed or hidden. *Q. fastigiata viridis* is another variety of Oak with a tapering habit, also well worthy of a place in our collections.—G.

The Willow as a timber tree.—In the case of the Willow, it is well known to be one of our most valuable timber trees for special purposes, as the wood will wear gradually away, but never splinter—qualities which specially recommend it for the bottoming of carts and wagons employed in carrying stones, coal, or any other commodity where an unusual amount of rough pounding is inevitable. For clog soles it is also invaluable, and might, I should think, be with equal success employed in paving the streets of our large towns. Then, again, what timber has a finer grain, or takes a better polish than the Willow? Amongst my collection of prepared specimens of various woods the Willow and its near relative the White Poplar are, from their beautiful graining, and the bright glossy nature of the timber, both conspicuous and ornamental. I would also like to draw attention to the Gean, or Wild Cherry, as a timber tree.

Pinus Boursieri.—This dwarf-growing, hardy Pine seldom attains a height of more than 20 feet, even in favourable situations. Its leaves, which are stout, are from 1½ inches to 2 inches long, and mostly in twos. The branches are much twisted, and long in proportion to the height of the tree; indeed, in habit the latter is very irregular, assuming more of the scrub than the tree form, and of no value in the shape of timber. It was discovered by M. Boursier on the north-west coast of North America. It somewhat resembles *Pinus Banksiana*, but is scarcely so bushy in habit, and its leaves are a shade lighter in colour. It is shown off to the best advantage when planted on a rough bank, or it would be in character if associated with natural rocky sites in pleasure grounds. As an isolated specimen on a lawn it presents a mean scrubby appearance, and is scarcely worthy of a place even in a pinetum except as a curiosity. Its synonym is *P. contorta*.—OLD FORESTER.

Value of the Norway Spruce.—The uses to which this tree can be applied are varied and numerous. The trees in their younger stages, if properly distributed, form a good covert for game; they also produce a pleasing effect in many positions when judiciously placed in masses among other trees. The wood of the Spruce is also valuable for a variety of purposes, although in many districts, as a marketable commodity, it does not hold a high position. That, however, is owing, in a great measure, to the knotty character of the timber and the difficulty of working it in consequence. When clean grown, it is well adapted for pit props, fencing rails, &c., and when of sufficient size it can be used for roofing materials, rough flooring, and joists; it is also well adapted for making packing boxes, or, indeed, for any other purpose where a fine finish is not required. Its durability may be depended upon for inside work, its lasting qualities being equal to those of some of the imported timber so much used in building. On many estates there is little other timber used for buildings and repairs, and I have known roofs formed of Spruce wood perfectly sound after a period of thirty years. For fencing rails it will last quite as long, if not longer, than Scotch Fir, but, like all other timber, it should be well seasoned before being used.—S. A.

No. 908. SATURDAY, April 13, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

T. W. GIRDLESTONE.

PRUNING ROSES.

It is an astonishing thing to see how that, year after year, the chances of obtaining the most beautiful Rose blooms are frittered away through unintelligent pruning of the plants, even in gardens of great reputation. There are thousands of Rose bushes all over the country which, in spite of being found in spring to have made fine growth during the previous season, never produce good flowers, and the explanation is generally to be found in the fact that no reasonable plan is followed in pruning.

The commonest mistake is the leaving of the older branching spray wood that has already flowered. Dwarf Rose bushes at the beginning of the year generally consist of several much-branched stems which carried bloom in the previous summer, and several strong straight shoots springing from the base of the plant. In the case of Hybrid Perpetuals, these older branching stems should be cut completely out, leaving only the new shoots from the base which themselves should be then considerably shortened. If the old spray wood be left in it produces no flowers worth having, while the weak and crowded growths with which it becomes covered afford a perfect harbourage to every known Rose pest. Nevertheless, it is a common thing for the unlucky Rose bushes in many gardens to be uniformly clipped over with the shears, much as a hedger might top a Quickset, with a view to making a shapable plant, and then people wonder why they never have good Roses.

The only way in which a fine healthy growth can be obtained strong enough to be exempt from the attacks of aphides and able to carry beautiful flowers is by cutting out all the old spent wood that has done its work in having flowered the year before, and relying solely upon the straight new shoots. The extent to which these should be shortened depends rather upon their thickness than upon their length. If they are no thicker than a cedar pencil they may be cut right down to the base; if they are as thick as a finger they may be left 3 inches, 6 inches, or 9 inches long where the wood is sound—that is to say, is well ripened and uninjured by frost. At first it may seem to many people a great waste of material to cut these stout shoots, which are often 5 feet or 6 feet long, down to within 6 inches of their base, but it is rarely advantageous to leave a greater length than 9 inches at the outside. It must be borne in mind that the new growth starts from the tops of the pruned shoots, and therefore if these are left long the effects of a high wind in early June are liable to be disastrous, the weight of foliage and flower-buds at the end of a long stem causing them to sway to and fro and chafe against each other, or even to break short off.

If, however, when a shoot is cut through, the pith is found to be discoloured, or there is a yellow ring between the pith and the surrounding hard wood, the shoot must be cut down still shorter—even to the surface of the ground if need be—to get below the discolouration, for though the eyes on the frost-bitten part of these

shoots will often start into growth, they soon die back and never produce a flower, or at least only a deformity.

In addition to a discrimination between the old wood and the new—"be off with the old wood before being on with the new" might almost serve as a motto for Rose pruners—discretion must also be exercised as to the nature of the varieties dealt with. The foregoing remarks apply, as has been said, to Hybrid Perpetuals of the usual type, and are likewise ordinarily applicable to the majority of dwarf Teas grown in the open; but the treatment is not to be adopted in the case of climbers or the Dijon Teas, unless indeed it is desired to sacrifice bloom for a season in order that the plants may climb higher. It would seem superfluous to mention this, but that the recommendation to prune dwarf Roses hard has before now resulted in the cutting down of every Rose in a garden to the same level, and only recently a fine set of tall standards of such Roses as Gloire de Dijon and Reine Marie Henriette which had made magnificent growth and promised a grand display of bloom were found to have had every single shoot ruthlessly chopped off within an inch of the base—a proceeding which can only result in a late, though probably very strong, flowerless growth.

Such climbing Roses only need to have their long shoots tipped, just a few inches taken off the ends, as far back as they may have been touched by the frost; although it is well that the pruning of these Roses, as of all Hybrid Perpetuals, should be begun by cutting out the old wood that carried flowers in the previous July.

Hardiness of Tea Roses.—Some writers would have us believe Tea Roses are too tender almost for the open. There is no greater fallacy existing. I have seen Tea Roses, and of the commonly supposed tender varieties, left to the mercy of frost and wind without the slightest protection, and this both in the country and the suburbs of London. The great point is to purchase strong healthy plants in the first place, and give them a good holding soil. It is the foolishness of writers who assert that Tea Roses are tender that keeps many from growing them. There is no flower more delicate, free, and beautiful than a Tea Rose, and no more welcome sight than groups of the best kinds in full bloom in July.—C.

Pruning Moss Roses.—I have some beds filled with Moss Roses, the sorts being the common crested and the white Bath. After the first year of planting they were pruned in to two or three eyes on each shoot, and the following summer the plants made good clean growth. Instead of pruning the shoots close in again, I left them about 2 feet long and pegged them down. From nearly every eye the plants broke freely, and made good shoots which flowered well. The next spring I cut back these growths to within one or two eyes of the main branch, and the results have been satisfactory. This practice may not be new, but it has the effect of more quickly covering the bed with shoots, and consequently flowers, than could be done by close pruning annually.—S.

Chinese or Bengal Roses.—I have here two small round beds filled with these free-flowering showy Roses. One bed contains the old Crimson and the other Cramoisie Superieure. For the last eight years the plants have flowered very freely. One does not now often see this class of Roses cultivated in gardens, unless in some out-of-the-way corner or in a cottage garden. The frosts during the past winter have done more damage to the plants than during any year I have had them. This is no doubt owing to the unsatisfactory state of the growth of last autumn, and in my case the plants are so situated that they get but little sun during the autumn. In many instances the plants have

been killed down to the ground line. I have now cut them down to that part, and shall hope to see them throw up strong sucker-like growths, which will reward me with a rich show of blooms.—S.

JUDGING ROSES.

THE Rose grower having succeeded in growing his Roses to a state of perfection so as to enable him to exhibit, has to take into consideration the kind of blooms which are likely to find most favour in the eyes of the judges, so that no points are lost in attaining as high a position in the prize list as possible.

In the eyes of all good judges there appear to be three essential points necessary to constitute a good bloom. First comes the matter of form—without this no bloom can be considered perfect, however large in size and fine in colour. Next to form, colour and freshness find most favour. And, lastly, comes the question of size, though this by some judges is considered equally as important as colour and freshness. The past few years have witnessed a great change of opinion in this direction, and the boxes of large, dull-coloured, and mostly overblown blooms do not find the same favour now as a few years ago. Thanks to our National Society for this better state of things, which is one among many improvements it has mainly been instrumental in bringing about. By all means let the large Roses win when combined with the same smoothness of petal, high finish, and brilliancy and freshness of colour of those slightly inferior in size, but only when all these good points are there; for how often do we find very large Roses exhibit a roughness of petal, serrated edges, and dullness of colour anything but pleasing to the eye, the last often the result, practised by some exhibitors, of the too free use of worsted bindings as a preventive against the blooms becoming too open, a gaining of size at the expense of colour, and showing the flower up in an unnatural form.

Having touched on the chief points necessary to constitute a good bloom, the question then arises as to the various methods employed in judging a class, say where a dozen boxes or more are in competition for the three or four prizes offered, and the usual three judges are appointed to make the awards, the exhibition being one of importance, where competition runs high and the exhibits are nearly all of equal merit—a thing of no unusual occurrence at some of the large shows.

The first thing is to find from the schedule the number of prizes offered, then for all the three judges to go through the collections and pick out the best boxes to the same number, and when unanimous on this point, and it is found that two or more stands run each other very closely, then it is necessary for one of the judges to examine each individual bloom and call out the points to his fellow judges, they checking him as the work proceeds, three points to be the maximum number for the fines blooms, and two and one for those not so good. Extra points perhaps may be necessary for any blooms of extra merit, but this can only be regulated by the standard adopted in judging. When this system is carefully carried out, there is not much fear of arriving at wrong decisions as to the relative merits of the different stands. This plan I think to be much superior to that practised by some judges of simply counting the good or bad flowers in each stand and making their awards accordingly, as by this method not sufficient account is taken of the inferior blooms, and these vary in their different degrees of inferiority just in the same manner as the good flowers vary in their superiority.

Then there is the question raised by some judges as to whether a stand containing a large proportion of Tea varieties of good quality should not have extra points given over those containing none or very few Teas. These latter, in my opinion, should have no extra favour shown except they fulfil all the conditions which go to make a perfect bloom as regards shape, size, &c. All undersized blooms, whether Tea or otherwise, should be passed over without counting, and it is only in cases where exhibits run very closely together in point of merit that the Teas, which give greater variety of colour, should have some weight in deciding between the merits of stands. For, after all, variety has a charm which most exhibitors are fully alive to, and who know the value of a few finely-developed Teas in a box. Then, again, the question sometimes arises in the minds of judges as to whether the blooms of Tea varieties, being more difficult to produce than those of the Hybrid Perpetuals, should not have extra points given on this score. But this suggests the question, Are Teas really more difficult to grow than the Hybrid Perpetuals? And I think the answer to this, so far as the drier southern and eastern counties are concerned, would be that perfect blooms of Teas are more easily to be had than many of the dark crimson and red Perpetuals. For in our coolest summers are there not always a few of those "awful hot days" coming just at the wrong time, and which always seem to take the life out of those promising buds of Xavier Olibo and Charles Le-febvre, whilst Jean Ducher, Etoile de Lyon, and a host of other Tea varieties seem to revel in the tropical heat, and all at once put on their greatest splendour? Our Rose brethren who grow their Roses near the coast, where the temperature is more equalised by the cool sea breezes, have but a faint idea of the difficulties experienced by us more inland growers in being able to exhibit many of the darker varieties of Hybrid Perpetuals in their best form, owing to these bursts of extreme heat and the greater severity of spring frosts through our more central and flat position.

Before concluding, there is one other matter so closely connected with the judging of Roses that a few lines may not appear out of place, and that is the undue dressing of the flowers, a practice which appears to be on the increase every year, and if carried to extremes, so far as the exhibiting of the flowers is concerned, bids fair to sink the Rose to the same dead level of shape as the show Dahlia, and destroy the different types of form, one of its greatest charms. There may be no great harm in the straightening of a petal if slightly out of place in a reflexed shaped Rose like Madame de Watteville, but when one comes across a variety like Souvenir d'Elise with two or three rows of its large shell-like outer petals curled back into a reflexed shape, then the practice I think all true rosarians will condemn, as these and other types of Roses have a peculiar natural beauty of their own, which no amount of petal-curling or worsted string twichings round the centre will improve.—J. BURRELL, in "Rosarian's Year-Book."

Spring flowers in the garden of Canon Bridges at Beddington.—Many things are just now in great beauty. More especially is this the case with various forms of the common Primrose, the blue Squills, Arabis, Erica herbacea, and especially large masses of Draba aizoides. This is really one of the most beautiful gems in a spring garden, and it recalled to my mind my earlier days, for nearly forty years ago this was grown in very large quantities for spring planting in the Earl of Ellesmere's

establishment, the large clumps being removed after flowering, when propagation was effected if considered necessary.—W. H. G.

PROPAGATING.

POINSETTIAS.—It is now time to start these into growth, and to secure good strong cuttings the old plants should be placed in a favourable position. Their chief requirements are: a light, open position, a rather high temperature, a moist atmosphere, and a little liquid manure. Weakly cuttings never make well furnished plants. The cuttings should be taken when the shoots are 3 inches or 4 inches long, taking them off within a joint or two of the old wood; they must be cut off quite close below a joint, and a little dry sand applied to prevent the milky sap from flowing. This is a very important point in connection with all plants of this nature. The cuttings should be put in singly in small pots, using a compost of loam, leaf-mould, and peat in equal parts, with plenty of sand added. The pots should be prepared beforehand, so that the cuttings may be taken off, and put in with as little delay as possible. They should be plunged in the hottest part of the propagating pit, kept quite close, and well shaded for a few days. It will be better not to give much water for a day or two, but the cuttings should not be allowed to become dry enough for them to flag. Although plants propagated in June will produce fine heads of bracts the following winter, and will keep their foliage better than those propagated earlier, it is best to commence as soon as the old plants have made sufficient growth. Those started early may be topped after they have made some progress and the tops used as cuttings, and these will make the best plants, as the bottom leaves will be larger.

Poinsettias may be propagated as late as the end of July. Strong cuttings taken at that time and carefully treated will make dwarf plants with good foliage down to the surface of the pots, and they will also produce good heads of bracts. It requires a little experience, however, before it is safe to trust to propagating much later in the season than the early part of June.

WINTER-FLOWERING BEGONIAS.—These should now have attention. A few of the old species are still worthy of cultivation. Although not so brilliant in colour as the varieties of the tuberous section, they have the advantage of flowering freely during the dull winter months. *B. insignis* is an old species, and has bright green foliage and pretty coral-like flowers. It is very serviceable at Christmas-time. Cuttings put in now will make good plants the same season. If a few old plants have been properly cared for, it will not be difficult to get good cuttings. Short side shoots taken off close to the old stems are best, as they are shorter jointed and will break out better after they have been stopped. They will root freely in the ordinary stove propagating pit. If kept close they will require very little water for the first few days; the leaves must be kept quite clear of the plunging material, otherwise they will be liable to damp off. *B. Knowsleyana*.—This is a remarkably free-flowering sort, and will bloom at any season of the year, but it is during the winter that it is most useful, the flowers, though pink when exposed to bright sunshine, being pure white in winter. Cuttings rooted now and kept continually stopped until late in the autumn will make fine bushy plants, which will flower freely well on through the winter. *B. odorata* is very useful for cutting from, the large trusses of pure white blossoms being produced on long stalks. To flower this species successfully the plants should be confined to small pots and grown in a higher temperature than is required for most of the Begonias. *B. nitida*, which is very similar to the above, except that the flowers are pink, may be grown under the same conditions. Cuttings from rather slender growing shoots should be selected, and if grown in light sandy soil, with about three plants in a pot, they will flower better than when grown singly and stopped. *B. fuchsoides* is a very pretty species, which flowers freely

during the autumn and early part of the winter in a greenhouse temperature. It is an old favourite which, when propagated early in the spring and well cared for during the summer, will make a bright display. Cuttings rooted now may be started in a little warmth, and later on the plants may be grown in a cold pit, and will give very little trouble. *B. Moonlight* is another very useful variety, which should be propagated at this season. Short side shoots which have not begun to show bloom make the best cuttings. They will root freely under the same treatment as previously recommended, but this variety requires some care to succeed well with it. The plants should be grown in an intermediate temperature, and must be potted in good light compost, taking care that they are potted on before they have become pot-bound. If once the plants receive a check it will be impossible to get them to start away freely again; but when grown successfully it is one of the best, and produces immense quantities of creamy white blossoms, which contrast well with the rich glossy green foliage. *B. metallica*, which has rather large leaves of a metallic hue and pretty rosy pink flowers, may also be regarded as one of the most useful. When well grown it is effective as a foliage plant, and when in flower an additional charm is added. It may be propagated and grown under the same conditions as the last-mentioned variety. Begonias are naturally of free growth, and most of them are very free-flowering, but, like all other plants, to have them in really fine condition they require regular attention, and young plants are far better than old ones. If watering is carefully attended to they may be grown on in a position where they are well exposed to the sun, a slight shading during the hottest part of the day being all that is necessary. Plants so treated give far greater satisfaction than those grown in a close, over-shaded position. A.

FERNS.

W. H. GOWER.

AMPHIDESMIUM BLECHNOIDES.

THIS is a Fern which at various times I have received from Trinidad, in which island it appears to be common, or at any rate by no means rare. I am unaware if it is now alive in this country, and if not, anyone having friends in Trinidad should endeavour to re-introduce it in a living state, for, independent of its intrinsic beauty, it appears to me to be a Fern that we know very little about. It is the *Polypodium blechnoides* of Richard, a writer upon the plants of Guiana, *Polypodium rostratum* of Humboldt, *Polypodium Parkeri* of Hooker and Greville, *Alsophila blechnoides* of Hooker, *Metaxya rostrata* of Hooker and Bauer, and *Amphidesmium rostratum* of Martius. Why it comes to be an *Alsophila* I do not know. The only reference that I can trace is in Willdenow's "Species Plantarum," vol. v., p. 193. He says under *Polypodium rostratum*, "Caudex erectus arboreus," but all the plants that I have seen had a stout creeping stem, and I think if this plant did really make an upright stem we should have heard something about it from its native country. The plant in question I have never seen with fronds more than 3 feet long; these are simply pinnate, the pinnae being each 9 inches long and nearly 1½ inches wide, serrated at the points, and rich shining green. The fructification is very curious, and chiefly confined to the middle of the pinnae. It is a very handsome and distinct Fern, and worthy of a place in any collection of plants for its beauty, and certainly deserving of attention for its apparent peculiarities. Beside the spot I have named, it is said also to occur in various parts of the West Indies and on the mainland of Tropical America.

Todea intermedia.—I think this is the plant which Mr. Smee has in his garden under the name

of *T. superba*, and which remains out in a cold frame without any other protection. It is a splendid plant with a very dense head of fronds, which are a yard long and in perfect health, the colour being intense deep green. This is another instance showing how hardy this species is. In this position the plant is as healthy as any I have ever seen, and proves that many who suppose that a special structure is necessary to develop its beauties could grow it.—G.

Polystichum coniiifolium.—This is one of the great charms in one of the Orchid houses in Mr. Smee's garden, the fronds being 2 feet or 3 feet high, and of an intense bright shining green. It is a native of the East Indies, but thrives well under cool treatment, the specimen plant referred to having stood in a temperature of 48° during the winter.

Osmunda palustris.—This Fern is just now extremely beautiful in Mr. Smee's Orchid house, where quantities of Ferns and Orchids in flower are mingled together. The plant in question is now making a quantity of young fronds, and these are suffused with a delicate bloom similar to that of a Plum, which, in contrast with its green fronds, is charming.

Lomaria discolor.—One of the most handsome of the species belonging to this family, and being a native of New Zealand, it is well adapted for a cool fernery. It forms a stout, short stem, and bears a good crown of fronds, each of which attains a length of 2 feet. The fertile fronds are contracted and stand erect. Sometimes, however, the basal part of the pinnæ is not contracted, and in this state it produces a very pleasing effect.

Onychium auratum.—This beautiful Fern is thriving well in the Burford Lodge collection, where it is grown in a cool house. The rhizome is creeping, and the fronds are from 1 foot to 2 feet in height, finely divided, the upper side very deep green. The indusium which covers the sori is of a golden yellow, and gives the underside of the fertile frond a rich and gorgeous appearance. It is a native of Northern India and the Malay Islands, and we think it still remains one of the rarest species in cultivation.

Adiantum dolabriforme.—This species is too frequently classed with *A. lunulatum* by those botanists who confine themselves entirely to classifying and naming from dried specimens only, but if studied in a growing state, great and important discoveries may oftentimes be made, *A. lunulatum* being invariably deciduous and *A. dolabriforme* evergreen. Nice examples of the latter we noted a short time since in Messrs. Dixon's nursery at Hackney. Both species make excellent basket Ferns.

Microlepia platyphylla.—This is a bold-growing, handsome Fern which we recently noted in fine condition. It is a conspicuous and showy plant, having a character peculiarly its own. The fronds are from 2 feet to 4 feet high and very broad. The segments, which are 1 foot long, broad, and flat, are on the upper surface bright lively green, and beneath are ornamented with large reddish brown sori. The fronds are beautifully arched and the plant grows quickly. It thrives best in a cool house.

Gymnogramma gloriosa.—This species does well with Mr. Bain in Sir Trevor Lawrence's garden, where it is grown as a pot plant. The long, brilliant green, delicately cut fronds fall all round in such a regular manner, that one could easily imagine it a work of art instead of Nature. This is a very different thing to the typical plant, *G. schizophylla*, which was, I think, introduced by the Messrs. Veitch, and which has always proved a bad grower.—W. H. G.

Davallia fijiensis plumosa.—I believe this Fern is one of the introductions of Mr. William Bull, of Chelsea, and it certainly is one of the handsomest kinds ever brought into cultivation. The finest example of this plant I have ever seen is now in Canon Bridges' garden at Beddington. The large fronds are deltoid in outline, pendent, and the colour an intense deep green. It would appear

to be a plentiful species in various of the Fiji Islands, and was collected by Milne many years ago. It is also useful because it thrives in moderate heat.—G.

NOTES OF THE WEEK.

Rose Princess Beatrice.—Flowers of this pretty Rose come from Mr. Bennett, of Shepperton. It is useless to try to give in words an idea of the colour of this lovely Rose. The colour is as near yellow-buff as anything else, the foliage being also very handsome.

A freak of the common Primrose.—I beg to forward you a Primrose bloom which has assumed the form of a Polyanthus. The plant from which this was taken was found growing wild on my lawn. Is this unusual in the Primrose?—G. L. DILLON (Major-General), *Youghal, Co. Cork.*

Tulip Crimson King.—For late flowering in pots this Tulip is one of the best single varieties, coming into bloom at the beginning of April when the bulk of the earlier kinds are past. This variety is much appreciated, as it prolongs the supply where Tulips are admired in the house.

Dracæna australis in Sussex.—I have in the garden a *Dracæna australis* doing remarkably well. It has been planted out some five or six years, having got too big for the greenhouse. This year a robin has built its nest in it, which I think is very singular. The tree, which is some 10 feet high, is growing freely and has very good foliage. The nest is almost hidden from view.—W. W. HASLER, *Aldingbourne House, Chichester.*

The double Auricula.—We herewith send you a few blooms of the fine old double Auricula. The flowers were almost over before we thought of sending them. It is so scarce that we seldom hear of it now.—JAMES COCKER AND SONS, *Aberdeen.*

*** A very pretty old plant, which we hope Messrs. Cocker some day will have plenty of.—ED.

Clivias.—I beg to enclose you a flower-spike of *Clivia* with nineteen flowers. It bore twenty-one, but I, unfortunately, gathered two before I thought of sending it. I think it is exceptionally large, as I have several other plants flowering here in the conservatory which have only an average of twelve to fifteen each.—JAS. HARRIS, *Wooland House Gardens, near Blandford, Dorset.*

*** A fine umbel of the showy *Clivia miniata*.—ED.

Muscari botryoides carneum.—I ordered three bulbs of this last autumn, but did not expect much from it. These roots are now in full bloom, and I am much pleased with the delicate beauty of the flowers. They are pale flesh colour, much the same tint as those of *Scilla bifolia carnea*. I think this plant is likely to become a favourite.—JAY AYE.

The white Chionodoxa.—When describing this from memory a few weeks ago, I was wrong in stating that the inside of the petals is pure white. I find such is not the case. The flowers on opening are stained towards the tips with pale lavender or porcelain-blue. After a few days this colour almost entirely disappears. In all its stages the flower is most beautiful.—JAY AYE.

Lathræa clandestina.—I am much interested in Mr. Tallack's note upon this plant in THE GARDEN of April 6 (p. 316), but he does not say what he considers, in his case, to be the supporting host of this beautiful parasite. I was much charmed with it last year on seeing it in flower at Kew. I should be greatly indebted to anyone who would send me some pieces of *L. squamaria*.—R. I. LYNCH.

Partridge Berry in Philadelphia, U.S.—A beautiful little bog plant, the Partridge Berry (*Mitchella repens*), is sold by the coloured flower girls in the streets here in great quantities at 2d. a bunch (about a handful). It resembles *Fuchsia procumbens* in habit, and bears brilliant scarlet, Cotoneaster-like berries. A bunch of these branches in full berry will keep for several weeks in water, as it retains many of the fine rootlets along the stem.—J. MURISON.

Spring flowers in "My Garden."—These plants are beginning to look bright and lovely in Mr. Smee's garden at Carshalton. *Caltha palustris* is now beautiful beside the brooks, its rich golden flowers reflected in the water giving a double effect.

Here also are to be seen clumps of *Cyclamen Atkinsi* in variety, *Primula nivalis* and *P. farinosa*, various forms of the pretty *Epimediums*, the lovely *Puschkinia scilloides*, with its charming white flowers delicately tinged with light blue; *Sisyrinchium grandiflorum*, and the variety album. These, with numbers of *Crocuses*, *Arabises*, *Aubrietias* and other things, give great hopes of a beautiful display later on.

Spiræa astilboides.—This is one of the coming plants, and may one day take the place of the common kind. We were reminded of its usefulness by a batch of plants recently about to flower in the Epsom Nursery. It was introduced by Mr. W. Bull, of Chelsea, from Japan, and is considered by some a variety of the Goat's-beard *Spiræa* (*S. Aruncus*); and whether this is the case or not, it resembles that species in general aspect, though it is far more graceful and much dwarfer. The white flowers are borne in tall plume-like panicles, which rise from a mass of spreading leaves. It is one of the handsomest greenhouse flowers we have, and it does well in a bog garden, in which situation it was blooming freely last summer at Broxbourne.

Galax aphylla is a charming plant for the rockery, and where it can be sheltered the various-coloured foliage is very pretty during the winter. We are told that the leaves are gathered during the winter in considerable quantities on the mountains of North-west Carolina, and sent north to be used in winter decoration. They range in colour from bright glossy green to deep crimson-maroon and dark bronze, and are often richly variegated. The *Galax* is perfectly hardy, and flourishes well in a peat bed such as is used for American Lilies. It forms numerous runners, by which means it is readily propagated. Its flowers, which are white and last for a considerable time, are produced in the greatest abundance. The bronzy foliage and bright scarlet berries of *Gaultheria procumbens* are also very effective on the rockery during the autumn and winter months. It is not so particular about soil as the *Galax*, and we have seen it used very successfully as an edging.

Seedling Hellebores.—I may supplement Mr. Wolley Dod's note about Hellebores by saying that Mr. Archer-Hind kindly sent me seeds at the same time that Mr. Wolley Dod had them, and plants from a sowing then made are now in full bloom. They are much later in this part than further south and are very beautiful. I send you a few. One great fault is that they will not live in water if cut with a long stalk, but cut the flowers with about an inch of stalk and place them in wet Moss, as Mr. Wilson recommends for Primroses, and they make an extremely pretty dish. A soup-plate does as well as anything. I strongly advise the raising of seedlings. These take about three or four years to become blooming plants, but I had one or two which flowered the second year. I grow mine on the north side of a Holly hedge in a very well-made bed, and they are the envy of most people who see them, but up here the blooms must be protected, as the north-east winds completely spoil them. They have been in bloom two months and will last for another month. I find the guttatus section is much more rare than the others.—A. RAWSON, *Windermere.*

Clianthus magnificus.—This very beautiful New Zealand trailing shrub is now in flower here on an open west wall, where it seems quite at home and grows most freely. Many of last year's branches grew over 4 feet long, and from the axil of every leaf a long raceme of open flowers or flower-buds is now hanging. The plant will continue in flower for two or three months. The very moist year of 1888 seems to have well suited it. The moist, mild climate of the south of Ireland is just what it enjoys, for I have never seen any cultivated under glass with anything like the health of the plants here on the open walls. It is easily propagated either from seeds or cuttings, and will grow in any good garden soil, a liberal supply of weak liquid manure during its growing season greatly improving the colour and brightness of its foliage. I have found that when planted side by side with *C. puniceus* it is more hardy, brighter in foliage and flower, and a much freer grower. This might meet the eye of many

lovers of beautiful shrubs who live in South Devon and Cornwall who have not yet tried this beautiful Glory Pea outside. To all such I say, Try it.—W. OSBORNE, *Fota, Cork*.

Muscari Heldreichi.—It is very annoying to pay 3s. 6d. for a bulb of a supposed new plant and when it blooms to find that you have dozens of the same plant in your garden, having bought it some fifteen years before under another name at less than a sixth of the present price. This is the old *Muscari pulchellum*, or, at least, this is what is sent to me. It is a very good thing, but a regular "sell" under the circumstances.—JAY AYE.

Oncidium cucullatum.—This is one of the loveliest of the *Oncidiums*, and the flowers show a great variety of colouring in the lip. This is very noticeable in the plants of it in bloom in the Studley House collection. In one case the lip is unusually rich, profusely covered with lake-crimson spots; in another the blotches are of large size and laid on a paler ground, while in others the colour is a self rose-purple with scarcely a spot, and yet other forms have a white ground, charmingly beautified by bright rose-purple blotches. We regard this *Oncidium* as a perfect gem of its class.

Colchicum crociflorum.—Those whose taste runs in the Sunflower line will not care for this plant. It is neither big enough nor gorgeous enough for them. The flower is smaller than that of many of the *Crocuses*, but the clear white of the interior is nicely set off by the purple stripe on the exterior, and each root sends up three or four blooms. It opens in the early days of March, and seems to be perfectly hardy. I have ordered it several times, but until this season have never got the true kind, which appears to be scarce in the trade.—JAY AYE.

Some pretty combinations of spring flowers.—Finding that *Iris reticulata* planted alone had a somewhat sombre appearance, I last autumn mixed this *Iris* with *Leucojum vernum*, to the great advantage of both these charming flowers. Each group contains from 150 to 200 bulbs, and the effect is exquisite. Another very pretty combination is *Narcissus Horsfieldi* planted in a ground-work of *Anemone apennina*. *Primula nivalis*, *marginata*, and *rosea*, are all very beautiful this spring. In the shrubberies various *Daffodils* are just coming into bloom above the bright green foliage of the winter *Aconite*.—H. M., *Worcestershire*.

Primula petiolaris seems to be very unfortunate in its first introduction to our gardens. It is described as one of the finest of the Himalayan species, and Mr. Elwes, its introducer, seemed very much disappointed when he saw the plants in flower. He says "it forms large heads of deep bright purple or pink flowers, quite hiding the leaves;" but as it is said to be a variable species, we may yet be able to obtain a good variety. It is found in damp shady woods at an elevation of 9000 feet to 10,000 feet, the leaves, broadly oblong with jagged margins, being in rosettes. The flowers on the specimen shown from Kew at the meeting in the Drill Hall on Tuesday were pale pink, and seemed inclined to become double by forming secondary petals between the others. *Tridentata* and *sessilis* are synonyms.

Dimorphanthus mandschuricus.—I was very pleased to see the note by A. D. Webster on page 308 of *THE GARDEN* drawing attention to this extraordinary looking shrub. As there seem to be doubts about its hardness and of its adaptability for out-of-door culture, except in the most favoured situations in the southern counties, it may interest A. D. Webster and others to know that according to my experience with the plant I find it to be of such a hardy nature, as to grow freely out of doors even as far north as this. Several specimens of it were planted in the shrubberies here about ten years ago, in a somewhat sheltered, though low-lying and damp situation. Being at that time rather suspicious about its hardness, the plants were, with the advent of winter, annually wrapped with straw ropes for protection, in which condition they passed through uninjured the critical test of 8° below zero in the early part of January, 1881.

We have given them no protection whatever during the last five or six years, and they have been exposed to from 20° to 30° of frost on several occasions in that time. They are planted in a rich alluvial deposit, in which they make leaves of large dimensions, which are highly ornamental, having a distinct, sub-tropical appearance. The flowers, which appear from the top of the growths, with us in September are a feature of only secondary importance in comparison to the other ornamental characteristics which the plant possesses. It is a native of Manchuria, in China, and was introduced in 1866.—J. GRAHAM, *Milne Garden, Coldstream, N.B.*

Primula nivea.—This beautiful snowy Primrose is now very charming in my cold house, and it is one of the most interesting of the hardy species of Primroses. The plants are strong and were potted in 5-inch pots in July last. All the summer and autumn the plants were plunged in a bed of Cocoa fibre, and when hard weather set in, fearing the effects of fog and wet weather in combination, I took the plants into a cold house, where they are now flowering. It is so free that on some plants I have as many as ten and twelve trusses. Has this species been tried as a market plant? I should think it would sell remarkably well. Some time since I saw a white *Auricula* advertised, and having ordered it got *P. nivea*. But there exists a semi-double white *Auricula* which I got some years ago from M. Louis Van Houtte. It seeds pretty freely, but I have never succeeded in getting a white variety among the seedlings.—R. D.

Shortia galacifolia.—This remarkable plant is the only American representative of its genus, and was dedicated to Dr. Charles W. Short, of Kentucky, by Dr. Gray in the *American Journal of Science* in 1842, about fifty years after its first discovery by Michaux in the mountains of North Carolina. It presents us with a case somewhat analogous to that of *Narcissus cyclamineus*. The *Shortia*, as is well known, had been long sought for in the locality given, and its very existence even doubted until re-discovered in 1877 in McDowell County, North Carolina, by Mr. G. W. Hyams. The specimens collected by Hyams, however, did not reach Dr. Gray for full examination and comparison until 1878. Under the guidance of the re-discoverer, Dr. Gray and several other botanists the following year visited its habitat, where in a spot about 10 feet by 30 feet from fifty to a hundred plants in all were found. Growing in company with it were *Galax apophylla*, to which in leaf and habit it has a near affinity; *Asarum virginicum*, and the charming little *Mitchella repens*. This *Shortia* must surely have covered a much wider area in bygone times, and Dr. Gray suggests that the *Galax* had crowded it out, which is not unlikely, as it (the *Galax*) has a more robust habit and is altogether stronger. Another habitat has been found in America, and this was the source from which Mr. Elwes obtained the plant shown at the Drill Hall a fortnight ago. Its whereabouts, however, is kept secret, and unless some of our travelling nurserymen happen to drop across it, we need not fear its extermination for some time. Its original habitat was a very secluded spot overshadowed by *Rhododendrons* and *Magnolias* growing with the plants above mentioned, and where the *Mitchella* establishes itself there need be little difficulty with the *Shortia*. It forms runners exactly like the *Galax*, by which means it may be propagated. The presence of these runners makes the difficulty of accounting for its scarcity very great, but of course the fact of the *Galax* being the stronger plant helps us out of the difficulty. It has been found in Japan also, and was described by Maximowicz under the name of *Schizocodon uniflorus*, and also as *Shortia uniflora*, but the Japanese plant was identified by Dr. Gray as the American one, which he had described under the above name many years before. There are two species of *Schizocodon* found in Japan (*soldanelloides* and *ilicifolius*), and although it forms a closely allied genus, it is distinct enough to be kept separate. The *Shortia*, when once fairly established with us, is sure to become a general favourite, its large charming white flowers and neat

habit being good recommendations. It appears to have been cultivated by Woolson and Co., of Passaic, a few years ago, and a water-colour drawing made from one of their plants was reproduced in the *Gardeners' Chronicle* in 1881, and also in Goodall's "Wild Plants of America," tab. 24. Another species (*S. Davidi*) found in Japan is figured in Franch. Pl. David, t. 133, and looks not unlike a *Globularia* or *Statice* not yet introduced. The plant figured in the *Revue Horticole*, 1883, p. 41, as *Shortia californica* is an annual Composite, the correct name of which is *Actinolepis coronaria*; also known as *Hymenoxys californica*, *Bæria californica*, &c.—K.

A useful and profitable hardy flower.—A Russian journal devoted to the industrial interests of the Caucasus describes the cultivation of the *Pyrethrum* plant in the Caucasus. The flowers of the *Pyrethrum* (*Pyrethrum roseum*) are used for making the powder, which is sold under various names, "insect powder," "Persian powder," "death to insects," &c. In Europe these flowers are only found in Dalmatia, but these are white and not rose-violet, like those of the Caucasus form. The Dalmatian *Pyrethrum* is appreciated, and when its crop is scarce the Caucasian flowers are eagerly sought for, and their price increases by from 200 to 300 per cent. This was the case in 1887 and 1888. Prices which had varied between 3 and 7 roubles for the previous ten years reached all at once in 1887 15 and 16 roubles at Tiflis. Formerly a certain quantity of *Pyrethrum* in powder was exported from the Caucasus, but Europeans were not satisfied with receiving this delicate article in this form, because it was discovered to be mixed with foreign substances, and growers in the Caucasus could not reduce it to the impalpable state requisite to preserve its efficacy. At the present time the flowers only are exported. It is necessary that they should be cut as short as possible at the stalk, gathered when ripe, dried in the shade and in a current of air, because in the sun the bloom and rose colour are lost, and, lastly, that they should not be mixed with other herbs when being gathered. Recently a fraud has been noticed in the packages of Caucasian flowers, other flowers resembling those of the *Pyrethrum* and dyed of the same colour having been found. The exports amounted to between 175,000 and 200,000 kilogrammes last year; of those three-fourths were badly prepared, the season having been a very rainy one.

Packing cut flowers.—I have read with interest the various modes of packing cut flowers that have been brought forward from time to time in *THE GARDEN*. Considering the importance to employers and employed, to say nothing of the difference in market returns, of the arrival of flowers in the best possible condition, I venture to submit to your readers the simple plan adopted here. Our packages in their journey of some 300 miles by land and water are subject to the none too careful handling of railway porters, steamboat officials, and country carriers, and should be a fair test of our style of packing. The materials required cost nothing. They are clean Moss and Willows, or any other pliable sticks that may be had. We make small bunches of such things as *Azaleas*, *Pelargoniums*, &c., and then tie a small quantity of Moss at the bottom of each bunch, inserting the Moss and stems in water for a time (a very important item), and gently squeezing the Moss before packing. Boxes of various depths are used, the largest for *Rhododendrons*, &c., the shallow ones for *Orchids* and small flowers. Placing a row in the box, I cut a stick that will just fit tightly across, pressing it down carefully to the stems, by which they are perfectly secured, repeating until full; the last row being reversed no space is lost. No harm can result from the box being turned in any position. I have seen correspondents asking how *Gloxinias* and other fragile and easily-bruised flowers may be packed. This plan answers admirably. A little soft paper or wool may with advantage be worked up between the blooms, not over them, and they turn out as fresh as when gathered.—M. WEBSTER, *Cyfarthfa Castle Gardens*.

A PLACE WHERE "NOTHING WOULD GROW."

THERE are often bare corners in gardens and shrubberies that are left bare because their condition is considered hopeless. Their owner will say, "Oh, that is a place where nothing will grow!" Such a place, condemned in much such terms three years ago by many who saw it, is now shown in the engraving. Throughout the past winter it has been the best clothed bit of the garden, with its healthy-looking clumps of *Helleborus corsicus*, *H. fetidus*, and *Iris foetidissima* and Irish Ivy beginning to cover the paling at the back. The soil is the poorest pos-

sible in the form of cigars, cigarettes, and cut Tobacco, but the quality of all is so deficient that we do not again mean to grow it.—J. MUIR, *Margam*.

CHRYSANTHEMUMS.

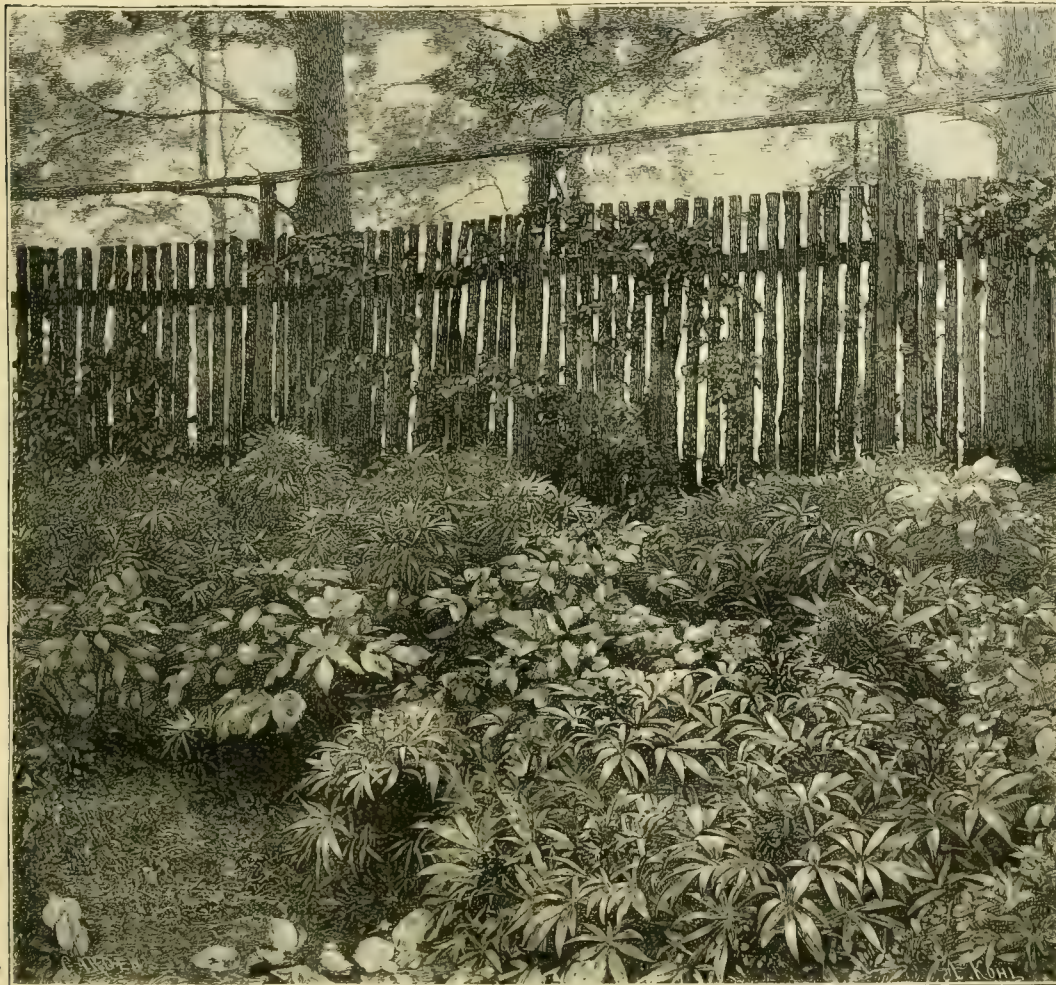
E. MOLYNEUX.

JAPANESE CHRYSANTHEMUMS.

BOUQUET FAIT FAMILY.—When this variety was introduced from the Continent in 1880 it was much admired as a cut bloom, and promised to be a desirable variety to cultivate for that purpose; but as time went on it became evident that the sort named was of too early a character to become generally grown. In the north

the flowers are freely produced. They are medium in size, the florets tubulated, and some of them serrated. The centre of the flower is well filled up, the colour being a soft rose-pink. William Robinson sported from the parent three years afterwards; it is exactly like the preceding in habit of growth, and equally well suited for specimens or bushes. The colour is orange, tinted rose, approaching to bronze. Mary Louisa Galton is another sport from the same source, paler in colour than its parent and shaded lightly with yellow, but being perhaps earlier than any sort in this family, it loses in value somewhat even as a decorative variety.

JAMES SALTER FAMILY.—This family belongs to the semi-early-flowering section, and comes in just before the bulk of the ordinary November sorts. With the amateur this family is held in high esteem, as the varieties never fail to produce an abundance of blooms and come early. This is a difficulty amateur cultivators have to deal with, and it often proves to them a sore hindrance in obtaining blooms for the earliest shows when exhibiting is desired. I consider the parent in this family the least important of the two, both in usefulness and appearance. In 1869 Mr. J. Salter introduced the first of this family, which has flat florets, erect at first, and when thoroughly developed twist irregularly into nearly a globular form, which at once spoils the appearance of the flower. The colour is lilac-mauve. For the production of early specimens, plants for decoration, or cut blooms this variety is to be recommended. Lady Selborne is a pure white sport from the former, and one of the most desirable varieties to grow. It blooms at a time when other white flowers are scarce, and succeeds the earliest sorts, such as Mme. C. Desgrange and others of that type of early-flowering kinds. For church decoration at harvest thanksgivings and other occasions about the first week in October this variety is invaluable. Perhaps the best method is to grow the plants on the large bloom principle, and instead of allowing each plant to develop three blooms only, retain double that number of shoots, thinning the buds to that number and allowing one only to develop upon each shoot. The result is large-sized flowers, full in form and of the purest white, and much appreciated either when growing on the plants or in a cut state. This variety is also well adapted for specimens.



A place where "nothing would grow." Growth of Hellebores in winter.

sible—a dry sand, and under the shade of Fir trees. A bank was thrown up to conceal a road, and the Hellebores, then young seedlings sent by friends by post, were planted in groups. On other parts of the same bank are varieties of minor Periwinkle, Solomon's Seal, and common hardy Ferns—all doing well. G. J.

Tobacco culture discontinued.—In 1887 and 1888 we cultivated by way of experiment a large quarter of Tobacco. It attained fine proportions, and no fault could be found with its development. The perfect harvesting of the crop was the most difficult part, but the manufacturing was well done by a noted firm in Bristol. We possess samples of the crops of both

of England and Scotland it is more freely grown, as early-flowering kinds are there appreciated more than in the southern counties. During the past season it was only seen once in a winning stand. Although Bouquet Fait has failed as an exhibition variety in a cut state, it has few equals as a specimen plant or when grown in bush form for the decoration of the conservatory, its free-flowering qualities rendering it excellent for these methods of culture. Specimen plants of this variety between 5 feet and 6 feet in diameter, carrying from 150 to 200 blooms, are annually seen in the south of England. The growth is free, easily trained, and

MME. JOHN LAING FAMILY.—This family consists of two varieties only, both of recent introduction, the parent having been raised by Délaux in 1885, while the sport Sarah Owen originated in two places at the same time in 1887, one in the vicinity of London, at the nursery of Mr. Owen. The other appeared in the neighbourhood of Birmingham, and it is much the best method to give the sports that appear in different places, as in this case, the same name. The original type is popular amongst exhibitors, having been staged thirty-four times in winning stands during the last season. The habit of growth is dwarf, the foliage large

and often pale in colour. The blooms are remarkable for their depth and solidity rather than for their great width. The florets are flat, slightly pointed, erect in the centre, and at times are inclined to incurve at the tips. The colour is creamy white tinged with rose. Blooms of this sort keep well, which is an advantage. This variety is suitable for growing in bush form to supply flowers for cutting in quantity, the blooms standing very erect, quite the best style for vase decoration. Sarah Owen is golden bronze lightly shaded with rose; the tips are gold colour. As a late-flowering variety this is deserving of extended culture.

COMTE DE GERMINY FAMILY.—When this variety was first introduced in 1881 by Messrs. J. Veitch and Sons along with other new varieties it was considered quite a new type—incurved Japanese. The advent of such a variety direct from Japan was hailed with delight amongst Chrysanthemum growers, and became very popular on account of its peculiarity in form, resembling very much mahogany shavings, owing to its colour being somewhat of that hue. During the last two years blooms of this variety, with few exceptions, have not been seen nearly so good in quality as they were previous to that date. The blooms have not been so well filled in the centre, showing too much of an objectionable eye. The florets are broad, incurving thoroughly, thus showing the reverse; the colour is nankeen-yellow, striped with a brownish tint. Except for the growth of large blooms, this variety is not of much value, being too stiff in habit of growth to admit of a severe form of training. The flower-buds should be selected at an early date to ensure the best blooms, which unfortunately are generally too early to be of any service for the ordinary shows. When later buds are chosen the blooms are smaller, and, as before stated, the centre of the flower is seldom filled up sufficiently to enable the variety to be classed among the finest types. Burnaby is a sport from the above, which it is exactly like in all points except colour, which is nankeen-yellow without the brownish stripes, which, in my opinion, are the chief item in the colour of Comte de Germiny. I do not think that Burnaby is likely to make much headway.

Premature bud-formation.—From many quarters I hear complaints this season of a disposition on the part of the plants to show flower-buds at a too early stage. There are two reasons to which this deformity of growth is attributable: First, the unfavourable nature of the weather during last season's growth resulted in ill-matured plants at their base and roots as well as in the tops, the result being badly-formed cuttings which develop undesirable traits in their growth. The second reason is perhaps in the case of some varieties which did not produce a sufficiency of desirable cuttings—those at a distance from the stem coming up clean through the soil. In some instances the cultivator was forced to take those which came direct from the stems, which are always looked upon as the worst kind of cuttings, and at all times, even in a good year for cuttings, considered as least desirable owing to their disposition to develop premature flower-buds. It is only in the case of plants intended to produce large blooms that growth which is defective in the manner described is seen, for the reason that plants intended for either specimens or bushes, to give flowers in abundance, are generally topped at about 4 inches high. This is before these early-formed buds make their appearance. Some varieties, notably The Queen family, will, especially in the south of England, develop flower-buds in this manner from the middle to the end of May. After the first break is made, such premature bud-formation is much worse to deal with at that time than the formation of flower-

buds now, which is proving a source of trouble and anxiety to many cultivators. Some varieties, especially Princess of Wales, are notorious in this respect. This variety, and its progeny Mrs. Heal, are generally shy in throwing up suitable cuttings; therefore recourse has to be had to stem cuttings to obtain the necessary stock. No doubt this defect will be transmitted to the two new sports, as all varieties are affected alike in the same manner as their progenitors. Hence the reason of this type of incurved varieties not being seen in such good condition generally as its merits deserve. At the present date The Queen family is not so much affected by premature bud-formation as other varieties. The sorts most found fault with are, in addition to the Princess family, Mons. H. Elliott, Mme. Laing, Marguerite Marrouch, Edwin Molyneux, Princess Beatrice, Barbara, Mrs. W. Shipman, and Empress Eugénie. Remove at once the bud and an inch or so of stem below the affected part. —E. M.

CHRYSANTHEMUMS ON WALLS.

PLANTS which are now and that were also last year growing at the base of walls will need attention. Those that are throwing up numerous shoots from the base of the old roots will need these thinned, so that they be not drawn up weakly through overcrowding, which spoils their appearance and results in a much inferior crop of bloom. Remove the weakest shoots, allowing about twelve to remain for the present, these to be thinned later on as space admits. The aim should be to have the main stems about 8 inches or 10 inches apart at present, as this will allow more space for the additional shoots later on when the stems break into extra numbers naturally after a while. About 4 inches apart is a reasonable distance to allow for the shoots to be trained later on.

I notice that our plants which have been growing at the base of the south and east wall the last five years are throwing up in a very weak, feeble manner, and many of them are quite dead, the cause no doubt being the unsatisfactory growth made last year when the stems were soft and sappy. They did not mature thoroughly, and in this state were easily injured by the sharp frosts experienced this winter. About two months since I saw signs of some of the roots being unlikely to throw up new growth. I at once had some plants placed in their stead, selecting some new varieties with a view to test their capabilities of flowering outside. The plants had flowered inside during the last season, and these I now note are nearly all killed by the frost experienced on the 12th of February and subsequent nights, thus proving that plants which are subjected to high feeding and which make gross growth are not capable of standing much frost without protection even when they are growing at the base of a south wall. The spaces must at once be filled up with other plants, so as to maintain an even growth during the summer. Any other plants which do not look over-promising should have the surface soil removed, replacing this with fresh compost. Any refuse potting soil will suffice for this purpose, provided a small portion of manure is added; tread the soil firmly about the plants, which will induce a firmer growth than is made where the soil is both rich and loose. Any tall growing varieties, such as Maiden's Blush and Fair Maid of Guernsey, which last year grew higher than our wall, which is 7 feet, will have the points removed from each shoot this time when they are about 1 foot long. This will be with a view to reduce their height, as when the plants grow beyond the top of the wall, protection cannot be so easily applied as when the plants are in bloom. I name these two varieties as a guide to others, so that they may judge their own plants according to the height of the walls to be covered. E. M.

George Wermig and Mme. Desgrange.—Plants of these, which were rooted some time since, have been potted off separately, and are now growing in a cool house. As soon as they have made a free start into growth the point of each will be pinched out to induce a dwarf bushy habit, when

they will be placed in cold frames to make a stout hardy growth. They will be shifted into 4½-inch pots, when they will make good bushes to go into the position allotted for them, whether it be by themselves in a mass in the herbaceous borders or in the mixed beds, where, in conjunction with other plants such as *Lobelia cardinalis*, *Aster bessarubicus* or *Gladiolus brenchleyensis*, they form an agreeable contrast and prolong the season of outdoor flowers.

Mlle. Leoni Lassali is one of the best varieties for flowering in advance of the ordinary November kinds; the blooms are freely produced upon bushy plants, which do not grow beyond 3 feet high—often less than this when allowed to break into additional shoots without the trouble of pinching the points of the branches or main stems. Add to this the showy character of the flowers, which are neatly reflexed in form, and we have one of the most useful plants possible for cutting at the end of September or early in October. Should the insertion of the cuttings have been forgotten by any means, no time should be lost in doing so, giving them a slight bottom-heat to compensate for a loss of time in removing the plants to cooler quarters as soon as they are rooted freely.

FLOWER GARDEN.

COLOUR IN PRIMROSES.

We all esteem Mr. R. Dean as a persevering and successful florist, and he needs not to be told that I have no desire to cast any general disparagement upon his excellent work, but I must express my belief that he and others are making a bad mistake in the matter of colour in Primroses, under which name, for brevity's sake, I include Polyanthes and also Chinese Primulas. Of the flowers shown by Mr. Dean at the Royal Horticultural Society's meeting of March 26, a pure white with a pale apple-green eye was exquisite, and there was an excellent deep crimson. The colouring of the rest, especially of Mikado, to which a first-class certificate was awarded, was—what adjective shall I use?—vicious, in its technical sense, perhaps best gives my meaning. Could we appeal to a competent florist who was also as refined and sensitive a colourist as, say, Mr. Ruskin or Mr. Albert Moore, I have little doubt but what he would maintain the principle that each flower or race of flowers has its own legitimate and illegitimate, or vicious, ranges of colouring, the former of which should be encouraged to extend and unfold to the utmost, but the latter be absolutely suppressed. The florist's art may induce false and bad colours in flowers, just as the chemist's art has discovered and brought into ruinous use the horrible aniline dyes. It is no excuse to urge that all colours which appear in flowers are natural and may be retained. Nature (an ambiguous term this) must often be led or restrained, rather than followed, and there is often an "Old Adam" which must be cast out of flowerkind as sternly as out of mankind. Thus in Primroses the so-called blues, the purples, magentas, and all slaty tones are natural, but evil tendencies, and ought not to be tolerated. What should be encouraged, delighted in, heightened to vividness, or subdued to faint, soft tints, and in every way elaborated in this lovely flower, is the whole gamut of true crimson, ruby, maroon, pink, orange, and yellow. Sometimes a flower appears which heralds the possibility of a true vermilion Primrose, and there is a cinnamon-brown and a cinnabar-chamois (to coin a word) which might in skilful hands lead to a new and lovely set of colours. I say nothing of the multitude of beautiful whites, for there Mr. Dean and I should be at one. A Primrose of *Nemophila* blue might be an acquisition (though, for myself, I do not feel certain that it would not be

astonishing rather than charming), but the links of leaden and livid hues by which it is being reached after are ugly means, to be used and destroyed—not beautiful ends to be exhibited. Let me instance the herbaceous Phlox as a parallel. Here the legitimate and admirable range of colouring is that of pinks, roses, true lakes and crimsons, and especially certain glorious salmon-reds containing possibilities of scarlet and orange, besides the whites. No faintest suggestion of magenta should be tolerated in the Phlox. But when I turn to the florists' catalogues I observe that it is their endeavour and their pride to torture this fine plant, or rather to help it to debase itself, into sullen and impure purples—purple is a word grievously abused by our florists—and that their joy culminates in the production of a magenta with slate stripes. Similarly there was in Mr. Dean's little stand of Primroses at Westminster one which I can only describe as of a slaty magenta-lavender, rousing in anyone possessed of the colour faculty what Matthew Arnold would call "a sense of lamentation and mourning and woe." But there may be found, very near to the Primroses, a rightful province for these colours. Turn to the Auriculas, and the true eye will see that purples, plum colours, sapphires, amethysts, lavenders and greys are not only permissible, but delightful and altogether desirable there. This is no mere open question of taste, but a matter of right and wrong, with, no doubt, demonstrable scientific reasons behind it, concerned perhaps with the greater refraction or absorption of light in Primroses and Auriculas respectively. Some law might probably be established to the effect that blue, and all colours into which blue largely enters, can be pure and lovely only in such flowers as in texture or in tubular construction possess a certain luminous quality or transparency. The Gentian is the typically beautiful blue flower, and the Auricula has accomplished in its blossoms the seemingly impossible combination of velvet and crystal, and so fitted them for the reception of the bluest of rich purple colouring. But Primroses do not possess this crystalline texture or transparency to nearly so great an extent. An entire book might be written upon colour in flowers, and many interesting laws traced, from a different standpoint to that from which the subject has already been considered by some men of science. I do not expect Mr. Dean and other lovers of blue Primroses to agree with what I have said, but I am sure they will not resent my criticism of their work.

G. H. ENGLEHEART.

White Daffodils—home-grown and Dutch.—Permit me to correct a mistake I made in stating the size of the pots I grew *N. cernuus* in, and to which Mr. Douglas refers (page 272). I find on measuring the pots they were $4\frac{1}{2}$ inches or a little less. The bulbs were of a good size, or even that would be too large. Mr. Douglas raises an important issue *re* Irish and Dutch bulbs and their respective time of lifting, and says the Dutch varieties have been three months out of the ground when they arrive in October, and that Irish or English have thus three months' start of them. The contention hitherto was that the Dutch lift their bulbs when matured, dry and store them, and that they have thus an advantage over those left in the ground. Mr. Douglas seems to contend for the opposite theory, and thinks the bulbs I dug up out of the border had an unfair advantage planted the same day as those imported. Does not such a contention tell in favour of those home-grown?—W. J. MURPHY, *Clonmel*.

Yellow Fritillaria.—Now that the common Snake's-head is coming into bloom, I would like to ask if any of your readers grow or are acquainted

with a yellow form of it. Some years ago I knew of a garden in which there annually bloomed a clump of a variety which differed in no way from *F. Meleagris*, except in the colour of the flowers, which were pale yellow. Having in vain looked through trade lists for this variety, I conclude that if it exists it must be very rare. It grew quite as strongly as the common form, and the fact of its blooming regularly showed that it was quite as robust.—J. C. B.

FIMBRIATED PHLOX DRUMMONDI.

In the case of this type of the well-known Phlox Drummondii, one of the canons of the florists of thirty years ago, viz., the essential quality of the smooth edge, is utterly set at defiance. While the petals of the ordinary Phlox Drummondii are entire, those of the fimbriated type are partly fimbriated, partly three-toothed, the centre teeth being almost twice as long as the lateral ones, all bordered with white, though the varieties are many. Herr Wittmack obtained this break probably by selection, and it was sent out by Martin Grashoff in 1888. That the type gives a new race of annual Phloxes there can be no doubt, because the growth appears to be both more slender and compact, besides being more erect. I saw a collection of varieties of this type in flower last summer, but it was scarcely a season to show them off to the best advantage.

From the fimbriated type has been obtained another variety, known as *cuspidata*. This also was selected by Herr Wittmack. The growth is dwarfer than that of the fimbriated form, and the habit still more compact. The size of the blossoms is scarcely so large, but the centre teeth of the petals, which are five in number, are five or six times as long as the lateral ones, and project beyond them in the form of spines a quarter of an inch in length. The pips, therefore, have a singular star-like appearance. They are of various colours—white, lilac, pink, rose, crimson, purple, &c., all having the white wire-like margin. That they are singular novelties there can be no question, but that they are destined to take a permanent place in our gardens is very doubtful. One point against them is, that in spite of the revolt against the smooth edge, which the florist looked upon as one of the most important features of true form, there is on the part of flower-lovers generally a liking for the smooth edge. Then the fact that they lack the vigour of growth seen in the older types of the Phlox Drummondii is an objectionable feature. In comparing the floral effect of a bed of the new type with that of the older one, the latter gains immensely by the contrast.

The fact is, the Phlox Drummondii is not half so much appreciated as a summer bedding plant by gardeners as it deserves to be. Flower gardeners still adhere to the *Verbena*, forgetful that there is in existence a sister plant with which the *Verbena* cannot compare for floral beauty. Not only are the blossoms of the improved varieties of Drummond's Phlox larger than those of the old type, but they are stouter, of finer form, and also of striking colours. They are all good growers, raised from seed with ease, and when planted out make a free growth, soon cover a bed, and flower with remarkable and enduring freedom. One variety, named *splendens grandiflora*, colour rich vermilion with a white eye, is far superior in every way to the best *Verbena* ever raised. If seeds are sown now in a gentle heat, the plants potted off singly when large enough, and grown on into size in the same way as ordinary bedding plants, they soon make admirable stuff to plant out in the early part or middle of May, according to the character of the weather.

It is in striped varieties that the Phlox Drummondii is weakest. Not that there is any lack of striped forms, but they are poor, dull, and ineffective. Thirty years ago there was in cultivation a charming striped Phlox, named *General Radetzky*, probably of the Drummondii type, white, charmingly striped with rosy red, and in that day it was propagated by means of cuttings. It is now, I fear, altogether lost. It was used for bedding purposes and pot culture. If we could obtain an annual

Phlox as effective as that was, it would indeed be an acquisition. But until we do, the striped *Verbena*s are better for bedding than the striped Phlox Drummondii, and perhaps this is one reason why the *Verbena* continues to be so much more used for summer effect than are the varieties of Drummond's Phlox.

R. D.

AURICULAS FROM SEED.

I HAVE sown Auricula seed at various times of the year, but until this season have never been so successful as I could wish. I have hitherto found that when sown in spring a considerable portion of the seeds lie until the following year. No matter how great the pains I have taken, there has always been great irregularity of germination. If the pans are kept over till the following year and the soil maintained in a moist condition, the greater portion of the seeds will come up, but everyone wishes to get up seed as quickly as possible. This season I sowed all my seed about the middle of December, and looking at the pans a week or two ago I was surprised to find the surface soil quite green with young plants. Not more than two months elapsed from the sowing to the coming through of the plants, and this at a time of year when the temperature is uniformly lower than at any other period. These young plants, being well up now, will have a long season of growth before them, quite long enough, if they are well cared for, to admit of most of them giving a little bloom in twelve months' time. It is a great advantage to get the plants into bloom at an early date, as then inferior varieties can be weeded out instead of having to grow them during another year. I sow my seed in shallow boxes, putting a sprinkling of soot on the drainage to keep out worms. The soil is what is commonly used for sowing fine seeds in, but I think that the addition of a little sifted Moss is very beneficial. Indeed, if I had always plenty of this material I would not sow a choice seed of any kind without putting a little of this in the compost. Before sowing, the soil is well moistened, the space from the soil to the edge of the box is filled up with damp Moss pressed down firmly, and covered with a pane of glass. Plunged up to the rim in a cold frame, no water is required until the young plants are well on their way. There is always a danger to tender young seedlings that come up early in the year in cold frames from predatory slugs, which are apt to seek refuge therein in autumn, and which after long abstinence from food will make short work of a few boxes of choice seedling plants. No harm can come to the plants all the time the glass is on, and when it is removed I sprinkle a little soot round the base, which keeps off insect foes. In the case of hardy kinds I do not think it well to plant out the first year, as Auriculas being slower of growth than the generality of hardy flowers, are liable to many mishaps before they get good hold of the ground. They should be pricked off into pans or boxes and be wintered in a cold frame. The lights should only be on during heavy rains, and then the young plants will be as hardy as if they had been in the open air. Early in April they should be planted out, and if they can have a rather shady position, they will be likely to make stronger growth. Care should be taken to make the soil free, and heavy ground should get a liberal addition of wood ashes, river sand, or something of a like nature. Auriculas will do very well in stiff loam when they get to a certain size, but small seedlings cannot make good headway in it.

J. C. B.

The flowers of the Caucasus.—At a meeting of the Royal Geographical Society a paper was read by Mr. Douglas W. Freshfield, the honorary secretary, on "The Peaks, Passes and Glaciers of the Caucasus," from which it appears to be a fertile field for the collector of hardy flowers. The Central Caucasus was much steeper than the Central Alps. What gave the Caucasus cliffs and combs their strange loveliness was the ample folds and arrangement of their snowy drapery. Descending from the mountain crests, the greenness of the highest snowless slopes was remarkable. He gathered flowers at

a height of over 13,000 feet. The slopes above the great Mestia Glacier, from 9000 feet to 10,000 feet, were green, and the Grass was enlivened with Poppies, Gentians, Ranunculuses, Campanulas, Forget-me-nots, Veronicas, Geraniums, and varied by the darker foliage and cream-coloured blossoms of the *Rhododendron caucasicum*. The steppe, except in the river-beds, was treeless; but no sooner did the ground begin to rise than wild fruit trees appeared, soon to be succeeded by dense groves. The glades were bright in summer with millions of wild Sunflowers. The flora of the basin was wonderful. A horse laden with baggage was entirely hidden by the growth of flowers; the head and shoulders of a mounted man only rose above them. Wild Sunflowers and a species like Canterbury Bells grew to a height of 6 feet and 8 feet. There were no waterfalls and neither lakes nor tarns. Of late years the glaciers had oscillated in a manner corresponding to the Alpine glaciers. They were all in retreat in 1868; about 1875 they began to turn, and last year were sensibly advancing. The humidity of the summer climate was at once a charm and a vexation. The atmospheric effects were beautiful and various; the sky of the northern steppe was luminous and soft; the light was the light of the East; the colours those of the Roman Campagna. They wanted much work done in the Caucasus before they could realise all its wealth and all its glories.

SINGLE DAHLIAS.

WHILE it is undoubtedly true that single Dahlias are declining in public favour, I am yet of opinion that they will continue to be grown by many for years to come on account of their great usefulness in many ways. The decline to which I have referred may and should have the effect of checking the rush of new varieties which come pouring in from raisers on every hand, varieties which in many instances are but reproductions of what we have had before. The flower-loving public who will continue to grow the single varieties will look more for a select few of undoubted merit and novelty of character. I venture to select a dozen, new and old, that I think among the very best, and which are well worthy of a place in the garden. Of the new varieties I prefer *Duchess of Albany*, a decided novelty, the prevailing colour being soft mauve, pale buff-brown with dashes of white; *Victoria*, having a well-defined white central flame to each petal, with side margins of rich velvety crimson, very distinct and wonderfully free, the best of this type which has yet been seen; *Miss Ramsbottom*, delicate soft pink, shaded with cerise, a charming flower in all respects; *Sunningdale Yellow*, deep golden yellow, fine shape, a model yellow for cutting; and *W. C. Harvey*, deep yellow, shaded with orange, and having a distinct red ring at the base of the petals. Of older varieties I should select *Duchess of Westminster*, one of the best whites, though a little large in size; *Excelsior*, white, with a broad margin of bright lilac, small, and very free; *Formosa*, rich bright crimson with golden centre; *Hugo*, bright scarlet, shaded with purple and tipped with magenta; *Maud Millet*, white ground, broadly margined with delicate pink, very free, and of medium size; *Amos Perry*, fine deep velvety maroon; and last, the old *Paragon*, velvety maroon, edged with magenta-purple, a variety that still maintains its distinctiveness of character despite the many seedlings which have been raised since it was introduced to the notice of modern Dahlia growers. It is remarkable that this variety should have appeared in Dahlia catalogues as far back as 1833, and yet remain in cultivation unto this day. It is a variety that requires one to be patient with. I grew three plants last year, and the first blooms were all self-coloured, but in a couple of weeks they came in their true form and bloomed freely until cut down by the frost. Some persons complain that *Paragon* is a shy bloomer; with me it was very free.

Single Dahlias do not require the rich soil recommended for the large double Dahlias that are grown for show purposes. Three years ago I saw a plantation which had been grown in highly manured ground, with the result that the plants grew

very tall and half suffocated each other with their superabundant growth. It is best to plant in soil manured for a previous crop, mulching the plants during dry weather and watering abundantly when required. R. D.

FLOWER GARDEN NOTES.

BEDDING PLANTS.—DWARF LOBELIAS.—Of recent years these have declined in popularity, probably, I think, because foliage plants, such as *Alternantheras*, *Sedums*, and variegated *Mesembryanthemums*, are more lasting and less trouble to keep in order, and are withal extra bright and effective at the time that *Lobelias* are at their best, and continue good long after the *Lobelias* have faded. Still, we can hardly dispense with them, and as their flowering season can be prolonged by an occasional slight clip over of the tips of the flowering shoots, it is worth while to take this trouble. This slight clipping over conduces to the production of other shoots, and if done once a fortnight the plants flower continuously to the end of the season. I believe that all the kinds would be amenable to the treatment here advised to induce continuous flowering. The blue and white-flowered are the only varieties worth growing; the purple is too dingy, I was going to say dirty, looking, and this it certainly is. The white and blue alternated make a grand second line to a bed edged with the variegated *Mesembryanthemum*. Plants grown from seeds are usually of such a varied habit, that no dependence can be placed on plants so raised for distinctive line planting; hence, cuttings from some approved strain should always be preferred. Seedlings do well enough to plant in small clumps in mixed flower borders, but my advice is to raise all the plants that are required from cuttings when once a good strain has been obtained. Our stock has all been propagated, and are now being taken out of the cutting pots and planted in frames, which for a time will be kept rather close, then fully aired. They will eventually be planted in the beds direct from the frames.

PETUNIAS.—My latest experience of these is that, unlike *Lobelias*, seedlings are most to be preferred, for though they vary in habit, they can by a little attention to pinching be made just as uniform as may be desired to make them. We have grown them arranged in separate colours of rose, purple, and white, but mixtures of these colours, and especially of the striped and blotched flowers, are much to be preferred; mixtures only, as regards *Petunias*, will in future be the rule here. The ease with which plants can be raised is also a great advantage; no seeds germinate better nor many sorts in so short a time, and a pit having an average temperature of 60° is all they require, even in the earlier stages of growth. We sow about the middle of March, and always have good plants ready for planting out by the middle of May. For drooping over the edges of vases, or to quickly cover a large space of ground, or for planting large beds for distant effect, there are no better summer-flowering plants.

VERBENAS.—The variety *Purple King* is the only kind we have grown separately for years past, and this because there is really no other bedding plant possessing that beautiful bright purple tint so essential as a companion colour to the white, pink, and light grey colours that we always strive to have in abundance. *Pink Geranium Master Christine*, white *Viola Mrs. Grey*, and *Purple King Verbenas* are, when planted in close conjunction (say a bed of each) pleasing beyond description. Of course, the three would look very well if planted in mixture in the one bed, and in small flower gardens this way of planting might be desirable, but having tried both ways, I consider that by far the best is to plant the colours separately. As regards *Verbenas* in general, I give preference to mixtures, as also I do to the plants being raised from seeds, because they are more robust than are those raised from cuttings, and therefore less liable to attacks of mildew, trips, and spider. The decay in the popularity of *Verbenas* is, I think, due first of all to the failure of the plants in so many places owing to the lack of interest in them, be-

cause "somebody has been told by somebody else that they would not grow now as they used to do," but they forgot to add that it was not the *Verbenas* perhaps that were at fault, but their own ill-treatment of them. No plant will grow well without the expending of some labour on it, and *Verbenas* perhaps require more than an average of attention, but then they repay it by making a fine growth. The seedling plants that for the last two or three years we have grown for planting out amongst perennials and in large vases have exceeded in growth and freedom of blooming our highest expectations. Given a rich deep soil and a mulching to prevent the ground from becoming dry, there need be no fear of mildew or other parasites, but there will be a profusion of flowers until severe frost cuts them off.

AGERATUMS.—I once saw what was called a white variety, but it was a poor thing. There are what are termed light and dark blue varieties, but a better description of the colours would, I think, be lavender - greys, and the lighter the shades the more beautiful they are. It is this light grey that looks so beautiful in conjunction with pink, and tones down the glare of high colours—scarlet and yellow—that some employers insist on having. The best varieties I have yet come across are *Countess of Stair* and *Cannell's Dwarf*, the latter a few shades darker in colour than the former, but both invaluable for outer lines of beds or for the entire furnishing of small panels where the adjoining plants are either pink, brown, cream, or white. Propagation by cuttings is the only sure way of obtaining plants true to name. Seedlings vary greatly, and plants raised in that way should only be used in mixed flower borders where their varying habits of growth and tints of colours are of little consequence.

VARIEGATED PELARGONIUMS.—These are no longer the popular bedding plants they once were. Many of them were too tender, and all of them required to be propagated in the autumn. The room they occupied in the houses through the winter also hindered justice being done to other and more valuable decorative plants, and this, no doubt, has had something to do with their decline in favour. The only varieties we now grow are *Flower of Spring*, *May Queen*, *Sophia Dumaesque*, *Lady Plymouth*, and *Manglesi variegatum*, the two last the oldest, but still the favourites here. *Manglesi* is suitable both for planting in a mass as a dividing line plant as well as in the form of an enclosing band to small blocks of any dark-coloured bedding plants, such as *Iresine*, blue *Violas*, or *Purple King Verbenas*. It is also most telling intermixed with purple *Verbenas*, *Agathaea celestis*, or the old *Viola cornuta*. The sweet-scented variety *Lady Plymouth* also makes an excellent encircling band, but the most telling arrangement of all is to use it as a central plant in small blocks of *Lobelias*, *Alternantheras*, and dwarf purple *Violas*. The plant has a naturally dense habit of growth, and by pinching occasionally the outward growing shoots it quickly makes beautiful standards. The tricolor variegated *Sophia Dumaesque* is most useful for small beds, much in the same way as *Alternantheras* are used, and, of course, the flowers should be constantly picked off. *Flower of Spring* and *May Queen* are good flowering varieties, the one (*Flower of Spring*) having rosy crimson flowers and *May Queen* rosy pink, both of them colours that are somewhat scarce in bedding plants generally. This and the variegation combine to make them worthy to rank amongst the best of bedding plants.

W. WILDSMITH.

The flowering of bulbs.—In last week's impression you ask for the experience of your readers as to this year's flowering of bulbs. With us, *Crocuses*, both established clumps in borders and newly planted beds, have been as good as usual, also *Snowdrops*, save *Elwesi*, which is poor, except in dry, sandy ground, and so late as to still be in bloom. *Dog's-tooth Violets* are very poor. *Polyanthus Narcissi* have only sent up a bloom or two from clumps that the year before had from four to eight. The *Trumpet* and *incomparabilis* *Daffodils* such as *Emperor*, *Empress*, *Stella*, *ornatus* in a

bed facing south-west, very hot and sunny, are pretty much the same as usual, as also are *Iris reticulata*, *Scillas* (blue, pink, and white), *Chionodoxas*, *Snowflakes*, and *Anemones*. I should be greatly obliged if anyone will advise me how to get *Leucojum autumnale* and *Galanthus latifolius Redoutei* to bloom. I have had both for years, and each year they throw up good foliage and make more bulbs, but never show any signs of blooming. Two or three years I tried them in pots, but now have them planted out in a sheltered, sunny situation. *Narcissus cyclamineus* I also fail to bloom.—A. B. TRESTRAIL, *Clevedon*.

PRIMULA SIEBOLDI.

THIS beautiful Primrose in its varied forms seems to have dropped out of cultivation very

effect in colour will surpass all that other spring flowers make. Blooms of this variety out in the open, and when lit up with soft sunshine, present a bright glow of colour. Ordinarily the best method of culture is in pots, for not only do the plants bloom in April, but the flowers are of a somewhat fragile nature and seem to need some protection from wind and rain. It is an excellent plan to break up the pot clumps every autumn, filling fresh pots with the strongest crowns, and either planting the rest outdoors or into pans or pots to grow into a larger size by the ensuing autumn. A number of 7-inch pots, each containing a good cluster of foliage and some half-dozen or more good trusses of bloom, form most useful objects in a greenhouse and help to vary the too frequent



Primula Sieboldi (*P. cortusoides amœna*).

much. This is to be deplored, because, where well done, it makes a lovely greenhouse flower. Whilst not so free-blooming or enduring as *Primula obconica*, *P. Sieboldi* has much handsomer foliage and much greater variety of colour. Some of the smooth-edged flowers are very fine and striking, but I think preference must be given to the elegantly lacinated forms, of which there are so many, although none are perhaps more pleasing than *Snowflake*, pure white, and *laciniata*, deep red. This latter variety seems also to be exceptionally hardy. Some stools of it planted in a cool place and in stiff soil have stood well for two years and have now sent up many strong crowns, so that when bloom is produced the

monotony found in tender greenhouse plants. The accompanying illustration gives an excellent idea of the general character of *P. Sieboldi*. A. D.

A white-flowered Cobæa.—Few plants are better known or more popular than *Cobæa scandens*, one plant of which at least is to be found in most gardens, while it is also very frequently grown in balconies, where it forms an effective sun-shade, a verdure-clad retreat, or a grand verandah of foliage of a deep green colour, which, from August or September up to the advent of frost, is starred with large bell-shaped flowers of a dull violet hue. It appears somewhat strange that, notwithstanding the immense number of plants of this species which have been cultivated, no variety of it has ever

been raised until quite recently. This novelty is a white-flowered form, which in other respects possesses all the general characteristics of the type. In the colour of the flower and in the aspect of the plant, however, there is a great difference, the stems, especially the young growth, being more or less violet-hued instead of being of a dark green colour, while the leaves are of a pale green colour and the young shoots have the bark whitish. Although these differences may not be considered very important, they are sufficiently so to be appreciated when the two forms are growing close together, as we recently saw them at Paris, planted alternately and entirely covering a wall with their abundant foliage, prettily relieved by the white and violet-coloured flowers. The white-flowered *Cobæa* being equally vigorous and hardy as the type, the same details of culture are applicable to both forms.—*Revue Horticole*.

Daffodils at Epsom.—The recent mild sunny weather has brought forward the Daffodils, and in a few days they will be in full beauty. A bed of the Tenby Daffodil about 100 yards long was a mass of bloom the other day in the Epsom Nursery, and flowering also at the same time were the richly coloured Golden Spur, Ard-Righ, the pretty *præcox*, the old double Silver and Gold, minor, bicolor Horsfieldi (of which a coloured plate was given in THE GARDEN, Sept. 8, 1888), nobilis, Henry Irving, and Umberto I., that has the segments of the perianth distinctly striped with a whitish tint. There was a rare promise of bloom in the beds of *Narcissus poeticus* and *ornatus*. This does not appear to be a poor season for Daffodils, as the flowers, so far as we have seen them, are as strong as usual, but there is a conspicuous falling off in the Hyacinths, and the Tulips are not what they should be.

Seedling double Daffodils.—Mr. Cornhill, whose note appears on page 306, is quite right in saying that double Daffodils are produced in abundance from seed. It is probable that many thousands of double seedlings flower for the first time in England every year; but it has hitherto been rare for anything in this way to be produced which could be called really distinct. They often seem to be so at first, but double Daffodils from seed have a remarkable tendency to assimilate themselves to one type under similar cultivation. For instance, seedlings from the Tenby Daffodil, of which I have raised several crops, are often double, but are undistinguishable from the common large double called *Telamonius*. Where the large double Daffodil is grown in company with the common wild single pseudo-*Narcissus*, the single flowers become the seed parents of intermediate forms, both single and double, some of which I am sending to the *Narcissus* committee for inspection. But I believe that double Daffodils occasionally originate in sports as well as from seed. Two years ago Captain Dorrien Smith sent me from Scilly a twin bulb of the Tenby Daffodil, one of which produced a single flower, the other a double. Unfortunately, one of these bulbs died, so I could not prove whether they remained constant. Last week the same gentleman sent me a twin bulb of *N. incomparabilis* (type), the two parts being united at the base. One of these bore a perfectly single flower, the other a full double. I have in vain tried to cultivate single Daffodils into double in this garden, but I believe that it is sometimes done accidentally.—C. WOLLEY DOD, *Edge Hall, Malpas*.

Galanthus nivalis poculiformis.—In reply to Mr. Webster's inquiry about the origin of *Galanthus nivalis poculiformis*, March 30 (p. 292), I may say I observed it growing here about a dozen years ago. In 1878 I sent flowers of it along with those of other sorts to the late Rev. H. Harpur Crewe, who gave it the name it has since been known by. It appears to be a sport, but it comes true every year, and the young bulbs show the same peculiarity of flower. It would be interesting to try if it would perpetuate the peculiar flower by seed. I have found *G. poculiformis* growing in several places here, and in one instance in a garden about a mile distant from this. I should not be surprised to hear of it in various localities where there are quantities of *G. nivalis*. The fact of there

being about 100 bulbs of it in the clump noted by Mr. Webster proves that it has become fixed, and is increased by bulbs. As to where it originated, perhaps it may be more correct to say that it was probably observed here first, and brought under the notice of the gardening press and authorities in hardy bulbs in the year 1878. Mr. Webster mentions an "unnamed form that blooms long after the typical plant, and which has short narrow leaves and remarkably small flowers." Is not this very like the dwarf, tiny-flowering *Galanthus n. serotinus*?—D. MELVILLE, *Dunrobin Castle Gardens*.

The Glory of the Snow (*Chionodoxa Luciliae*) promises to be almost as great a weed in the garden as *Nothoscordum* (*Allium*) *fragrans*. We have it coming up everywhere yards away from the original clump. The greatest success, however, with this pretty spring bulb is among the Grass in the wild garden at Kew. It appears much stronger this year than last, and if it continues increasing, it will doubtless be largely used for this purpose. We are greatly in want of some such dwarf plant to take the place of the Crocuses which are now nearly over, and although we have the charming *Scilla sibirica*, it might not prove a success amongst the dense Grass. We have just seen *C. gigantea* alluded to last week by Mr. Ware, and it exceeds what is modestly claimed for it; the flowers are nearly twice the size of those of *C. Luciliae*, violet-blue, and with very little white in the centre. We have also seen *C. cretensis*, and can make nothing of it but a small *C. Luciliae*. *C. sardensis* is, so far, the best of the old ones, and will only be left behind by *C. gigantea* when we can get that variety in quantity.—D. K.

The Daffodil rot.—Never in my experience of Daffodil growing has the Daffodil disease proved nearly so disastrous as in the last season. I have lost since last spring nearly one-third of my crop. I anticipated that this spring would be bad for Daffodil flowers. The bulbs last year retained green leaves till August, and were never ripened at all. As a consequence the rot has destroyed all the tender kinds such as my Biester hybrid whites and the beautiful Lulworth Daffodils, of which I had a very varied assortment. Ard-Righ, the large Irish spurius, is also a great sufferer. Will other Daffodil growers tell us how their Daffodils have fared, and whether they consider the disease to be contagious and preventible by precautions? Its symptoms are stunted and withered spring growth, and when the clumps are dug up the bulbs are found watery, rotting at the base, and nearly, or quite rootless. Mr. Barr thinks that rapid multiplication encourages it. I believe he is right, and that annual transplanting is the best preventive. I should adopt this but for the great labour of moving 50,000 Daffodils every year. I have practised it for two or three years in the case of maximus. This formerly suffered from rot in my garden worse than any kind except the double white, and since I transplanted the bulbs annually I have hardly lost one.—C. WOLLEY DOD, *Edge Hall*.

SHORT NOTES.—FLOWER.

Lavatera arborea variegata.—I was so pleased with the original illustration and good report of the above, that I ordered seed and raised plants, but they did not survive the first winter in the open. I was so much disappointed with it in every way, that I have not again attempted its culture.—J. MEIR.

Double Daffodils.—I never saw so much bloom upon the plants of double Daffodils as there is at the present time. This is one of the few plants which was not adversely affected by the extra wet and cold summer of 1888. The blooms as they are now expanding show a particularly rich colouring and fuller centres than usual.—H.

Geranium Henry Jacoby for flowering in winter.—Henry Jacoby is a very striking Geranium for flower-bed decoration. It is a robust grower and very free-flowering, its dark rich blooms being striking, but its value as a winter-flowering kind does not appear to be generally understood. If small cuttings are rooted now, grown on till they reach 6-inch pots, kept from flowering, and in a sunny position throughout the summer and autumn, and then placed in a greenhouse

or conservatory, they will bloom all the winter very freely, and give as much satisfaction then as they do in the flower beds in summer.—J. MEIR.

Yellow Crocuses.—I note this year how much longer the yellow variety of Crocus has remained in bloom than either the blue or white. Generally the yellow sort commences much earlier than do the two named, and by the time the blue and white forms are fully in bloom the yellow sort is on the decline. This season the yellow was not quite so much in advance of the blue and white, but at the present time (April 5) the two latter varieties are over, yet still a few flowers of the yellow sort can be seen.—H.

ORCHIDS.

W. H. GOWER.

CYRTOPODIUMS.

THIS is a small genus of terrestrial Orchids which are for the most part confined in a state of Nature to Tropical America. They are tall-growing plants, with stout, fusiform, stem-like pseudo-bulbs, clothed with long, plaited, distichous leaves, which render them very ornamental. The flowers, produced in erect branching panicles, are extremely showy. The spike issues from the base, or near the base, and rises with the young growth, and consequently the plants for the most part would at the present time be in a state of great beauty. The flowers, which are borne in great profusion, last for some five or six weeks in full perfection. Cyrtopodiums, although known and grown in our gardens for upwards of seventy years, have not had for some years a very widely extended cultivation, and even in my younger days Cyrtopodiums were looked upon as old-fashioned plants and of but little value. At that time they were said to be shy bloomers, but in this respect I have found the majority of plants so considered flower freely enough if the growth was made in a proper manner and thoroughly ripened. The days of the unpopularity of these plants happily, however, appear to be past, for at the present time in the best collections of Orchids one or two kinds can mostly be found, and these in the growing season when furnished with their fine bold leaves produce a charming effect. It is quite possible that there are other kinds yet to be introduced, and which would add fresh grace to our plant houses if the demand for them should arise. These plants require strong heat and an abundance of water when growing, and therefore I have always given them a place in the East India house at this season. When growth is finished, the plants should be removed to a lower temperature and the water supply reduced, until when the leaves have all fallen it may be entirely withheld for a long time; indeed, if the pseudo-bulbs show no signs of shrivelling, withhold water until the young shoots start into growth, after which the plants may be removed to a higher temperature and some water may be given, carefully at first, the quantity being increased as growth proceeds. During this time the shoots should not be wetted, for as the flower-spikes rise with the growth there is a danger that if wetted the soft point of the flower-stem may be rotted, and thus half the beauty of the inflorescence will be lost. The soil best suited to the requirements of Cyrtopodiums is a mixture of good turfy light loam, rough fibrous peat, a little dried cow manure, and a portion of sharp sand. The pots require to be large, as Cyrtopodiums make a great quantity of roots. The pots must be thoroughly drained, and the plants should be potted in the ordinary way, and not elevated upon a cone of soil above the pot rim. The

composition of this soil would induce one to try liquid manure to the plant during growth, and some people I know use it, but I have quite recently noticed some Orchids which have been fed with liquid manure for several years, and which now appear to resent it, and show by a decline in health and vigour that they have been over-gorged. For my own part I do not care to give any Orchids much liquid manure. It may be tried with safety on those plants which grow in a composition containing loam, but at all times it should be given in a very weak state. Under the above conditions I grew *C. punctatum* and *C. Andersoni*, and flowered them annually in the then famous collection of Orchids of the Messrs. Jackson and Sons, of Kingston. *C. Andersoni* is to this day looked upon as a shy bloomer, but I think when it is sufficiently strong, and, as I before remarked, its growth well ripened, it may be depended upon.

C. SAINTLEGERIANUM.—This, the newest species we have in cultivation, was recently flowering in the garden of Mr. Smee at Carshalton, in Surrey. It was introduced some six years ago, and it first flowered in the above establishment. In general appearance it closely resembles *C. punctatum*, but as it obtained its distinctive name from the celebrated Rehb. fil., few will have the courage to dispute its claim to the distinction. The plant in question has a stout fusiform stem some 3 feet high, and the young growth bore an erect, much-branched panicle of blooms, which this year numbered 110. The flowers, which this year are fewer than usual, have lasted six weeks in full beauty. The pedicel of the flower is long, and at its base is a large bract, which contributes considerably to the display, the ground colour being yellow, almost covered with transverse blotches and spots of rich brownish crimson; sepals large and much undulated, similar in colour to the bract; petals shorter and broader than the sepals, rich clear yellow, slightly spotted with reddish crimson; lip rich yellow, bordered with crimson, and bearing a few spots of the same colour on the disc; the side lobes large, erect, incurved, of a rich brownish crimson. It comes from South America, but I cannot say from what district, but it is presumed from the neighbourhood of Paraguay.

C. CARDIOCHILUM is a plant similar in habit of growth to the last, but it would appear to be very free-flowering, as I have seen it produce a fine spike from a bulb not more than a foot in height. The bulbs sometimes attain a height of between 3 feet and 4 feet. The scape is usually forked, but it does not produce the numerous branches like the previously named kind, forty flowers being the most which I have seen on the single spike. The flowers are yellow, with just a tinge of green in the sepals, and each flower springs from a yellowish bract, which is about as long as the footstalk of the bloom. It is a beautiful species, and with the preceding should be largely grown. It is a native of Costa Rica.

C. PUNCTATUM.—This is a Brazilian plant, very similar to the first-named species in its habit of growth and in the shape and disposition of the colours of its flowers and bracts, although the sepals and the bracts are more usually tinged with green than yellow as a ground colour. The spike is much-branched and many-flowered, and produces a fine effect. Its older names are *Epidendrum punctatum* and *Cyrtopodium Wilmorei*.

C. ANDERSONI is said to come from the West Indies, but I have no record of its native habitat. It is a strong, bold-growing, handsome plant which attains a height of between 4 feet and 5 feet and the bulbs require thoroughly ripening in order to produce flowers. The spike usually reaches a height of about 3 feet. The flowers are large and numerous and wholly rich yellow, differing in shape, however, from those of the previously named yellow-flowered kind (*cardiochilum*).

These are all spring-flowering plants. Their

management is simple to those having command of a stove house.

Phalænopsis Schilleriana.—This species is now flowering beautifully with Mr. Penfold in Canon Bridges' garden at Beddington—a fine plant bearing about 100 flowers presenting a charming picture. Mr. Penfold assured me that the plant flowers most profusely when it is removed to a lower temperature after growth is finished, and I observed that the roots are not over-burdened with Sphagnum or other material.—G.

Cypripedium Boxalli (the Studley House variety).—Those who delight in bright colours in this family have sufficient in this plant to please them. The flower is large, and the sepals and petals are very broad; the dorsal sepal is green, nearly wholly covered with black, and having a distinct narrow border of white all round, this in addition being suffused with flesh colour; the very broad petals in the upper half are of a deep vinous hue; down the centre is a broad band of black, the lower half being greenish white, tessellated with rosy purple; lip small, green at the tip and tessellated with claret. This form is now flowering in Mr. Tautz's collection at Shepherd's Bush.

Dendrobium Farmeri.—This is one of the most beautiful of the genus, and it appears to be widely distributed in India. I have imported a beautiful form of this species in quantity from Upper Assam, whilst the white-flowered variety (*albiflorum*) comes from Burmah, from whence also comes the golden yellow one (*aureo-flavum*), this plant having been first sent by the Rev. C. Parish to the Royal Gardens at Kew in 1863, and I believe about the same time the Messrs. Low, of Clapton, received it from the same source. A fine lot of the typical form is now flowering in the Messrs. Low's nursery, where the genus is represented in vast numbers.—W. H.

Phalænopsis Manni.—This is a somewhat rare species, although first imported from Assam by myself about twenty years ago. I do not remember to have seen it flowering until recently in Mr. Smee's collection, where so many curious and rare plants find a congenial home. It is not a showy species, but its blooms are exceedingly pretty. The flowers, produced on a long pendent scape, are numerous, the sepals and petals spreading, about $1\frac{1}{2}$ inches across, yellow, heavily streaked and blotched with transverse markings of chestnut-brown; lip small, the anterior lobe crescent-shaped, pure white, and more or less fringed. The side lobes are small and erect, white, streaked inside with purple.—H. G.

Angræcums.—Is it generally known that there is a form of *A. sesquipedale* which flowers in March and April? We have in our collection three plants which flower annually in April, and the flowers, as I write, are opening. The ordinary form blooms about Christmas, and, taking one season with another, half of the flowers of the midwinter flowering variety are destroyed by fogs before they open; whereas in April none of them are injured in the least. The plants bloom very freely every year, and produce short, stout leaves. The plants are placed close to the roof glass in a low span-roofed house, and are not shaded too much. The Rev. W. Ellis, in his work "Madagascar Revisited," pointed out that in its native habitat *Angræcum sesquipedale* grew most plentifully on trees that were not well furnished with leaves, and it also grew high up amongst the branches. The plants were even found growing on dead trees, and where any plants were found near the ground rooting into vegetable mould the leaves were green, and the plants to all appearance perfectly healthy, but neither flowers nor old stems of flowers were seen. Under cultivation the plants succeed best in well-drained pots and in live Sphagnum, but they show their decided epiphytal character by sending the roots over the surface and down the sides of the pots, against which they flatten themselves, and hold on most tenaciously. *A. Sanderianum*, recently introduced by Mr. F. Sander, of St. Albans, is quite a contrast to the above-named species. Both these varieties flower

together with us. A very intelligent cultivator assured me that this species was synonymous with *A. articulatum*. I have grown *A. articulatum* for many years, and it flowers in the autumn, whilst in the growth of the plant there is also considerable difference. *A. Ellisii* and *A. articulatum* have a much greater resemblance to each other than *A. Sanderianum* has to either of them; further, it has been named by Dr. Reichenbach as a distinct species, and the floral committee of the Royal Horticultural Society also awarded it a first-class certificate as a new plant. It is a charming kind and grows freely in teak baskets with plenty of drainage. The spikes have a beautiful effect dangling from the baskets when the plants are suspended near the roof.—J. DOUGLAS.

EPIDENDRUM MYRIANTHUM.

My attention has been recently drawn by a friend to this most beautiful cool house Orchid, which I saw some time ago growing in Sir Trevor Lawrence's garden at Burford Lodge, and by a plant in Mr. Tautz's garden at Studley House. The latter is said to be a white variety, and should this prove to be the case, it will be a grand addition to the white flowers which continue to appear amongst this race of plants. The typical plant has been long known, it having been originally found by the veteran Skinner years ago at very high elevations on the mountains in Guatemala, but the plant has never become common. The only reason for this, I believe, is to be found in the fact of its having been generally kept too hot; whereas, it delights in a very cool and moist atmosphere. The plant in question is one of the most beautiful of the *Amphiglottum* section of *Epidendrums*, which is characterised by long and slender stems, which bear large paniculate racemes of beautiful flowers. The species in question is an elegant plant, with long, slender, reed-like stems attaining a yard or more in height, and clothed with distichous linear-lanceolate leaves, the sheathing base covered with small black specks or corrugations. On the apex of these stems is borne a large-branched panicle of rosy purple flowers, which are produced during the summer months, and last a long time in perfection. I have only flowered this plant upon one occasion, and although I have frequently seen it grown well in a warm house it would not appear to flower under such treatment. W. H. G.

White Cattleya Trianae.—It is very strange that many people claim to have the pure white form of this species, but in how few cases does one see it? In the majority of the flowers which I have seen this season the usual tinge of lilac or flesh colour has appeared, and I was agreeably surprised recently to observe in The Woodlands collection a specimen in bloom in which not the slightest trace of colour could be found, saving the tinge of yellow in the throat, and which, to my mind, is a great relief to the white.—H. G.

Dendrobium macrophyllum Richardi.—From Mr. Cowley, who has charge of the Studley House collection of Orchids, comes a spike of bloom of this variety to show me how different it appears after being open many weeks. The sepals and petals and the pedicels have all become of a deep lurid yellow, and the lip also has assumed the same hue, but this is somewhat duller through the veining and spotting of brown which runs through and over its surface. In this state I fancy the flower is prettier than it is upon its first opening.—W. H. G.

Trichoglottis fasciata.—This may be called the hairy-tongued *Renanthera*, for the plant in habit of growth resembles a member of that genus. It is a curious and interesting plant which one seldom sees, and I was again pleased to see it flowering with Mr. Bickerstaffe in Sir Trevor Lawrence's garden a short time ago. The flowers are

borne on short spikes, three to five together; the sepals and petals are spreading, some 2 inches across, the ground colour pale yellow, closely marked with transverse bands of chestnut-brown; lip narrow, white, sparingly dotted with brown on the front lobe. Its native habitat is at present concealed, but I imagine it grows wild in some of the islands of the Eastern Archipelago. It flourishes in the East India house, and should be grown in a well-drained pot in Sphagnum Moss.—W. H. G.

Dendrobium cariniferum.—This is a member of the black-haired section, of which *D. formosum* and *D. Jamesianum* are familiar types. I introduced this plant to cultivation twenty-one years ago, but had never been struck with its beauty until I saw a very fine form recently flowering in Mr. Smee's garden at Carshalton. The flowers of *D. cariniferum* are large, waxy-white, the interior of the lip stained with a large blotch of Roman-red, which is continued in a broad band over the side lobes.—W. H. G.

Odontoglossum Edwardi.—This is now in flower in several collections. We have some very strong spikes of it, and the flowers are so distinct in colour that few amateurs would like to be without a plant. The sweet Violet-like perfume of the flowers is also a point in their favour. The flowers are of a distinct purplish lilac shade with a rich yellow mark on the crest of the lip. It is one of the introductions of Mr. Edward Klaboch, and was named in his honour by Dr. Reichenbach. This species is not likely to become very plentiful, as the difficulties attending its collecting and importation to England are very great. It is found at a height of 7000 feet in the Andes of Ecuador, and in very inaccessible parts of the mountains; consequently there is considerable delay in forwarding the plants. It is supposed that plants of this species are difficult to establish, but I have not found them so if care is taken not to wet the bulbs. I purchased half a dozen imported pieces at a sale about five years ago, and planted all of them separately in pots, using nothing but clean potsherds. A long time elapsed before any fresh roots were formed, but the potsherds were kept wet, and in time the plants all produced roots freely and formed strong growths, but it was three years before any flower-spikes were formed. This was probably an advantage, as the plants had plenty of time to become established. The plants like a moist atmosphere and the coolest part of the cool house. The roots push out quite as freely above the compost as they do into it, and when in growth the plants require a good supply of water. The treatment given to the well-known *Oncidium macranthum* suits this *Odontoglossum* admirably.—J. DOUGLAS.

Zygopetalums.—Although these are not equal to *Cattleyas*, *Phalænopsids*, and such like winter Orchids, they are exceedingly valuable for their cut flowers and for the delicious fragrance they exhale. In a cut state they last almost as long as they do on the plants. Being natives of Brazil, they do not require much heat, and are very easily cultivated, and may, therefore, be grown in any ordinary stove in a mixed collection, where, with even ordinary attention, they are sure to do well. The most useful perhaps of the *Zygopetalums* is *Z. Mackayi*, and those who are fortunate enough to possess this or any others, or essay to start with them, will find the present a good time to do so, as the plants may now be shaken out, divided, and repotted, which should always be done before the young growth gets forward or fresh roots form. For growing *Zygopetalums* in either pots or ordinary garden pans answer the purpose, but I give preference to the first-named. It is important that the pots be well drained, the most suitable material for doing so being a mixture of potsherds and charcoal, the latter being kept near the top, where the roots soon find it out and lay hold of it. A few bits of charcoal are also useful for mixing in with the peat, which should be of a tough fibry nature, and have a sprinkling of Sphagnum incorporated with it. In turning the plants out it may be necessary to break the pots they are in to get them out without hurting the roots, as the latter cling rather tenaciously; but by doing that and setting them free by first

lifting them with the blade of a knife they may be liberated without much damage, and if large enough the plants may then be divided. This should be done by pulling them apart so as to secure some young shoots to the pseudo-bulbs, when each portion should be potted carefully by spreading out the roots and covering each with the mixture of peat and Sphagnum as the work proceeds, keeping the plant well up above the rim of the pot. They should be gently syringed twice daily to encourage free growth. To aid this a moist atmosphere and shade on sunny days are necessary, but towards autumn full exposure will assist in ripening up the bulbs.—S. D.

Orchis Robertiana (*Aceras longibracteata*).—I quite agree with Mr. Webster's remarks about *Orchis Robertiana*. It is certainly one of the best of Orchids. There are two distinct forms of it, the one with a greenish-purple labellum, while the other has a purplish-pink labellum, and both are very sweet scented. I have grown *Orchis Robertiana* for some years successfully (except this year when the plants were neglected) planted out in a cold frame in ordinary loam. It is one of the easiest to grow, all that it requires being protection during the winter and early spring. It is by no means so rare as Mr. Webster supposes. Mr. Ware, of Tottenham, who exhibited some fine specimens grown in pots at some of the horticultural shows last year, has included it in his catalogue for some years. It is also suitable for pot culture and forces well.—G. R.

Dendrobiums at Mr. Bull's.—There were several beautiful *Dendrobiums* in bloom with Mr. Bull recently, and amongst the number *D. crepidatum*, which was flowering freely. This is a lovely species, the flowers delicately coloured and of exquisite shape, the sepals and petals tipped with pink, the lip in addition having a rich staining of yellow. *D. barbatulum* was in perfection; this was referred to last week; and the old noble with the variable and handsome *Wardianum* were, of course, in the number. Some forms of the last-mentioned have especially large flowers, but those that are the most heavily tipped are the richest and best. A large plant in full bloom of *D. macrophyllum giganteum* scented the whole house with an odour of Rhubarb, and we have fewer nobler *Dendrobiums* than this in bloom now. There were good spikes on *D. densiflorum*, and also a well-marked form of the splendidly coloured *D. bigibbum*, which displays considerable variation in shade. The most richly coloured variety we ever remember seeing was in the Kew collection; the flower was of the deepest purple. A fine batch of *D. Farmeri* promised a rich display, and there was a good plant in flower of *D. Brymerianum* that has a fringe like delicate lace. Of all the numerous genera of Orchids, the *Dendrobium* genus offers some of the greatest treasures for amateurs, as the several species and varieties are usually exceedingly free, and the flowers either showy or delicate in colouring.

SHORT NOTES.—ORCHIDS.

Angræcum Sanderianum is flowering freely in many collections at the present time. It was in bloom recently with Mr. B. S. Williams and Mr. Bull, and the more we see of this pure white *Angræcum* the more we recognise in it an introduction of priceless value. It is exceedingly elegant and beautiful.

Vanda teres.—There is an excellent batch of this beautiful Orchid approaching a flowering stage in Mr. Williams' nursery at Holloway. The plants are in small pots, plunged in Moss, and kept close up to the glass in an unshaded house. They have made 1 foot of growth from the point they were cut back to last year.

Vanilla Humbloti.—I have not seen this species in any other garden than that of Mr. Smee, where it now appears to be thriving. It is said to produce scarlet flowers, and if so it will be valuable. Large and ornamental-flowered forms appear to exist, and these I yet hope to see growing in our houses and blooming, as they would give both a novel and pleasing appearance to the Orchid houses.—W. H. G.

Epidendrum atropurpureum roseum.—This is synonymous with *E. macrochilum roseum*, and is one of the most beautiful Orchids in bloom now.

Both this and the type are making a show at Devonhurst, Chiswick, where Mr. Wright, the gardener, has a small, but choice collection of Orchids. The great beauty of the variety is in the broad lip, washed with a fine rose colour that deepens considerably at the base. The flowers last a long time when kept free from damp.

Orchids at Epsom.—There are several Orchids in bloom now in the Epsom Nursery of Mr. Morse, and amongst them a number of *Cypripediums*. *C. villosum*, a well coloured form, was in full flower; also *C. Argus*, *callosum*, *Dauthieri*, *superciliare*, *Haynaldianum*, and the old *Lawrenceanum*. Besides these, *Masdevallia Lindenii*, the brilliantly coloured *Sophranitis grandiflora*, *Dendrobium Ainsworthii*, its variety *roseum*, and *crassinode Barberianum* were making a gay show.

Cymbidium Lowi at Chelsea.—This Orchid is flowering freely in most collections, but we have seldom seen it finer than at Mr. Bull's, Chelsea, where several plants were recently in full bloom. One had eight spikes and the other five, with an average of about forty blooms on each. One named *atropurpureum* had an especially richly coloured lip. This species was discovered by Mr. Boxall in Burmah.

Maxillaria Sanderiana.—This, by far the grandest species of this genus, is now flowering in Mr. Sander's establishment at St. Albans. It is a most superb plant, of which a fine figure appeared in THE GARDEN, July 23, 1887. I observe it is frequently grown in pots, but I think the best way is to suspend it in a teak wood basket, as this enables the flowers to grow downwards in a natural manner and all the blooms can find an exit.—W. H. G.

Odontoglossum cirrhosum.—This was especially noteworthy a few days ago in both Mr. B. S. Williams' nursery at Holloway and also in Mr. Bull's at Chelsea. The plants bore large racemes of the beautifully spotted flowers. When seen in this condition there are few more lovely *Odontoglossums* than this old favourite. It deserves to become commoner, and we are pleased to state that it is now added to many collections.

Cattleya Lawrenceana.—A very good form of this *Cattleya* was recently in flower with Mr. Williams, the lip of the richest rose-purple. This species is commencing to bloom freely, and forms a beautiful succession to *C. Trianae*, now going over. It is of recent introduction, and was found by Mr. Im. Thurn on Mount Roraima, in British Guiana. It was imported by Messrs. Sander and Co., of St. Albans, and named in compliment to Sir Trevor Lawrence, Bart.

Lycaste fulvescens.—This distinct *Lycaste* was flowering recently in Mr. B. S. Williams' nursery at Holloway. It was discovered by Linden, along with *L. gigantea*, in the province of Coro, in Columbia, and is an interesting species, the pseudo-bulbs large, and the flowers, borne in slender scapes, of a tawny yellow colour. The sepals and petals are long and narrow, and the lip is rich orange, beautified by a marginal fringe of hairs. It is very free, one of Mr. Williams' plants having as many as ten flowers from one bulb.

Dendrobium senile (the Old Man Dendrobe).—This is another Burmese beauty now flowering in the Burford Lodge collection. It was sent to the Messrs. Low, of Clapton, by the Rev. Mr. Parish a quarter of a century ago. For a long time it remained very rare, and is now, I think, still difficult to manage. It appears to be a dwarf plant, its stems seldom exceeding a few inches in height. The stems as well as the leaves are densely covered with white woolly hairs, somewhat resembling those on the Old Man Cactus (*Pilocereus senilis*). The flowers are mostly produced in pairs, of a deep rich yellow, saving a few radiating orange streaks at the base of the lip. I believe it prefers a bare block of wood to grow upon to anything else.—W. H. G.

Vanda Denisoniana.—This species was in bloom recently with Mr. Morse, of Epsom, and is well worth a note, as it is one of our rarest *Vandas*. It is one of Colonel Benson's discoveries in Burmah, and first flowered with Messrs. Veitch & Sons in

their Chelsea nursery as far back as 1869. In growth the plant resembles *V. Bensoni*, and though described sometimes as the white *Vanda*, the flowers are not always white, as there is usually a pronounced greenish tinge in the fleshy sepals and petals. The axillary racemes are from four to six-flowered; the flowers individually of medium size, fleshy, and with a quite white lip, of which the distinctive feature is the diverging terminal lobes, that resemble the tip of a black cock's tail; the inside of the spur is orange colour.

GARDEN FLORA.

PLATE 696.

PURPLE SELF CARNATIONS.

(WITH A COLOURED PLATE OF THE VARIETIES M. BERGENDI AND Mlle. ROUSSELL.*)

Two such vigorous and beautiful Carnations as those which form the subject of the accompanying plate should, when better known, be found in many gardens. Whilst English Carnation raisers have given us some beautiful selfs, they have rather concentrated their efforts upon the production of striped and otherwise marked show flowers, many of which are unsuitable for flower garden decoration. M. Bergendi and Mlle. Rousell, in their respective colours, are far superior to any English kinds I know. They are selected from a brilliant collection of beautiful self-coloured varieties raised by M. Gauthier-Hochard, of Pierrefitte, France. M. Bergendi and Mlle. Rousell are both strong, hardy kinds and free growers. They have lived the last two winters in the open air. The flowers of M. Bergendi are of large size, but good in form, and the colour a fine rich deep purple. I have heard some object to the purple-shaded Carnations, some of which take on quite a dingy hue. This is not so with M. Bergendi. The colour is deep and good, and does not greatly change with the age of the flower. Among English purple-flowered sorts, such kinds occur to me as *Purple Emperor*, *Imperial Purple*, *Crémorne*, *Elegant*, &c., all distinct in varying shades of purple, and fitting companions for, though inferior to, M. Bergendi.

Mlle. ROUSSELL is not a true purple. When growing, however, the groups of the two kinds were side by side, and in the plate the distinct shades of colour in the flowers may be at once recognised. The colour is a light shade of purple with a rich blending of deep crimson, the two colours combining in a most harmonious way, and producing a flower of unique beauty. The flower-spikes grow taller than those of M. Bergendi, and the flowers, which never split, are of perfect form.

The fact that such excellent flowers as these figured were obtainable from the open flower beds in the cold, wet, sunless summer of 1888 shows that the Carnation as a summer garden flower is capable of much more than has hitherto been supposed. Although many were content to grope along in pursuit of a system of flower gardening which actually found no place for the Rose and the Carnation, two essentially English summer garden flowers, there are now abundant signs of the increasing popularity of both, and no one will deny that it is well merited. The effect of such telling kinds as those figured, or some of the vigorous scarlet selfs, when seen in an informal mass is very handsome.

There were some beds of Carnations in Hyde Park last summer. They looked well and were

* Drawn for THE GARDEN at Gravetye Manor, by H. G. Moon. Lithographed and printed by Guillaume Severyns.



Illustration of a carnation plant, showing several red flowers and buds on a light beige background.

much admired, but they fell short of what they might have been by reason of the indiscriminate mixing of different coloured kinds. Had each self-coloured kind been grouped naturally by itself, the effect would have been greatly enhanced. The varied coloured Pelargoniums are not promiscuously mixed because colour effect is aimed at. If Carnations have been tried and found wanting in this respect the cause is their misuse, because a mass of vigorous hardy purple, scarlet, pink, or white Carnations will give all the colour effect of the Pelargoniums and far exceed them in interest, fragrance, and beauty.

For flower garden decoration some have advocated the raising and use of seedlings. True, they give an enormous quantity of flower, but the plants seriously lack quality, many of the flowers not being so good as those of a Pink. I do not speak disparagingly of the raising of seedlings, because really good kinds are often thus obtained, but, as with Roses, so with Carnations, if we would have the best results we must grow the best kinds, few or many, according to space, each in sufficient quantity to be effective. It is well to bear in mind that a selection of plants naturally grouped is more satisfactory, more beautiful, and gives much less trouble than the most complete collection ever brought together. By a printer's error the "M." that should precede Bergendi has been omitted.

A. H.

FRUIT GARDEN.

W. COLEMAN.

FRAME MELONS.

WHERE Melons must be grown in pits and frames, heated with manure or dispensed with altogether, now is a very good time to commence operations. Gardeners within my own recollection commenced very much earlier, and cut as good Melons in May and June as we now cut from houses heated with hot water. The expense in time and labour, independent of incessant watchfulness, were by no means light, but they had not tasted the comfort of hot-water apparatus, and thought less of spending hour after hour in a crouching position, with their heads and hands in an ammonia bath, than young men of the present day think of brushing up a stoke-hole. No one wishes to go back to those days for anything save the pure-bred old Egyptian species of Melons, or the first break which included the original Victory of Bath and Spencer's Bowwood green-flesh, now crossed and recrossed out of shape, colour, and flavour. But then it unfortunately happens that a goodly number of amateurs and some gardeners still find it necessary to utilise fermenting material for forcing purposes. As frame Melons cannot be grown in less than twelve to fifteen weeks from the seed to the ripe fruit—and anyone requiring more than one crop should employ fire-heat—I have said April is a good time to commence, when good Melons should be forthcoming from the end of July to the end of September. The months thus devoted to their growth forming the cream of our partial summers, the high tropical heat so essential to success is secured under a minimum of labour; whilst light, another important element, is gradually on the increase until after the fruit is set and swelling. In ordinary seasons we frequently grow very good crops of Melons in pits and frames which have been used for Potatoes and bedding plants, but these we term catch crops, as we do not always renovate the beds before the plants are turned out. The fruit, moreover,

does not ripen before the end of August, quite a month later than it can be secured by making special beds in April. Assuming, then, that fresh stable manure and Oak or Beech leaves in equal parts have been fermented and turned two or three times, that beds just large enough to receive the frames have been solidly built, 4 feet at the back and 3 feet in front, and clean, sound, steam-proof frames, fitted with good lights, are in position; also that a nursing bed carrying a one-light frame has been built, and is doing duty as the first home for young plants of Cucumbers as well as Melons; the seeds, as I have often stated, should be sown singly, in 3-inch pots, on the day the fruiting bed is built up, and if all goes well the young plants will be fit for turning out by the time the violent heat has subsided, the bed has settled, the frame set level, and the soil has attained a temperature of 80° at the apex of the cones or ridges. In order to secure this heat the manure will most likely register 120° to 150°; but we cannot wait for this to subside; therefore, to prevent burning of the soil, we place thick sods of turf, Grass-side downward, right along the centre of the bed, forming a strip or foundation about 30 inches in width. Across this strip we place common or glazed drain-pipes of any convenient size, with ends open and about 2 feet apart, as safety-valves for preventing the burning heat reaching the tender roots of the young plants immediately above them. Upon this base small cones may be built not less than 18 inches in height, as Melons, it must be borne in mind, should be planted high and dry and completely above the line of flooding. Another and still better mode of preparing for the plants is the formation of a continuous ridge of compost, the same height, but as narrow as possible at the base, upon which they can be placed equidistant and 18 inches apart, irrespective of the lights or rafters.

COMPOST.—The most suitable for Melons is sound turfy loam of a calcareous and somewhat heavy nature, old lime rubble or charcoal, and a little soot to destroy wireworm. This may be mixed up some time before it is wanted and placed where it will become thoroughly dry and warm, otherwise when firmly packed in the ridge the heat will be a long time in rising through it. If thought too poor to engender an abundance of fibres, a little bone-dust may be added in preference to rotten manure, which encourages worms, induces a gross growth, and becomes sour under copious waterings when the fruit is swelling. If too light to hold within its bulk an abundance of moisture, dry and finely pounded marl may be added, but all the ingredients must be put together dry, otherwise hard ramming—a very important operation—will render the whole mass pasty and adhesive. Light soils, it is hardly necessary for me to say, will soon fill a frame with rampant vine and plenty of fruit will set, but, beat or tread it as we will, we cannot make it hold sustaining moisture; consequently the plants almost invariably become barren or go off under attacks of canker at the collar, brought on by incessant watering. From these remarks the reader will gather that animal manure and light soils should be avoided, and, if possible, a sound sustaining calcareous loam from an old sheep pasture, free or freed from grub and wireworm and rich enough in itself to grow good Pelargoniums or Roses, should be selected, cut and stacked when dry in the autumn, chopped down, thoroughly aerated and warmed as wanted, and piled into lofty, narrow ridges in the frames in preference to flat, shallow spreading masses, which soon dry out and force the roots down into the manure bed to the future injury of the crop when the heat is declining.

PLANTING.—Returning to the nursing frame, we find the young plants in 4-inch pots partially plunged in the layer of leaf mould or Cocoa-nut fibre used for keeping down steam, not more than 9 inches from the glass, always bright, clean and

free from confervæ, as Melons cannot have too much sun and light throughout the whole course of their culture. As we do not wish them to become pot-bound, the pots are drawn out of the bed and placed on the level surface, where they never feel the want of water, and the roots get inured to a temperature equal to that of the hills to which we are anxious to transfer them. Some give them a shift and pinch out the points at the third rough leaf, but, provided the fruiting frame is ready, I prefer planting out on the day the first rough leaf is visible. All checks by this method are avoided, and the young roots having discovered their freedom, the buds in the axils of the first primary leaves start strongly immediately after the first pinching. As Melons, much as they enjoy water, are not aquatics, they should be planted on small conical or convex mounds about 2 inches higher than the level to which the additional supplies of compost will be raised when the final earthing is finished. Thus elevated, with a few pieces of rough charcoal or old lime rubble placed round them, and not more than half an inch of soil over the roots, the whole of the stems will become hard and wiry, water will never reach them, and that dread disease, canker, will be averted. The balls, I may say, should be thoroughly moist when the plants are turned out upon the ridges, and when the roots have been slightly liberated by the fingers, the compost must be pressed very firmly about them. If the soil is very dry, a little water at 85° may be given at once, otherwise this element may be withheld for twenty-four hours after planting. Slight shade for a day or two may be necessary, and the frame must be kept moist, moderately close, but not hermetically shut, as steam is a most dangerous invisible enemy. Two plants to a light are sufficient for a frame 6 feet in width, and three breaks from each will be ample. The hills or ridges being so small, the young plants will very soon push their roots through the sides, when more soil, previously placed along the back and front of the frame for the twofold purpose of keeping down steam and getting thoroughly warmed, must be firmly packed against them. As frame Melons do best when earthed piecemeal, each layer of warm compost should not exceed 3 inches in thickness along the sides of the ridges, and although quite level on the surface, the mean should be quite 2 inches below the little hillocks upon which the plants stand along the centre.

CULTIVATION.—With good compost and a strong tropical heat the plants will grow rapidly, and although sown as late as the middle of April, they will require incessant intelligent care, not from a plurality of managers, but from one person who knows what he is about and is well endowed with patience. Assuming, then, that linings have been added to the back and front, that good covering has been provided, earthing is finished, and four vines are extending, one to each corner of the trellis placed under each light, our daily routine will be as follows: About 5 p.m. we mat up for the night and open the back of each light a quarter of an inch to prevent an accumulation of stable gas and steam. At 6 a.m. this air is shut off, the covering is removed, and when the glass marks 76°, the morning being bright, we commence ventilation for the day. Air, little and often, is given until the maximum of 85° is reached, when we add or reduce as the sun varies or cold currents affect the temperature. We never shade unless bright sun after a dull time causes the tender foliage to flag, and then very lightly for a brief period. About 2 p.m. the air may be reduced and not later than 3 or 3.30 the frame is closed and well syringed with water at 80° to 85°, care being observed that the stems and small mounds upon which the plants stand remain perfectly dry. On watering days—twice a week in fine bright weather—we close half an hour earlier to compensate for loss of heat by opening the lights, but atmospheric moisture being abundant, the use of the syringe is dispensed with. Thus it will be seen that the foliage gets syringed five times in the course of each week, and, provided it gets thoroughly dry once in the twenty-fours, the afternoon growing temperature with moisture is allowed to run up to 90°.

MANIPULATION.—When the vines nearly touch the sides of the frame the removal of the points induces a flush of laterals which show fruit at the first joint. If only a few solitary female flowers open, these, together with male blossoms, are removed, but when a flush open together they are carefully fertilised from day to day until enough and to spare are properly set and swelling. When the size of Walnuts, six or eight to a light and of uniform substance are selected for the crop; all the remainder are removed, the fertile growths are pinched at the joint beyond the fruit, and those from which the surplus Melons have been taken are shortened to within one joint of the parent vine. By adopting this method and constant pinching a superfluity of lateral is avoided; the premier leaves, which should be carefully preserved, have plenty of room; solar heat reaches the surface of the bed and dissipates stagnant moisture, when that dread disease, canker, robbed of its most powerful ally, rarely puts in an appearance.

SWELLING THE FRUIT.—When the size of Walnuts, the young fruit may be reduced to three on each plant, those retained being of equal age and most likely to swell away in unison. To prevent them from sinking below the trellis, each fruit must be placed on a clean brick or an inverted pot, and the plants may have their first draught of warm diluted liquid; but having been kept rather dry through the setting process, the soil must be restored to a growing condition by moderate and repeated waterings. From this time until the fruit has attained full size and is perfectly netted, warm liquid may be given to the roots twice a week, but not in dribbles, as the sods lying at the base of the ridge should be made their great feeding ground when under a July sun the leaves are perspiring freely. Another important, indeed magical, aid will be found in top-dressing, not with manure, but with a thin covering of loam and bone-dust, two of the first to one of the last, mixed some time in advance and kept perfectly dry. Half an inch at a time is ample, as roots in a few days convert it into a perfect mat, when the meal may be repeated. The linings, as a matter of course, must be renovated alternately, especially when the heat in the bed begins to decline, and on no account must night covering and the chink of air be neglected. As days increase in length and summer weather prevails, early morning ventilation will be imperative, and the lights may be freely tilted back or front according to the set of the wind, but draughts on the hottest days must be avoided. The night heat should stand full 70°, the mean by day 80° to 85°, and 5° to 10° higher after closing with sun-heat, and the frame well filled with vapour. All stopping, training, and regulating should be performed soon after 2 o'clock or immediately preceding closing, and the plants should be well syringed with extra warm water, to compensate for loss of heat by the removal of the lights pending the necessary operations. When the Melons have attained full size, all stimulants must be discontinued and pure water only in gradually diminished quantities must be given to the roots; but the foliage and inside of the frame may be syringed about 4 p.m., especially if there are any signs of spider. The next and last stage will be ripening, and as Melons are good in proportion to the amount of dry sun-heat they get, they must have more air through the early part of the day and just enough water to prevent the plants from flagging.

CUTTING AND KEEPING THE FRUIT.—It not unfrequently happens that the bloom of three or four months is crowned with disappointment by allowing the fruit to remain too long upon the plants or by placing it in a damp, cold place after it is cut. When the fruit changes colour and the stem begins to crack at the junction or neck, the aroma wafted from the frame, one and all combined, will indicate the fact that one or more Melons are quite forward enough for cutting, but possibly not for eating. When cut with a good piece of the stem attached, the fruit should be removed to a dry temperate room or vinery in which ripe Grapes are hanging, where, according to experience of the variety, as some are quicker than others, it may be kept from

two to four days, when it will be fit for table. Melons, as a matter of course, can be kept on the plants until they separate themselves, until fermentation sets in and the seeds begin to germinate, and then even they will keep sound for many days in a cool room, but their aroma has passed away, their flavour is gone, and all that is left of a once good fruit is voted nauseous and insipid.

INSECTS AND DISEASES.—Green and black-fly sometimes attack the tips of the young shoots, especially when the plants are kept in too low a temperature, and attention to airing, closing, and other details is neglected. Smoking Melons is a delicate and dangerous business, as too much smoke, but more frequently exposure to sun the following morning, settles the most tender foliage. If taken in time, dipping in weak tobacco or soapy water, or syringing with quassia water, will make a clearance, but the best preventive is high culture and quick growth in a tropical temperature. Spider under similar conditions, and the retention of useless pot-bound plants, may be present when they are turned out upon the hills, but, like all other parasites, it makes poor headway under that generous treatment which promotes health and a robust constitution. Later in the season, when comparative root drought and a dry atmosphere prevail, it makes rapid headway, but then even it may be checked to the extent of the preservation of the best of the foliage by timely syringing with soapy or sulphur water, and the avoidance of the baneful practice of hastening maturity by a sudden transition from tropical moisture to extreme aridity. Canker may be prevented by healthy culture, by thin training, by preventing stagnant moisture from hanging about the surface of the bed, and by the preservation of all the premier leaves. The stems or collars of the plants, too, should be kept clear and above the flood line, the foliage should become thoroughly dry once in twenty-four hours, and last, but not least, the loam, pure and sweet, should be good enough to grow them without being enriched with animal manure. As a remedy, quicklime and sulphur, or dry powdered charcoal, may be well rubbed into the parts affected.

AIDS TO SETTING GRAPES.

WITHOUT a good set it is vain to look for an even crop of shapely bunches of Grapes, and yet this is what all desire who possess or have charge of a vinery. While admitting that in many instances the Vines set their bunches in a manner which leaves nothing to be desired, there are cases, far too numerous, where small and stoneless berries are to be met with in quantity. Moreover, gardeners experienced in Grape culture are aware of the fact that some Vines in the same garden set their berries much better than others, even though they be of the same variety. The cause of this disparity is often difficult to account for; it may be due to defective root action or dryness at the roots; atmospheric conditions, too, in houses of different construction or even in different parts of the same house exercise a great influence over the setting of the fruit. Considering the importance of this subject and how much depends upon a good set, it behoves those in charge of vineries to take pains when the Grapes are in bloom to assist them as far as possible, seeing there are many ways by which fertilisation can be facilitated, and the quantity and quality of the crop improved thereby. It does not always follow that because certain kinds have been found to set well in some cases without artificial aid other than the usual tap or shake of the rods, no further assistance is ever required by them. Tapping the rods at mid-day is, no doubt, all that is necessary to disperse the pollen, but if the pistil is not in a fit state to receive it, fertilisation will not take place. One obstacle in the way is the coating of glutinous or viscid matter which is found in many varieties upon the end of the pistil, and which if not

effectually removed prevents the germination of the pollen. One can easily imagine that when growing in the open air this substance is cleared off by natural causes, such as rain, wind, insects, &c., or the influence of the sun, but in the still shady atmosphere of our vineries there is no force of this kind to disperse it; therefore it becomes necessary to call in the aid of a soft brush or some other means by which this obstacle can be removed. Even when this coating is not perceptible I am of opinion that going over the bunches with a brush helps to prepare the pistils to receive the pollen, and in this way effects as much, if not more good than is accomplished by conveying the pollen, for of this under favourable conditions enough and to spare is always floating in the air.

The syringe, when employed for the purpose of setting, effectually clears the pistil of this obstructive matter, but the wetting process must destroy a quantity of pollen, although, no doubt, some is forced on to the pistil by this means, and flowers are fertilised thereby. However, I think when the syringe is used some time before midday is the best time for the operation, as the pistils which are then cleared will have a chance of receiving the pollen from those flowers which open later on. Bunches which are exposed to a fair share of light invariably set better than when shaded by a quantity of foliage, and this fact should be borne in mind when the shoots are being tied. Many cultivators are over-anxious to get the laterals tied down to the trellis, forgetful of the check this proceeding is likely to produce, besides bringing the bunches into a bad position for setting. Where the rods are trained at a good distance from the glass—which should never be less than 18 inches—little tying will be then required until the bunches are ready for thinning. The weight of the bunches will bring the shoots down to the wires naturally without any straining. The points of the shoots must, of course, be caught down a little to prevent contact with the glass, otherwise they should be allowed to grow as upright as space will permit. Light and air will then have free play amongst the bunches when in bloom, greatly facilitating the important process of fertilisation. Shy-setting kinds also may be aided by tying the bunches into an almost vertical position. As regards the state of the atmosphere and the temperature of the house at this time, opinions vary. I am inclined to a somewhat high figure during the day when it can be obtained with the assistance of the sun, and while allowing a considerable fall during the night it is not wise for Muscats and late kinds to let the thermometer fall but little below 60°. The season of the year will make a little difference in this respect. The sun is always most welcome when the Muscats are in bloom, and all cultivators are alive to the value of its aid. Notwithstanding, we all know how often Sol hides his head for days and weeks at a time. During such adverse periods, then, moderation should be exercised with the fire-heat in preference to forcing the thermometer up to the same figure that is allowed under more favourable conditions; 70° to 75° is quite high enough from fire-heat alone. Some difference ought to be made in the supply of moisture by substituting a somewhat drier atmosphere without discontinuing damping altogether, as is sometimes done. Such extremes of treatment are uncalled for, and are, moreover, injurious to the health of the Vine, while they tend to hinder rather than help the setting of the Grapes. A. BARKER.

Maiden trees.—There can be no doubt but that in all orchard planting, or indeed in garden

planting so far as relates to hardy fruits, maiden trees are best. In the case of trained trees, there is no other course open but to leave the training to the nurseryman, who can perform that essential work more neatly and with greater facility than private gardeners can; with them it is ever a question of time and means. But planters of experience affirm repeatedly that although one may plant maiden trees only, and another may under the same conditions plant two-year or even three-year-old trees, that the mutilation to the roots of the latter is so great, that the maiden trees in about five or six years are as good if not better than the older trees, and invariably make in the end stouter, cleaner, and more profitable plantations. Maiden trees may be purchased at perhaps one-half the cost of older trees; they have roots closer home, and in the lifting they are not so much injured. The trees, too, much sooner develop root action, and more quickly become established in the soil. What root-work and head-growth it is performing, however, are just what under other conditions the tree would be doing in the nurseryman's quarters, and which are far better done in the orchard or garden where the tree remains. Even of bushes, such as Gooseberries and Currants, planters prefer good two-year-old to older ones, especially if they have done well in the nursery in the young state.—A. D.

HEADING BACK YOUNG TREES.

SOME difference of opinion exists among fruit growers as to the best time for cutting back young fruit trees recently planted. I have for some years been testing the matter by cutting back trees at different times, and the conclusion I have come to is that the best time for cutting back all trees planted at the right season, which is as soon as the leaves fall in autumn, is as soon as the sap begins to move in March; not to wait till the buds at the end of the shoots are bursting, as is sometimes done, but to meet the rising sap and concentrate the growing force about the buds we wish to take the lead in the future. Trees planted in autumn will have made new roots before Christmas, and by March will be in a condition to support the expanding foliage and to benefit from the reciprocal action which sets in the moment a green leaf appears. Delay in heading back in such cases means a loss of growing force; but a good many fruit and other trees are planted after Christmas, even up till the end of March, for it takes some people a long time to make up their minds, and in the case of late-planted trees, I cannot find in my experiments that there is anything gained by heading back before the following autumn or the next spring, though a good deal depends upon the treatment the trees receive during the spring following planting. It is rare for a tree planted late—in March say—to get moisture enough to set up a vigorous root action. Too often no water is given, beyond, it may be, a solitary watering shortly after planting till the trees are looking distressed and the bark is shrinking from lack of moisture. This is the reason so many late planted trees die shortly after being planted. The mutilated roots are not in a condition to do anything towards helping the buds, and these latter having exhausted all the sap stored in the branches, cannot move without help from below. A mulch of manure from 2 inches to 3 inches thick as a conservator of moisture is a great assistance to a tree struggling to make a new start, but the mulch is not sufficient, as a week's dry weather, or less, at any time until vigorous root action has set in is enough to dry up all the sources of moisture within reach of the roots, which have no power to move downwards in search of it. Another matter, deserving more attention than is commonly given to it, is to see that the trees are fixed firmly in the ground, and staked or supported in some way so that the wind cannot wave them about. A little wind pressure does no harm to a tree well established in the soil, but the case is different when the tree is only recently planted and has a new start to make. Every fresh effort of the tree to get a firm grasp of the soil is frustrated by the frequently recurring gales in spring. This may seem

a small matter, but it has a vital effect when neglected. I am not referring so much now to tall standard trees in the orchard, as everybody admits the necessity for keeping them steady in their position, but dwarf trees, which are now planted in large numbers, especially when in exposed situations, need support for the first year till they are fairly anchored to the ground.

E. H.

FRUITS UNDER GLASS.

CUCUMBERS.

THE winter plants at this place have been better than usual, producing if anything too much fruit, and at the present time they are free, fertile, and clear of parasites. The season, it is true, has been milder than usual, but we have had very little sun; consequently steady firing for the past five months has been incessant, not only by night, but also by day. To what circumstance, then, knowing how deleterious dry fire-heat is, must we attribute this unusual health and fertility? for this really is the question which the unsuccessful will ask, and although my reply may not be accepted by all, I am bound to say it is due to thin planting and extension training; to a liberal use of fermenting material for giving bottom-heat and keeping the atmosphere well charged with moisture; to withholding the syringe from the beginning of November to the end of February; and last, but not least, to copious supplies of diluted liquid at a temperature of 80°. It is by no means unusual for timid growers to plunge pot plants nearly as close as they will stand upon the pedestals, but this is a great mistake, as they are obliged to commence cutting and pinching long before the time arrives for throwing them into bearing. A few extra large leaves, too soft and flabby to stand over Christmas, are formed, the growths interlace, and the exclusion of light and air, never too plentiful, seals their fate before the salmon finds its way into the market. This is not the first time I have drawn attention to this very common cause of failure, as many readers of THE GARDEN know I have advised cutting off close to the pot each alternate plant, and drawing out every bit of vine when flagging indicates its position upon the trellis. If any disappointed tyro finds himself in this dilemma, he may adopt this plan, that is, where the plants retained are expected to bear good fruit up to midsummer. At the same time, if any of them show signs of exhaustion through overcrowding, a portion of the old soil may be removed and replaced with good, sound, rough turf, pieces of charcoal, and lumps of old lime rubble. Water at first should be sparingly supplied, but once new roots are formed and vigorous young shoots show at every joint, mild liquid may be copiously administered. The syringe, too, may be freely plied, the first time when the temperature begins to rise, to the surface of the bed and the walls; the second time, when the house is closed and the foliage can be well bathed with pure water at a temperature of 80°. If shading is used it should be of the lightest texture, and this only for a very short time during the hottest part of the day, as plants with plenty of roots in a moist bottom-heat of 80° and healthy foliage quite clear of the glass rarely flag in houses adapted to their culture.

Spring plants now coming into full bearing will require manipulating every other day, as nothing can be more wasteful of vital force or injurious to the crop than allowing the young shoots to grow after the points can be pinched at the first leaf beyond the show intended to swell to maturity. If the pits were cleared to the very bottom and the heat is brisk and sweet, growth of roots and vines will now be very rapid, and the fruit will swell quickly, but on no account must it attain full size, a Cucumber 14 inches in length and free from seeds being ample for all ordinary purposes. To secure an abundance of sweet straight fruit with the flower attached, all crooked or imperfect shows must be removed before they open; a few male blooms may be retained, but unless seed is wanted they need not be used, as artificial fertilisation does not improve the quality of the fruit for table purposes. High-pressure growers profess to keep

their houses hermetically closed, no matter how hot the weather may be, but I do not envy them their Turkish bath filled with an untrained tangled mass of vegetation, when 70° at night with a little air, 80° to 85° by day, and 90° to 95° after closing, with sun-heat and moisture, compass a range quite high enough for any tropical plant as yet grown in this dark, cold, changeable climate.

Summer plants.—As April weather improves, all pits and frames intended for Cucumbers should be cleared, cleansed, and made ready for the reception of stiff, stocky plants from the nursing frame before they become pot-bound. If a flow and return pipe attached to a boiler can be utilised, much labour through May and June may be saved, but the main source of heat should be fermenting material. This, of course, fluctuates more or less, but the soft moist heat economises syringing certainly on fine mornings and dull days, whilst good covering with dry mats ensures an atmosphere in which the plants revel. It will be necessary to turn and renovate the linings, back and front alternately, and a compost consisting of good turfy loam and lime rubble must be added as often as the roots creep through to the surface. Train the main vines outward, pinch before they reach the sides of the frame, and stop the laterals at the first joint beyond the fruit. Increase the supply of tepid water as the plants gain strength. Ventilate early on bright mornings and shut up with a profusion of sun-heat and moisture in time to run up to 90°. Where the long black and white-spined varieties are grown for summer use or autumn exhibition, seeds should be sown in April, in order to have strong plants ready for turning out after Potatoes and forced vegetables in May. If linings are applied to these frames the beds will hardly require rebuilding, otherwise they should be pulled to pieces and renovated with a little fresh manure to give the plants a start. The black-spined varieties being hardy and free-growers, the soil should be sound and thoroughly good, but quite free from manure and leaf-mould, as feeding with stimulants can be performed when the plants actually require it. The quantity, again, should be limited to a narrow ridge running the whole length of the frame, with broad boards on edge back and front for preventing the escape of water when summer flooding is necessary.

STRAWBERRIES.

As Peach houses and vineries will now be getting clear of the early batches of plants, the shelves should be well scrubbed and the walls limewashed to prevent spider and mildew from breaking out when syringing is discontinued. When this very important work has been performed, the general stock of plants, including President, Paxton, The Queen, and others, may be looked to, and if possible placed together in a light, roomy, well-ventilated and fairly heated pit to set and ripen their fruit. Here the different batches may be regularly syringed and copiously watered until they come into flower, and as healthy plants set freely enough without artificial aid, the flowers may be well thinned before they open. When a crop has been secured, syringing must be resumed, the trusses tied or propped up, and clear weak liquid supplied at every watering. As Strawberries will swell in the hottest Pine stoves, batches may be drawn for keeping up a supply, not otherwise, as fruit grown in a temperature ranging from 60° to 65° at night and 75° to 80° by day, if not quite so fine, certainly is superior in quality. In a house of this kind fruit should not remain until quite ripe, dry warm air, liberal ventilation, a lower temperature and a diminished supply of water being essential to aroma and flavour. Nine-tenths of the forced Strawberries, like early Grapes, are consumed before they are ripe, and yet the fruit may be kept in an improving condition in any dry airy house or pit a week or ten days after it is well coloured. Forced plants of early varieties intended for fruiting in the autumn should be dipped in a solution of soapsuds and sulphur to clear the foliage of mildew and spider as they are removed from the house; also, if necessary, they should be well soaked in pure water before they are placed in cold pits to harden off preliminary to being

planted out in May. Early Prolific, Vicomtesse Héricart de Thury, and La Grosse Sucrée are suitable varieties for autumn-fruiting. The old Black Prince in permanent open-air beds often fruits a second time, especially after a hot dry summer, and Keen's Seedling, still bad to beat, frequently produces most delicious fruit in September.

CHERRIES.

Where the forcing of this precocious tree is carried on with spirit, the fruit in the earliest house will now be stoning, a stage which will very soon determine the satisfactory result or otherwise of artificial fertilisation. If the trees are in good health and the fruit is properly set, the rush to maturity will be very rapid—so rapid, indeed, that there will be but little time for feeding; hence the importance of using mild liquid not only at each watering, but also for damping the floors and other available surfaces. Pure clear soft water must be used for syringing purposes, the only exception being an occasional dash of clarified soot water when the house is closed with sun-heat for three or four hours in the afternoon. This bitter stimulant is antagonistic to aphids and spider, but very light smoking when the trees are quite dry makes a clean sweep of the first, whilst spider, rarely troublesome in the early house, soon gives way to copious syringings with pure water. If grub has been troublesome the trees should still be watched, as it is only by incessant attention to every curled leaf that this pest can be completely destroyed. Although all stone fruits will stand a slight rise after the kernels are formed, that by night should not exceed 56° to 60° with air, 70° being the mean on bright mild days. Air at this time, as a matter of course, must be freely admitted—always be it understood that the trees are not exposed to draughts. When the fruit begins to change colour the syringing of the trees must be discontinued, but the floors, walls, and stems may be well moistened twice on fine days. When ripe, a much drier atmosphere, also more air, will be necessary, otherwise the fruit will crack and rot, and the better to dispense with root-watering, the pots may be completely buried in rather dry non-conducting material, than which nothing can be more suitable than the remains of an old Mushroom bed free from woodlice. Borders may be covered with the same, care being taken that the roots in each case are thoroughly moist at the time of application. From this time forward, two enemies, a damp, stagnant atmosphere and birds, must be circumvented—the first by a little dry fire-heat and the expulsion of watering-cans and syringes; the second by hanging light fishing-nets over the ventilators.

Late Cherries, including a good succession of the finest Bigarreus, should be well fumigated before the flowers are open; also they must be well syringed; but once they begin to expand more air and less water in the atmosphere will facilitate fertilisation, which must be assisted by the camel's-hair brush when the pollen becomes plentiful. Many people thoughtlessly commence this operation the moment a few flowers are found open, and not unfrequently destroy the tender organs before a particle of pollen is ready for use. For the guidance of these enthusiasts, I may say the trees should be left to themselves and the bees until the pollen flies off in golden showers, and then with the brush on a fine day, aided by gentle warmth in the pipes, a gentle touch with a light hand will most likely secure a good crop of fruit. Once set, the fires may be dispensed with until the Cherries are ripe, when cracking and mould must be counteracted by a repetition of the warming of the pipes. Cherries in 1887 set and kept well without the aid of a single shovelful of fuel, but last year fire was indispensable; hence the necessity for hot-water pipes, as we never know when they may be wanted.

PLUMS.

The earliest varieties started with the first batch of Cherries, and brought on under identical treatment, will now be left behind. Their treatment through all the early stages, both as regards temperature, ventilation, watering, syringing, and fertilisation, are precisely the same, and the same enemies, aphids

and leaf-rolling grubs, have to be encountered. When set and thinned the Cherries dash ahead, but the Plums take more time when anything approaching undue haste throws out the seed. When the fruit is set and swelling, it will be necessary to thin with Grape scissors, care being taken that sufficient for the crop be left where leaves are most plentiful, whilst spurs minus buds and foliage, which generally set the most freely, if possible must be denuded, as fine Plums cannot be expected where there are no leaves. The Plum, like all other stone fruits, does best in rather heavy calcareous loam, rammed very hard, and crowded with roots. It revels in good food, solid and liquid; hence the importance of top-dressing with rotten manure or rich loam and bone-dust, and washing it in with clear diluted liquid. Clear soot water may be used at first for the afternoon syringing, but a perfect bloom being the glory of the Plum, the purest soft water only should be used after the fruit is stoned. Time to a certain extent may be gained by running up a few degrees on fine afternoons, but tropical heat is simply thrown away, as I have tried removal of a few of the earliest pot trees to a warm vinery, and although the fruit has attained full size, those left behind have coloured best and been the first to ripen. Indeed, so obstinate is that best of pot Plums, the Jefferson, that I have transferred the trees from the vinery to the open air, but the fruit never laid on the rich golden colour met with in the orchard house.

Late Plums, including Coe's Golden Drop and other superb varieties mentioned a short time ago, will soon be coming into flower, and a most enchanting sight they will present, but success must not be expected where a preliminary smoking is neglected. If the weather is fine and the house freely ventilated, insects will most likely fertilise the flowers, when the brush may be dispensed with. If wanted as late as possible, that is, after Peaches worth eating from open walls are over, the ventilators may be left open by night and day through July and August, otherwise they may be closed for two or three hours after the afternoon syringing.

Pears in pots.—As the choice varieties, even upon walls, are not likely to be over-plentiful, those who have acted upon my advice will find a good batch of pot trees not only useful, but very valuable. They do best in light airy houses, especially when flowering and ripening. They enjoy the best of food, including top-dressing and liquid, and will stand quite as much heat as Plums when the fruit is swelling. Stagnant moisture being fatal to the petals, a little dry fire-heat should keep the air in motion when the trees are in flower. W. C.

SHORT NOTES.—FRUIT.

Protecting fruit-tree blossoms.—Old fishing nets, with meshes 1 inch square, are our favourite protectors for wall tree fruit blossom. They are inexpensive, convenient to fix or move, and they are exceedingly effective. They do not obstruct the light, but they break the wind and afford much shelter. With their aid we never fail to secure crops, particularly if we take care to put them on before any of the flowers are fully expanded.—J. Muir.

Fly on Peach trees.—Black and green-fly are very apt to appear on Peach trees when they are in blossom and when the shoots are only 1 inch or 2 inches long. They multiply rapidly, and soon do much harm if allowed to go on. Indeed, they frequently make an unfavourable mark on the trees that remain to the end of the season, and efforts should always be made to check and clear them before they become too numerous. This may be done by syringing the trees daily and rather vigorously with water heated to 55°. We have tried insecticides at this early stage, but found some of them inclined to injure the tender fruit.—J. Muir.

Rainfall of March.—It may be interesting to note the amount of rain, as so much distress and loss of property have been occasioned during the past month in various parts of the country, especially in the west of England and the midlands. The gardens here are about 400 feet above sea level and rather exposed. Rain or snow has fallen upon thirteen days, the greatest amount being on

7th and 8th, when it amounted to 65 and 75 inches—our register for the month being 286 inches against 392 last year. The temperatures varied considerably during the month of March, our highest reading being on the 29th and lowest on the 5th—maximum 61°, minimum 25°.—W. A. Cook, *Compton Bassett Gardens, Calne*.

TREES AND SHRUBS.

THE JAPANESE QUINCE.

(CYDONIA JAPONICA.)

THE mild weather we have experienced during the last week or two has rapidly brought out the flowers of this beautiful shrub, which on a wall already shows itself worthy of the opinion expressed by Loudon many years ago, viz. :—

One of the most desirable deciduous shrubs in cultivation, whether as a bush on the open lawn, trained against a wall, or treated as an ornamental hedge plant.

Where protected by a wall there has been a few scattered blooms for the last two or three months, but just now they are opening in quantity, and make a goodly show; indeed, it furnishes by far the brightest bit of colour among shrubby hardy plants. When planted with the intention of training it against a wall, a little well-decayed manure should be incorporated with the soil, as the object is to make the plant cover as large a space as possible within a given time. One is often asked how certain wall plants should be pruned, the general idea being that a considerable amount of cutting about is necessary in order to succeed in their cultivation, and consequently the beauty of many wall shrubs is destroyed by being cut in so severely. It is essential to dispense with the pruning-knife as far as possible in the case of the Japanese Quince, the principal thing needed being the removal of any weak or exhausted shoots, or those that have become overcrowded. While it is commonly grown as a wall plant, this Cydonia makes a good shrub for the open ground; it is perfectly hardy and will both grow and flower freely so treated. Of course the blooms are a good deal later in expanding than those on a wall, but even if there are a few more shrubs in flower when they are at their best, the bright and pleasing colours of the Quince render them conspicuous among all their associates. A very effective way of planting them is in the form of a clump or group, sufficient space being allowed each individual for its full development, and yet not enough to present an isolated, dotted-about appearance. Even when the Japanese Quince is treated as a shrub in the open ground, and, consequently, does not flower till well on into spring, its season of blooming is spread over a longer period than that of many hardy shrubs, for the individual flowers last a good while in perfection, and besides this a succession is usually kept up for a time. In some cases the flowers are succeeded by large oblong fruits, which have a very agreeable aromatic perfume. Each fruit contains a considerable number of pips, a fair proportion of which are often good and by means of which young plants can be readily raised. Of course, this method is not available for the increase of any particular varieties, all of which, however, can be propagated by means of suckers or cuttings. These last can often be detached with roots of their own, and in that case simply need to be planted under favourable conditions, while cuttings strike without difficulty if taken in the autumn and dibbled firmly into some sheltered spot, where the soil is of a somewhat sandy nature and yet not dried up during the summer. This Quince is also avail-

able for flowering under glass early in the year, for it simply requires the protection of a greenhouse. There are a great number of varieties to be met with in different catalogues, some of which afford a pleasing change from the old crimson-flowered typical form. A few good kinds are *nivalis*, pure white, being entirely without the blush tint common to the older white (*alba*), which last, however, may be grown for the sake of variety. The dark kinds are represented by *cardinalis*, deep crimson, and *princeps*, a kind of scarlet-crimson, with *coccinea*, a rich glowing red. Others would include *rosea*, bright pink, and *Gaillardii*, salmon-rose. Though the list of names herein given is by no means extensive, it forms a good assortment where but few are required. The typical Japan Quince was, according to Loudon, introduced into this country in 1815, but many of the varieties are of far more recent origin. No notice of this class of shrubs would be complete without a word or two in favour of Maule's *Pyrus* (*Cydonia Maulei*), which was introduced from Japan about fifteen years ago and rapidly became popular. It is altogether a smaller grower than the Japanese Quince, but a most profuse bloomer, every little twig being closely packed with orange-scarlet-coloured blossoms, quite different in colour from those of any form of the preceding. This, however, is but one phase of its beauty, as the golden yellow fruits, about the size of small Apples, are borne in great abundance and form a very pretty autumn feature. They are agreeably scented, but not pleasant to eat in an uncooked state, though they are sometimes made into preserves. The remarks as to the suitability of the Japan Quince for flowering under glass will apply with equal force in the case of Maule's *Pyrus*, which can also be propagated in the same way, and besides is often raised in considerable numbers from seed. T.

Cassandra calyculata.—This little North American shrub is just unfolding its earliest blossoms, which are a good deal like those of an *Andromeda*; indeed, it is frequently included in that genus. It forms a low-branching bush, generally from 1 foot to 2 feet in height, the branches being clothed with rather small oblong leaves of a peculiar rusty hue underneath. The flowers, which depend from the undersides of the branches, are white, and being of the thick waxy texture common to many of the *Ericaceæ*, they retain their beauty for a considerable time. It is seen at its best where the soil is fairly moist and of a peaty nature. I have seen it employed for flowering under glass, its early blooming then standing it in good stead, as with very little protection it may be had in flower quite early in the spring.—T.

Dimorphanthus mandshuricus.—Here this tree grows freely, flowers every year, and increases readily. The great charm about it is the beautiful golden colour of its leaves in the autumn. Our largest tree has formed several branches. Suckers spring from the roots, some at a distance of 2 feet from the stem of the tree. These suckers, taken off with a portion of the roots attached, quickly grow into trees. The soil here is of a heavy retentive character, overlying a bed of clay and flint, the chalk being at least 6 feet from the surface. The trees have here experienced 20° of frost without being in the least injured. The only injury is caused by strong south-westerly winds, which towards the end of summer disfigure the leaves by "whipping" them against each other.—SOUTH HANTS.

Eucalyptus globulus.—This plant has withstood the winter in Mr. Smee's garden. Although the plants look brown and rough, Mr. Cummins tells me they usually live through the winter, but they die from the cutting, biting winds in spring. These plants I noted were planted in front of the windows, and I was told they were so planted for

fly screens. It is recorded that no flies either get into or remain in a room having a plant of this Blue Gum tree before the window. If this is a fact, I would advise everyone to use this as a pot plant in their houses, and I for one shall certainly make a trial of it in the coming season.—G.

REMIJIA PEDUNCULATA.

THE genus *Remijia*, which belongs to the natural family of the *Rubiaceæ*, and is closely allied to the *Cinchonas*, was established by A. P. de Candolle, and so named by him in honour of Dr. Remijo, who, according to Auguste de Saint-Hilaire, was the first to make known in Brazil the valuable property which the bark of these plants possesses as a febrifuge. About a dozen



Remijia pedunculata; fruiting branch.

species of *Remijas* have been described by various botanists. All of them are natives of the northern parts of South America (British Guiana, Brazil, New Grenada, &c.), and are distinguished from the *Cinchonas* by the dehiscence of the capsule, which opens at the top instead of at the bottom, and by the cymose inflorescence, which is produced in loose axillary clusters. In other respects the habit of the *Remijas* is similar to that of the *Cinchonas*, which, however, exceed them in size. The flowers have five divisions and are white or rose colour, and bearded on the inside.

The subject of the present notice (*R. pedunculata*) is a slender-wooded species (see illustration) found on the eastern flanks of the Cordil-

leras, between Susumuco, Servita, and Villavicencio, at an altitude of between 1800 feet and 2100 feet above sea-level, in the vast forests which cover that region. As an ornamental warm-house shrub, it may be successfully grown according to the following directions, which are also applicable to the cultivation of all the other species. Like the *Cinchonas*, the *Remijas* require a moist, warm atmosphere, and to be planted in fresh, spongy heath soil, which has been coarsely broken up, and which should be kept moist by regular waterings. The plants, however, might prove stouter in the stem and become more branching if they were grown in a temperate house and as near the glass as possible. It is also probable that if grafts were made, with leading shoots for scions (as in the case of *Conifers*), plants of a more thick-set habit would be obtained. The mode of grafting to be recommended in this case would be either veneer-grafting or the method of cleft-grafting which is known as "à la Pontoise."—*Revue Horticole*.

The Red Maple (*Acer rubrum*).

—The principal ornamental feature of most Maples is their handsome foliage, but in the case of this species the flowers are also very showy and additionally interesting from being produced so early in the year. The Red Maple forms a very handsome tree, and though a native principally of damp situations, it succeeds fairly well where pretty dry, though, of course, its rate of growth is a good deal slower than in a moister spot. The flowers are small, but borne in great profusion towards the ends of the branches, and their colour (bright red) renders them very conspicuous; indeed, a specimen of this when in full flower and lit up by the rays of the sun appears to be enveloped in a cloud of red, and thus stands out in a marked manner from all other trees at this season, for the flowers are borne before the expansion of the foliage. The freshly opened leaves are of a soft green tint, but deepen somewhat as the season advances, and in autumn they die off deeply tinged with red. It was one of the earliest introduced of the North American trees, but is even now only planted to a very limited extent. The wood is said to be of good quality, but its value in this country depends principally upon its ornamental features.—T.

The Oso-berry (*Nuttallia cerasiformis*).—This is one of the few outdoor shrubs in flower, and though not what one would call showy, it is both pretty and interesting, being thickly studded with drooping ra-

cemes of small whitish blossoms a good deal like those of the Flowering Currant (*Ribes sanguineum*). As the young leaves make their appearance simultaneously with the blossoms, a plant of this *Nuttallia* forms a bright and cheerful spring feature. It is a native of California and is quite hardy in this country, where a fairly moist soil seems to suit its requirements. The propagation of this shrub is not at all difficult, as when in a thriving condition suckers are pushed up in such numbers as to form quite a mass or clump, and all that is necessary is to detach any that are rooted and plant them under conditions favourable to growth.—T.

Rhododendron barbatum.—Over a month ago I saw several fine specimens of this early-flowering variety in full blossom in Sir H. H. Vivian's garden at Singleton, near Swansea. The bushes, or I might say

trees, in question were upwards of 20 feet in height and about as much in diameter. They occupied a very sheltered position with other Rhododendrons, but all around were flowerless, and this made the brilliant heads of the *R. barbatum* appear all the more conspicuous. As an early-flowering variety it stands out from all the others.—J. MUIR, *Marquis, South Wales.*

Bambusa Metake.—A clump of this Bamboo is thriving well beside a brook in the Grange Gardens at Carshalton. It has stood in its present position for seven years, and although it makes shoots some 8 feet high, it does not appear to give the satisfaction it ought to do, as it does not sucker and spread over the ground. Why is this?—G.

KITCHEN GARDEN.

PROFITABLE TOMATO CULTURE.

MANY thousands of Tomato plants are now being prepared in various parts of the country for fruiting under glass, and it is to be hoped there will be fewer failures than was the case in 1888. Whether success or partial failure results, much depends upon the method of culture adopted, nothing short of the most destructive disease known as *Cladsporium* preventing the most experienced and intelligent growers from having heavy and profitable crops. Every season adds largely to the number of growers of Tomatoes, principally or wholly for sale, and, as far as my experience goes, very many of these make a few and much the same blunders at the outset, which must militate against, if they do not actually mar, the prospects of a good crop of fruit. A too rich and deep root-run is perhaps the greatest and most frequently repeated initial mistake, this being almost inevitably attended by rank, unfruitful top growth. Where the roots are confined to pots and boxes, a moderately rich compost may be used with greater safety, especially if the precaution is taken to ram this well together, this causing the formation of abundance of root fibres and a sturdy, fruitful growth of the plants. When, however, the plants are put out in large borders, or say thinly all over the interior of a house wholly devoted to Tomatoes, the soil ought not to be rich, nor more than 18 inches in depth. Fresh loam or the top spit of pasture land, with or without the addition of a good proportion of ordinary garden soil, is quite rich enough for Tomatoes, and there is no necessity to wholly renew a border every season. All that is necessary in the latter case is to trench the border, mixing in some fresh soil and a moderately liberal dressing of some kind of special manure, notably something rich in phosphates and potash. Whether quite fresh soil is used or only a mixture of old and new materials, it is of the greatest importance that solid manures be excluded, and also that the bed be made quite firm. Even when the roots are confined to narrow borders, these should be shallow, or not more than 18 inches in depth, and the soil used be also free from solid manure, though bone-meal, superphosphate of lime, or one of the several advertised special manures may be advantageously mixed with it at the rate recommended by the vendors.

Crowding the plants is a most unwise proceeding, especially when they are trained in an upright fashion. I once saw a large span-roofed house entirely filled with Tomatoes, and owing to the plants growing thickly in a rich compost, not more than a fourth of the fruit that should have been grown was obtained. Only the outside rows, or those that received a fair amount of light and air, were at all productive, the greater portion of the plants being smothered in foliage. In another instance the cultivator has adopted the plan of arranging the plants in lines and training these up hurdles. A good space, or

not less than 3 feet, is allowed between the rows, and by growing a free-setting variety fairly heavy crops are obtained, but all the same it is not the most profitable method of training when there is good head-room. Instead of stopping the plants when from 3 feet to 4 feet in height, they ought to be allowed to grow unchecked to a height of from 8 feet to 10 feet, or according to the head-room and the conformation of the house. It may happen that the heaviest clusters of fruit will form on the lower portion of the stems, but several good fruits will be produced in bunches at short intervals throughout the entire length of the plants, all being easily ripened and sold at remunerative prices. Sometimes the lower bunches of flower fail to set properly, and in the case of early stopped plants a failure is the result. Those, however, which are grown to a good height never fail, extra large clusters being produced on the upper part of the plants if the first formed bunches of bloom fail to set. If it fell to my lot to plant a large span-roofed house with Tomatoes, I should arrange a wide central bed and two side beds, the latter say being 6 feet wide, a 2-foot or rather wider pathway dividing these from the central bed. Somewhat similar arrangements might also be adopted in the case of three-quarter span and lean-to houses, the pathways being necessary for more conveniently attending to the plants, while the open spaces are also the means of admitting more light and air to the plants. I have tried putting out the Tomatoes in straight lines each way, that is to say, on the square, and also arranged angle fashion, and found the former answers the best, sunshine and air not being so much excluded. In any case the practice of training each plant to a single stem is the best for this method of culture. The lines ought to be not less than 2 feet apart each way, a tall strong stake being placed to each plant, these, owing to the weight of the crop, being braced together later on if need be with the aid of other long straight stakes.

In many houses connected with private gardens it is not possible to grow Tomatoes profitably and extensively other than trained up the roofs, and in this case the extension system of training answers nearly, or quite as well as keeping the plants to a single stem, always provided they are arranged accordingly at the outset. A main branch may be laid in wherever there is room, and if a long succession rather than an early crop of fruit is desired, this will be found the best method of training. I have clothed the back walls of partially furnished vineries with about three plants, and, by way of experiment, covered a wall in an adjoining house with plants put out 12 inches apart and kept confined to a single stem. Much the heavier weight of fruit was taken from the former during a season which lasted from May to December. Especially is the extension system of training, either on the roof or over back walls, to be commended where an unlimited and rather rich root-run is afforded the plants. All the main branches laid in should be trained about 12 inches apart.

There are a few simple rules that ought to be observed, whether the plants are kept to a single stem or have few or many main branches. Planting in a firm and comparatively poor border or ridge of soil will not prevent the formation of numerous superfluous side shoots, and these should be kept closely rubbed out. All the single stems and main branches trained up a roof, or arranged 2 feet apart, will divide each time a bunch of flower forms, and the worst placed of the two shoots should be at once removed, the other being carefully trained in the

required direction. By keeping these as well as the side shoots formed at the axil of each leaf closely cut out, the foliage will be greatly strengthened, the stems also swelling rapidly, and it is almost needless to add that the fruit clusters are also greatly benefited. W. I.

KITCHEN GARDEN NOTES.

MUSHROOMS.

RIDGE-SHAPED open-air beds ought not to be too quickly broken up or voted a failure. If they were well covered in with strawy litter, little or no rain has reached the beds, and the chances are they are too dry to be productive. They ought therefore to be examined, and if found cold and moist, there being no traces of either Mushrooms or active spawn, no good purpose will be served by preserving the bed any longer. But if the soil and manure directly under it is very dry, in all probability much of the spawn is still active, and a gentle watering or waterings, if necessary, would in this case soon be followed by a good crop of Mushrooms. The proper way to water a bed is to first remove all but a thin surfacing of the litter and then apply tepid water, either through a syringe or a fine-rosed pot. If very dry it will be necessary to repeat these proceedings for two or three times, the aim being to moisten without unduly saturating the beds. When this is accomplished, remove the surfacing of damp litter and cover with about 6 inches of fresh strawy litter. Water, well flavoured with salt, acts most beneficially on a partially exhausted Mushroom bed, whether this be in the open or under cover, and farmyard liquid manure, well diluted with warm water, has an equally good effect. The ordinary flat Mushroom beds are sometimes very slow in arriving at a productive state, especially if formed in an unheated house or shed. One we spawned last December is only just yielding Mushrooms, and there is every prospect of its being very productive. The materials used in its formation (Oak and Beech leaves and droppings in about equal quantities) were not in the best condition and soon lost much of their heat. Had we attempted forcing the bed by high top heat, or have watered or syringed the bed repeatedly and in a reckless manner, failure must have resulted. Recently my advice was asked concerning a bed long since spawned, and another supposed to be just ready for spawning. The former I found saturated, cold, and useless other than for manurial purposes, while the other was very hot and very moist, and it would have been another case of wasted labour to have spawned it. When the droppings have to be prepared in the open, they ought never to be spread out thinly or formed into a square heap, a heavy downfall of rain being liable to saturate the whole, and they are not easily dried again. Conical heaps only ought to be formed, and if the shortest of the straw is retained, as it should be, especially for ridge-shaped beds, when the manure is collected, the droppings will not then be unduly moistened. Much of the moisture may be got rid of by fermentation, but this also greatly weakens the manure, the heat soon being exhausted. A liberal addition of old dry manure, dry loam, and even fresh peat Moss litter to over-moist droppings, the whole being thrown into a heap to ferment for about four days prior to reforming the bed, was the best remedy I could advise in the case of the newly-formed, but too moist bed just alluded to, and others will do well to adopt a similar plan if they find their beds hot, moist, and steamy. When moisture can be squeezed out of a handful of manure it is not in a fit state for spawning. The least that can be done when spawning moist beds is to use rather large lumps of spawn and surround these with a little dry manure. Deep holes should never be made with a dibber for the spawn, as they cannot be closed again, and the steam collecting in these destroys the spawn above it. Excessive heat and steam may be partially got rid of by forming deep holes at short intervals over the bed, these not being closed nor the beds soiled till after the heat has declined considerably.

LATE CELERY.

Celery is as much appreciated in April and May as at any previous time during the season, but un-

less the seed is sown late the plants bolt directly warm weather sets in, sometimes, in fact, long before April. Standard-bearer has kept well with us, the foliage not being so much crippled by frosts, as was the case with other varieties tried. Very large Celery is not nearly so hardy as smaller plants, and is not required at any time, unless for exhibition. For very late use the plants should be raised as late as May, the seed, always slow in germination, being sown now in very gentle heat, or in a cold frame or handlight. Not being raised thickly nor unduly coddled, the seedlings may be pricked out direct into the trenches, where they will develop into sturdy plants by the time they must be finally moulded up. Lifting Celery and bedding it in deeply and closely on a north border materially checks bolting, but late raising is the best preventive of this unfortunate occurrence.

CAULIFLOWERS.

In this district autumn-raised plants are not plentiful, the more forward of them "buttoning" long since. Since the introduction of very late Broccoli and the Early Forcing Cauliflower, it is possible to dispense with autumn-raised Cauliflower plants and yet maintain an unbroken supply of the two kinds of vegetables, and this will be demonstrated in many gardens this season. Early Cauliflowers raised in heat require rather careful treatment, a severe check causing them to button quickly. They move best out of small pots, but if kept long enough in these to become badly root-bound, buttoning is the almost inevitable consequence. Nor ought they to be too suddenly exposed to all weathers, but should be well hardened off prior to being planted out in the open, or otherwise they are liable to come to a complete standstill, and a failure be the result. Handlights are of the greatest service in forwarding either spring or autumn-raised Cauliflowers, and very superior hearts can be obtained from plants grown on shallow hotbeds and protected by rough frames and mats. In each and every case, or whether grown under glass or other temporary shelter or at the foot of sunny walls, the plants ought never to be dry at the roots, and frequent supplies of liquid manure will greatly assist in the formation of close hearts of the best quality. Crowding the plants in handlights ought to be avoided, five in each, or one in each corner and a central plant, being ample, the rest being carefully transplanted with the aid of a trowel. When the plants are growing strongly the handlights may be dispensed with, but they ought first to be raised on bricks and the tops left partly open until the plants are hardened off somewhat. In most instances it is advisable to spread out the plants when the handlights are removed, and this can most readily be done by removing a spit of soil on the outside, the plants being then moved over with a spade and the soil made level and firm about them again. A slight check will be caused, but the plants soon rally and form a good succession to the undisturbed central plant. Cauliflowers succeed best on freely manured fresh ground, manure-sick soil not suiting them. Well-hardened-off, early-raised plants of the neat growing Snowball or Early Forcing may be planted in the open in rows 18 inches apart and about 15 inches apart in the rows, while the larger-growing Erfurt Mammoth, Early London, Walcheren, Defiance, King of the Cauliflowers, Pearl and Magnum Bonum should be 18 inches asunder in rows 2 feet apart. If extra fine hearts are required, the plants ought to be 2 feet apart each way, but we find neat close hearts are most appreciated. It is advisable to plant firmly, and to frequently stir the surface of the ground with the flat hoe. Either or all of the varieties named may be sown now on an open border, and if the plants are duly put out on good ground and well attended to, the hearts ought to be available in July and August. Eclipse and Autumn Giant raised at the same time would keep up the succession, but I prefer to raise the two last-named early under glass and also in the open, and to dispense with an April sowing of any of the rest. Cauliflowers are not much in demand when caterpillars are most plentiful, or during July and the early part of August.

SPINACH.

That sown last August has been exceptionally

serviceable during the winter and up to the present time. It is an important crop, and well repays for any extra trouble taken with it. Since we have adopted the plan of preparing ground for the winter crops well in advance of sowing time a failure has not occurred. Supposing a breadth of ground in a good open position is well prepared for early Potatoes, these usually leave the site in good condition for sowing Spinach, but this year, in our case, the intended position for winter Spinach is now occupied by late Broccoli. Directly these are cleared off the ground will be well manured and then roughly dug. Sunshine, wind, and rain will thoroughly sweeten and pulverise the soil, and the requisite finely divided seed bed will be available whenever it is required. Even summer Spinach does not succeed well on lumpy ground, and in any case fortnightly sowings, or as often as Peas are sown, should be made. It succeeds well between the rows of the latter, and should be sown rather thinly, or otherwise the leaves will be small and early seeding also result. The Victoria is the best for present sowing, this forming extra fine leaves and does not so quickly run to seed as the ordinary forms. We stir soot freely into the ground between the rows of winter Spinach and also into the ground intended for summer crops, and it acts most beneficially. In very hot weather the ordinary Spinach, no matter how well it is attended to, is certain to fail. If the later sowings, or those in May, are made on a well manured north border they will hold out much longer, but in many gardens the New Zealand Spinach is grown as a substitute. About a dozen plants of this put out a yard apart each way on a sunny border will soon cover the ground and yield great quantities of young shoots. Sound seeds may now be sown singly in 3-inch pots and will soon germinate in heat, or even in a greenhouse or frame. The end of May is the proper time to plant, or the plants may be put out earlier if hand-lights are available for covering them.

W. I.

STOVE AND GREENHOUSE.

THE JACOBÆAN LILY.

(SPREKELIA FORMOSISSIMA.)

THESE names belong to a well-known bulbous plant which has been in cultivation nearly 300 years, having been introduced into Spain from Mexico in 1593. Parkinson, who knew all kinds of plants by the name of Narcissus, called this plant "the Indian Daffodil with a red flower," and stated that "it naturally groweth in the West Indies, from whence it was brought into Spain, and hath been sent unto divers lovers of plants, into several parts of Christendom, but hath not thrived long." It was cultivated in Belgium as early as 1596. Simon de Tovar, a Spanish surgeon, who was the first to obtain and describe it, named it the Lily of Jacobæus, because its petals resembled in shape the red sword which was worn on the coat by the knights of the order of St. Jacob. In garden lists of to-day it is oftener called Amaryllis than Sprekelia, but it is a well-marked genus, differing chiefly from Hippeastrum (Amaryllis) in having all the segments of the perianth free to the base; whereas in Hippeastrum they are joined at the base and form a short tube. Many unsuccessful attempts have been made to cross it with Hippeastrum and other genera. It very rarely ripens seeds under cultivation. There is only one species, viz., *S. formosissima*, and two varieties called *glauca* and *ringens*. The plant figured in Bot. Mag., 67, t. 3872, as *S. Cybester* is a Hippeastrum. *S. Heisteri* is a synonym of *S. formosissima*. So much for names, their origin, and the early history of this plant.

Like the Belladonna and the Guernsey Lilies, the Jacobæan Lily is cultivated in enormous

quantities by Dutch and other growers for the English market. It is cheap enough, good bulbs being obtainable at about a shilling each, and these, with ordinary care, are sure to flower in May or June, and sometimes again in the autumn if the summer has been favourable. The bulbs will bear as much cold as those of *A. Belladonna*, both being quite safe and happy if planted against a wall facing south, preference being given to the wall of a stove or other warm building. But whilst *A. Belladonna* should be allowed to remain in the ground undisturbed both winter and summer, the bulbs of the Jacobæan Lily must be lifted in October and dried in the sun. They should then be placed in a dry shed or on a shelf in a dry house where there is no fear of frost getting to them. This treatment is necessary to the certain flowering of the bulbs. In March or April the bulbs should be again planted in the border, and a handful of sand placed around each. During the summer the border should be kept moist, but except in very dry summers or where the border is unusually well drained, the rains will keep the soil moist enough. A few years ago we left our bulbs out during the winter, protecting the border containing them from rain so as to keep the soil fairly dry. But we got no flowers. Now, however, the flowers come with certainty, as the bulbs are lifted and well ripened before being stored.

Pot culture answers for this plant quite as well as border treatment if kept in the temperature of a cool greenhouse and rested on a shelf in winter. There should be no shading in very hot weather, the best plan being to remove the plants to a sunny position out of doors, half plunging the pots in a bed of cinders or Cocoa-nut fibre. The soil most suitable for the Sprekelia, whether in pots or the border, is a fibrous loam mixed with leaf-mould and a little sand. Where a number of bulbs are grown it is an advantage to plant them in the border, lifting and drying them for the winter and placing them in pots in spring to flower. This saves labour and suits the plants. For those who are unacquainted with the Jacobæan Lily it may be as well to state that the bulbs are as large as a man's fist, globose, with a long thin neck, and strap shaped leaves each $1\frac{1}{2}$ feet long. The flower-scape, which springs from the side of the neck, is about 12 inches long, stout, hollow, and bears one, rarely two large flowers, each 5 inches long by 4 inches broad, drooping, the upper segments reflexed, the lower sloped downwards and curved inwards at the base. The filaments and style also are curved. The colour of the whole flower is crimson.

W.

Lachenalias in baskets.—In any selection of basket plants for the greenhouse, these beautiful Cape bulbs must be included, as grown in this manner they are remarkably attractive, more so if possible than when in pots. Wire baskets are the best for the purpose, as if lined with good Moss the wires will be almost if not quite hid by them, while the bulbs do just as well at the sides of the baskets as on the top. Of those on the sides the beautifully marked leaves droop in a very graceful manner, while the flower-spikes curve upward towards the light, and present a rather singular appearance. These Lachenalias are of such easy culture, and withal so beautiful, that they should be grown by everyone possessing a greenhouse, and I have also seen them doing well treated as window plants. —H. P.

Eranthemum cinnabarinum.—The genus Eranthemum is rather an extensive one, several of them being pretty flowering plants, while others have the foliage effectively marked. The species under notice is one of the largest growing of all, and, from a flowering point of view, one of the

most showy. It is a stout-stemmed, upright-growing plant, which will reach the height of a yard or more in one season, while the flowers, that are borne in long arching panicles on the ends of the shoots, are magenta-crimson in colour, and larger than those of the other species. It is a bold-growing subject, very effective when allowed to run up tall, as then the large spikes of showy blossoms are most conspicuous, especially when associated with dwarfier-growing subjects. Like the majority of its class, this is of easy propagation and culture, and cuttings struck now will form good flowering plants by next spring. In large structures, however, the old plants may be grown on, as they are very showy the second season.—H. P.

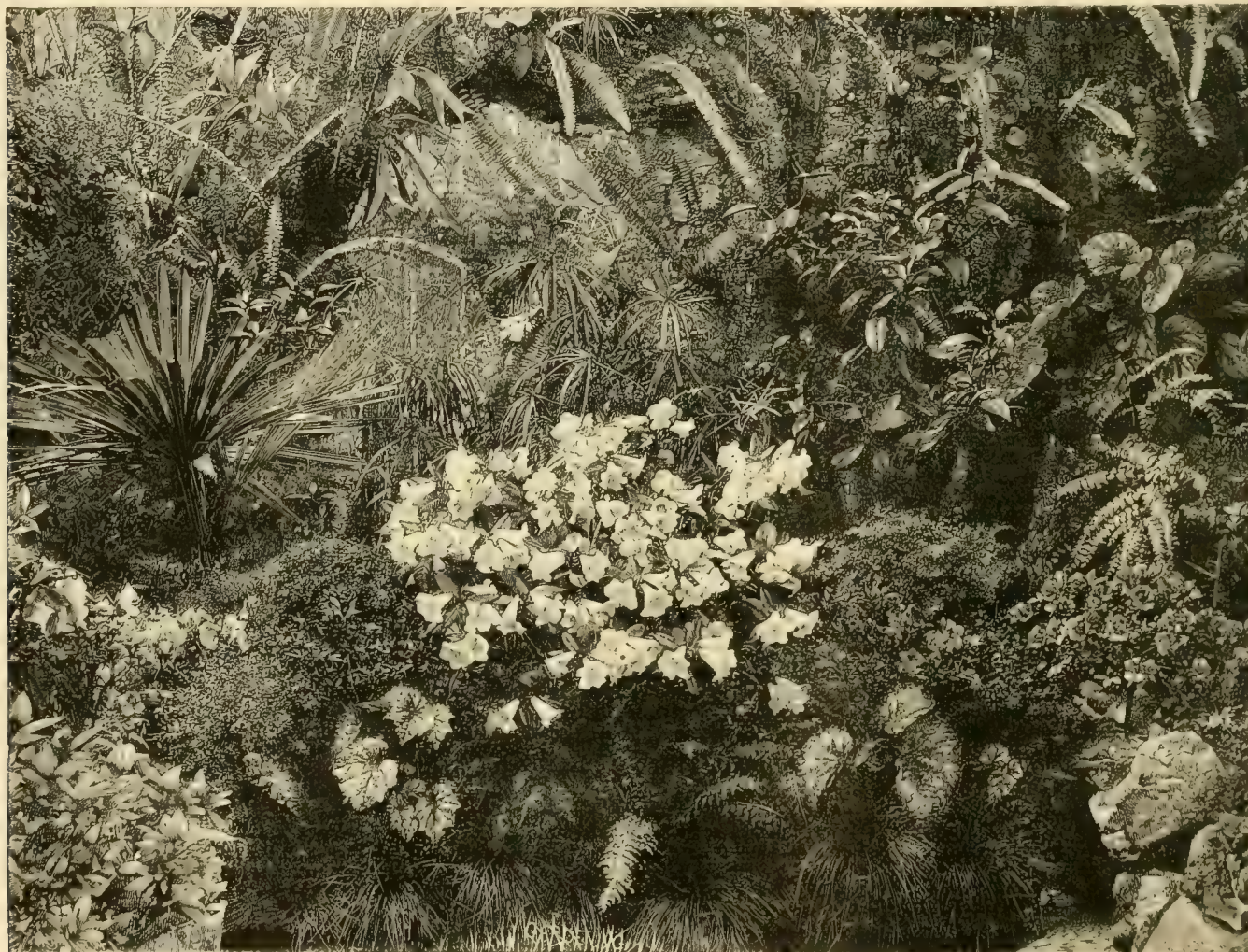
Asparagus tenuissimus.—This is a capital subject for covering the back walls of vineries. It

18 inches wide, we cover the surface of the soil with *Panicum variegatum*, which quickly gets matted together, and forms with its silvery-white foliage a nice contrast to the dense green of the *Asparagus*.—E. M.

RHODODENDRON COUNTESS OF HADDINGTON.

THIS is an old and well-known variety, but still one of the best in spite of the many beautiful additions we have had since it was first raised. It is a hybrid between *R. ciliatum* and the primrose-coloured *R. Dalhousiae*. *R. ciliatum* has been the parent of many forms, but the Countess of Haddington is one of the choicest of its offspring,

those who have conservatories to furnish will do well to think of this type. The flowers are not so large as those of *R. Dalhousiae*, the buds deep pink, but when expanded the colour changes to a pale shade, which passes almost to pure white in the centre of the flower. A large bush of it when one mass of bloom is remarkably beautiful, but small plants flower freely and are of use for the greenhouse. Cuttings strike easily, and from first to last this *Rhododendron* is not difficult to grow well. In seeing the Countess of Haddington in various gardens some difference is observed in the flowers, some being finer than others. This is due to a number of seedlings having been raised. A soil composed of peat and loam with a sprinkling



Rhododendron Countess of Haddington.

is often difficult to know what will flourish on the back walls, especially of vineries where but a minimum of light is obtainable, all through the spring, summer, and the greater part of the autumn. Last April I turned a nice strong plant of this *Asparagus* out into a border composed mainly of fibry peat, a small portion of loam, some charcoal, and silver sand. The plant grew rapidly, and has been cut from freely, mainly to supply greenery for button-hole flowers. This plant, when in free growth, enjoys abundance of water, and anything approaching dryness quickly causes the tips of the fronds to turn brown. Some of the shoots are 7 feet long, and the plant is not only throwing up stout *Asparagus*-like growths from the base, but it is also breaking into new growth from the joints of the stems. The border in our vinery being about

and the accompanying illustration of it is opportune, as this variety is now flowering freely. It makes a handsome bush, as may be seen from a robust specimen in the gardens at Devonhurst, Chiswick, where this *Rhododendron* is a picture of floral beauty at this season. It is planted out in a conservatory annexed to the house, and requires very little attention for the profusion of beautiful delicately scented flowers it gives every spring. The growth is more vigorous than in the case of either of its parents. *R. ciliatum* is a low, very compact bush, and *R. Dalhousiae* exactly the opposite—a straggling grower with a rather weak constitution. The variety, however, makes a splendid specimen, and may be either planted out or grown on in a pot, so

of sharp sand makes an excellent compost. The plants may be placed out of doors during the summer, but care should be taken not to let them suffer from want of water. It is strange that, notwithstanding the beauty of many greenhouse *Rhododendrons*, such little heed is paid to the class as a whole.

Solanum jasminoides.—This beautiful climber referred to in *THE GARDEN*, March 23 (p. 256) does very well in this locality, and is much used for covering sunny walls and for running over the tops of arbours and other buildings. Although the soft shoots and late growths get killed by frost when it is very severe, young growths break out again from the old wood and grow so rapidly, that a

very large space is soon covered. Under glass the young shoots of this plant are so liable to the attacks of green-fly, that many who have introduced it to their greenhouses have eventually turned it out of doors again, for in the mildest parts of England it is certainly far less trouble and altogether more satisfactory as an outdoor climber than as an indoor one. Anyone starting to cultivate it outdoors, even in the most favoured parts of the kingdom, should plant it out in May or June, so that its growth may be fully hardened before the winter comes on. It is advisable to put some kind of protection over the roots and stem for the first year at least, as until the wood gets hard it is not safe to leave the plants entirely unprotected. After the second year the wood is sufficiently matured to withstand any but exceptionally severe winters. Although this *Solanum* is an old inmate of our gardens and greenhouses, it is but little known, except in a few localities.—J. G., *Hants.*

THE AMARYLLIS.

I FEAR Mr. Douglas has entirely misinterpreted the meaning of my note on these noble plants which was published at page 193. It was simply the complicated system of culture which he advocates which was the subject of my attack. I never for a moment doubted his good faith, but I said, and I maintain that, unless his advice is intended for growers with diseased bulbs, some of his statements are misleading. In answer he says he "tells the gardening community exactly what he does and how he does it." These words I readily believe, but that he should make the treatment of his *Amaryllis* a question of hard labour when unnecessary is no recommendation whatever to would-be growers to whom simplicity is of the utmost importance.

The argument to which, in spite of Mr. Douglas's declaration, I still hold is that, whenever a plant can be grown easily it is unwise to make its culture appear difficult, and this certainly applies to the *Amaryllis*. In my former note I simply confined myself to facts. What I did say was that the plants which were shown at Ghent last April by Messrs. J. Veitch and Sons won the admiration of every beholder, as they formed by far the most gorgeous floral display ever staged at a Continental show. I made no allusion whatever to Mr. Douglas's plants, which he says have been exhibited in London against all comers and have never been beaten, nor did I make any comparison between them, and did not offer any opinion as to the place or rank which they might have occupied had they been shown in competition with Messrs. Veitch's magnificent lot of over 100, and not 1000 plants, as had been printed by mistake. With a view to illustrating my argument in favour of *Amaryllis*es adapting themselves to a much simpler mode of treatment than the one advocated by Mr. J. Douglas, I also said that none of these plants had been repotted, but were all grown in the pots and same soil in which they had made their growth during the previous season. Mr. J. Douglas says that I am certainly in error, but if he doubts my words he can, I dare say, satisfy himself of their truthfulness by applying to Mr. J. Heal, who always readily and very courteously supplies any *bona fide* inquirer with reliable and trustworthy information. I also said that copious waterings were given to these plants, which had not been repotted, and although Mr. J. Douglas calls this a rash statement, I, however, beg to inform him that although it may upset his theory, that is the way in which these really superb plants were treated, and I have much pleasure in further adding that many of these plants which were sold at the show are now, after a biennial repotting, as good as they were last year. I was, I must admit, greatly surprised to find that the use of a *nom de plume* should have brought out such a crushing retort as that of hiding one's light under a bush!! Upon the gardening press the young generation of gardeners is mostly dependent for instruction, and for years past the most valuable information respecting gardening matters has been diffused in that way. I have no intention of carrying on a personal discussion, which would only be

wearisome and of no practical value to the readers, and, therefore, wish to let the matter rest, simply reminding Mr. J. Douglas that it is not wise to vouch for the correctness of any statement whatever without having previously ascertained it.

GANTOIS.

Asparagus plumosus nanus.—In the notice of this beautiful foliage plant on page 279 the writer says: "The best and only means as far as I know of increasing it is by division. I have never observed any seed upon the plant, and stem cuttings have not succeeded with me, but by dividing the plants a good stock is soon obtained." Like your correspondent, I have never succeeded in striking any cuttings of this *Asparagus*, neither do I know anyone who has done so, but I have had a plant which produced seeds from which numbers were raised. Other instances of a plant seedling have come under my notice; indeed, so cheap has this *Asparagus* become, and so extensively is it grown in some nurseries, that they cannot all have been propagated by division, as its rate of increase in this way, though sure, is by no means rapid. Unlike the above, the little delicate *Asparagus tenuissimus*, and even the typical *A. plumosus*, can be readily struck from cuttings formed of portions of the young growing shoots.—T.

Bouvardia sports.—The interesting article of "A. H. E." on *Bouvardias* which accompanied the plate in *THE GARDEN* for March 30 leaves the question of how new varieties of these plants are raised just as it was. I would therefore like to ask if the new varieties of *Bouvardias* are raised from seed, from root cuttings, or from cuttings obtained and struck in the usual way? I ask this question because I know that the late Mr. Parsons, who had the credit of raising the variety *Hogarth*, would not or could not explain how it originated. Ever since then I have been interested in *Bouvardias*, and have grown most of the new and old sorts, but although I have repeatedly asked the question, no one has explained whether the new kinds have originated from root or shoot cuttings. During my experience I have grown a good number of them, but I have never known the ordinary cuttings to sport. I have, however, had many instances where, when plants have been raised from root cuttings, all those sorts with red or pinkish coloured blooms have reverted to the white-flowered forms. This seems to show that all the sorts of the *Hogarth* or *Vreelandi* type originated from a white variety. My experience also is that if root cuttings are taken from the double varieties, that many, if not all the plants so raised, will produce single flowers. It would be interesting to have the opinion of other cultivators on this point.—J. C. C.]

SHORT NOTES.—STOVE AND GREENHOUSE.

Staphylea colchica is becoming a popular plant for forcing. Its flowers are pure white, and as fragrant as those of an Orange. Small specimens of it are exceedingly chaste. We have seen it in several nurseries, but in few private gardens. It is, however, a plant that gardeners might use for forcing.

Lilac Marie Lemoine.—This is a beautiful Lilac for forcing. The flowers are individually large, borne in handsome trusses, and of the purest white. There were some masses of it in Messrs. Cutbush and Son's nursery at Highgate the other day.

Amaryllis Master C. Welford is a dwarf variety we noted recently in Mr. B. S. Williams' nursery at Holloway. The flower is very shapely, and brilliant scarlet margined with white; the plant is also quite dwarf, a great point in the *Amaryllis*.

Spring Heaths for the greenhouse.—Two pretty kinds of these plants, viz., *Erica ventricosa coccinea* minor, with its bright coral-tipped tubes, and the pure white form of *E. persiculata*, are now very beautiful in the Clapton Nurseries. These plants are specially charming, and I hope to see them again become popular.—W. H. G.

Poinsettias rooting.—My experience differs from that of Mr. Muir (*GARDEN*, March 30, p. 286), where he says: "If *Poinsettia* wood is cut it does not root readily." For years I have cut up the stems (last year's growth) into cuttings 4 inches or 6

inches long, inserting them thickly in sandy soil, and plunging the pots in a brisk bottom heat, where the cuttings quickly form roots and make serviceable plants.—H.

Double Thorns in pots.—These, I believe, rank amongst some of the most beautiful flowering shrubs of our gardens, and I recently noted a fine lot in various colours in a warm house in Mr. Smee's garden, where they are just bursting into bloom. They appear to force well and to be very free-flowering, and although they will not be in bloom much before those in the open air, this, I suppose, is only owing to the gentle manner in which they have been stimulated.—W. H. G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

APRIL 9.

THE meeting of this society on Tuesday last was the brightest and most interesting ever held in the Drill Hall, Victoria Street. There were plenty of rare exhibits—just the kind of plants that are wanted to keep up the standard of these fortnightly gatherings, and there was certainly the choicest display of Orchids since those shown at the exhibition in the Temple Gardens last May. If the new Orchid committee is responsible for this improvement it is accomplishing useful work. In the afternoon a lecture on the Narcissus was given by Mr. Burbidge, of the Trinity College Gardens, Dublin.

First-class certificates were given as under:—

DENDROBIUM EUOSMUM LEUCOPTERUM.—This was one of the gems in the rare collection of Orchids shown by Mr. Ballantine, gardener to Baron Schroeder, The Dell, Egham. It is a beautiful addition to the many hybrid *Dendrobes* that have been raised of late years, and is one of Mr. Seden's choicest prizes. We saw it in bloom last year in the Chelsea Nursery of Messrs. Veitch and Sons, and could then tell, although the plant was small and few-flowered, that we had a rich treasure. It claims the lovely *D. endocharis* and *D. nobile* as its parents, and originated from the same pod as *euosmum*, which was the first to bloom, followed by *euosmum roseum*, and then by the present variety. The plant of it exhibited showed that it is as free as *nobile*, and exceptionally chaste, as the flowers are as white as snow, save a suspicion of lemon on the lip and the rich purple-magenta blotch present in *nobile*. Such a beautiful plant should become a favourite with orchidists as much for its freedom of flowering as for the delicate beauty and purity of the blooms.

MILTONIA VEXILLARIA PURPUREA.—The difference between this and an ordinary form of *vexillaria* is marvellous. It is one of the richest we have seen, the flower broad, massive, and of the deepest rose-pink colour in sepals, petals, and lip, the only break being the central blotch of yellow, which is surrounded by a cloud of the purest white; the lip is fully 2½ inches across. A large plant of it in full bloom would be exceptionally showy. From Mr. F. G. Tautz, Studley House, Shepherd's Bush.

An award of merit went to each of the following:—

ONCIDIUM BIFOLIUM.—This is by no means a new species, but it may be almost regarded as such, as it has become very rare in collections. It is of dwarf growth, and, when laden with its elegant racemes, is one of the brightest Orchids we know. The chief beauty of the flower is in the lip, which is large, flat, and of a brilliant yellow colour. The sepals and petals are small, and spotted with chestnut-brown. There are two forms, the colour of the flowers in one being brighter than in the other. It is a native of Monte Video. From Messrs. Sander & Co., St. Albans.

ROSE GLOIRE DE MARGOTTIN.—When this Hybrid Perpetual Rose first appeared a good opinion was formed of it, and it certainly deserved recognition. It is one of Margottin's acquisitions of 1887, and has well-shaped flowers of a rich self, bright red colour with a shade of crimson, both buds and fully-expanded blooms preserving an excellent finish, fulness and substance essential in a first-class exhibition flower, which this variety promises

to be. Added to these charming characteristics is a delightfully sweet scent. From Messrs. H. Lane & Son, Berkhamsted.

Botanical certificates went to—

LYCASTE SCHILLERIANA.—Why this should have a certificate of this character is not quite evident. It is one of the best of the *Lycastes*. A full description of this Central American species was given in *THE GARDEN* of March 30, 1889.

CATASETUM BARBATUM PROBOSCIDENUM.—This is one of the most curious kinds in an extraordinary genus. Its peculiar character is its only recommendation. Both these Orchids came from Sir Trevor Lawrence, Bt.

The collection of Orchids from The Dell, Egham, was made up of many choice species and varieties, the plants full of flower, and comprising a number of the rarest *Dendrobies*. These included the beautiful *Jamesianum* and forms of the old noble, such as the very distinct *Cooksoni*, the glorious noble *nobilis*, of which a coloured plate was given in *THE GARDEN*, September, 8, 1883; *elegans*, sepals and petals richly and heavily suffused with rose-purple, the lip tinted with yellow and just tipped with pale purple; and *D. nobile*, Schröder's variety, which is well worth such a name, as the flower is delicately coloured, almost pure white. Each of the sepals and petals has a tip of rose-purple and there is the usual deep colour within the throat of the lip; there was also another fine variety of noble. Other *Dendrobies* included the pure white *barbatulum*, *D. Farmeri*, *D. Brymerianum*, *D. Ainsworthi*, *D. splendissimum* and the variety *grandiflorum*, besides *D. aggregatum*, *D. heterocarpum*, better known as *aureum*, a species much used in hybridising, and *D. micans*. The last-mentioned we like better than we saw it at the previous meeting, when it was certificated. Baron Schröder had a magnificent raceme of *Odontoglossum Wilckeanum pallens*, a beautiful variety infinitely superior to the type. The flowers are about 3 inches across, of fine shape, and rich primrose-yellow spotted with a deep brownish colour. Other *Odontoglossums* shown were *elegans*, a supposed natural hybrid between *cristatum* and *cirrhosum*, and which appeared in an imported batch; the flowers are blotched with brown on a pale yellow ground. There were also well-grown plants of *O. Coradinei*, which has pale yellow flowers blotched with brown; *O. asperum superbum*, an Orchid of the character of *maculatum*, and a supposed natural hybrid between it and *Rossi*; *Wilckeanum*, with a raceme of about twenty flowers, and an unnamed species that had flowers about the size of those of *crispum*, the crest yellow, and the evenly matched sepals and petals washed in the centre with a pinky tint, overlaid by spots of deep brown. Besides the above were *Cattleya speciosissima Schröderiana*, white sepals and petals and a rose-purple lip, beautifully veined; a brilliant mass of the old *C. Skinneri*; *Lælia Jonghiana*, the sepals and petals bright purple, lip of a more dingy shade, and with yellow ridges running into the throat; and a hybrid *Chysis* named *Sedeni*, the flower almost white. A gold medal was awarded this unique display.

Mr. Bickerstaffe, gardener to Sir Trevor Lawrence, Bart., had a good display of Orchids, in which one of the best things was a well-flowered plant of *Angraecum Leonis*. This is sometimes classed as *Aeranthus Leonis*. It has pure white flowers and a large shell-shaped lip, the curiously twisted spur being quite 5 inches in length. *Cypripedium Curtisi* was represented by a strong plant; this was one of Messrs. Veitch's introductions from Sumatra, where it was found by Curtis in 1882; it is near to *superbium*, and has a dull coloured labellum of immense size. There were also exhibited *Epidendrum Stamfordianum roseum*, the lip rose colour; *Cattleya Lawrenceana*; Day's variety of *Cymbidium eburneum*; the curious little *Restrepia elegans*; *Epidendrum* species, the flowers small, tipped with rose, the top of the column deep crimson; and *Odontoglossum Harryanum*, in which the petals were well thrown back, not almost folded together, as usually seen. We live in hopes that

this blemish will disappear when the plant becomes thoroughly established. A silver medal was given. Mr. Cowley, gardener to Mr. F. G. Tantz, brought a few choice things from the Studley House collection. Amongst them was the best plant of *Cymbidium eburneum* we have seen for many a day; there were also a good form of *Cypripedium villosum named aureum*, *Miltonia vexillaria leucoglossa*, *Maxillaria Sanderiana* and *Cattleya speciosissima Belladonna*. This has bright rose-purple sepals and petals and a beautifully coloured lip, spotted and reticulated with deep purple on a much paler ground; the reflexed margins of the lobes of the lip, which are edged with rose-purple and tinted with soft yellow, give the flower a distinctive charm. A silver medal was awarded.

Messrs. Sander and Co., St. Albans, had a choice group of Orchids, to which a silver-gilt medal was awarded. There was a fine mass of the lovely *Dendrobium transparens*, which bears its fragile flowers in pairs along the stem, and in such profusion as to hide it; the colour is transparent lilac-pink—a soft delicate shade. It is one of our most beautiful Himalayan species. There was also a fine specimen of *D. marmoratum*, which is allied to, if it is not a variety of *transparens*; the flowers are deeper in colour and of the same delicate character. Messrs. Sander also exhibited *Trichopilia suavis* var. *alba*, a quite white variety, except for a stain of yellow within the throat of the large spoon-shaped lip; *Cymbidium Lowi*, *Dendrobium Dalhousianum*, and *Cattleya Trianae superba*, which has a finely coloured lip. There was a mass of the showy *C. Skinneri* and of the beautiful *Dendrobium Devonianum*, besides a well-flowered plant of *Odontoglossum Halli leucoglossum*; it has finer flowers than those of the type. A plant of *Odontoglossum Sutherlandi* came from Mr. Blair, Trentham Gardens, Stoke-on-Trent; it has a bold raceme, and is very like a good form of *Wilckeanum*; the colour rich yellow, blotched with brown. *Cypripedium bellatulum* was shown by Messrs. H. Low and Co., Clapton. The flowers had a clearer ground colour, and were more spotted than usual. The fault of this *Lady's Slipper* in many forms is the muddy ground. A very beautiful exhibit in the shape of a pure white form of *Phalenopsis Schilleriana* was shown by Mr. George Firth, Manningham Thorpe, Bradford, the flowers wholly white except a colouring of yellow in the centre; a spike of the type was also exhibited. Messrs. J. Veitch and Sons, Chelsea, had *Dendrobium Wardianum aureum*, the parentage expressed by the name. When the plant becomes stronger this will be a noteworthy hybrid; the sepals and petals are white, tipped with rose, and the lip rich orange and crimson—a beautiful combination. *Amaryllis Sirocco*, fine shape, bright red colour, and *A. Zephyr*, veined with scarlet, also came from the Chelsea firm.

The plants from the Royal Gardens, Kew, were of unusual interest, and it is to be hoped, if the reputation of these fortnightly meetings is to be kept up, that such a display of uncommon plants will be seen on every occasion, as was the case the best part of last year. There were exhibited the pretty *Hyoscyamus orientalis*, *Orchis Morio picta*, *O. longibracteata*, the pale yellow-flowered *O. pallens*, and the curious little *Ophrys arachnites*, all in excellent flower. The alpine *Primulas* were exceedingly fine, especially the pan of *P. pubescens alba (nivalis)*. Other noteworthy *Primulas* were *P. marginata densiflora* and the lovely blue-flowered *P. m. cærulea*, *P. hirsuta*, *ciliata*, and *petiolaris*, recently described in *THE GARDEN*. *Saxifraga Stracheyi* was in full bloom; also the pure white *Diacrium (Epidendrum) bicornutum*, the curious *Restrepia elegans*, and *Pleurothallis insignis*. A characteristic plant is *Rudgea macrophylla*, which has deep green foliage and a crowded head of creamy white *Stephanotis*-like flowers. Several *Arisæmas*, the best of which is *speciosa*, that has an exceptionally pretty spathe, were shown. *A. Wrayi* and *A. præcox*, which has a mass of pale green leaves, might also be noted. A singular exhibit was *Godwinia gigas*, also known as *Dracontium gigas*, its huge spathe being about 2 feet long.

Another exhibit of interest was the yellow-flowered *Columnnea Kalbreyeri*.

Kennedya rubicunda, deep red flowers, and the scarlet *Mutisia Clematis*, of which we hope to give a coloured plate, were shown by Mr. F. Ross, of the Pendell Court Gardens. *Rhododendron* flowers, representing forms of *arboreum*, garden hybrids, and trusses of the rich waxy red *Thomsoni* came from Mr. R. Gill, gardener to Mrs. Shilson, Tremough, Penryn, Cornwall; it was a most interesting display. Mr. H. B. May, Edmonton, sent a robust growing form of *Pteris* named *Rex*, and from Messrs. Vilmorin-Andrieux and Co., Paris, came a white-flowered *Cineraria*, very free and of dwarf, sturdy habit. A seedling *Violet*, not unlike *Chambers' Victoria*, certificated last year, was shown by Mr. S. N. Hagen, Hill House, Bramerton. A remarkably well-grown plant of *Carnation Souvenir de la Malmaison* came from Mr. H. M. Houldsworth, Wilton; the flowers were 5 inches across and of good colour. There seems no special gain in getting them of these dimensions. Several *Primroses* and *Polyanthuses* were exhibited by Mr. R. Dean, Ealing, amongst them *Blue Gem*, *Charles Darwin*, purplish magenta; *Sir John Falstaff*, rose-purple self; *Lady Rosebery*, bright carmine-purple; and *Polyanthus Evagil*, of the purest white and very beautiful. Plants of climbing *Niphetos Rose* were shown by Messrs. Keynes, Williams and Co., of Salisbury; it is evidently a very strong climber.

A group of *Pæonies* and *Maples* was exhibited by Messrs. Gordon, of Twickenham. *Catherine*, rose; *Mont Blanc*, white; *White Venus*, *Jubilee*, deep magenta-purple; *Lady Cordelia*, lovely blush tint, were the finest of the *Pæonies*, and semi-double Japanese *Camellias* also came from this firm. A bunch of *Chrysanthemums* was shown by Mr. John Walker, Thame, Oxon. The flowers were very clean and fresh for the time of year, especially those of *Fair Maid of Guernsey*; the other sorts were *Belle Paule* and *Golden Gem*.

Daffodils were, of course, in force. Messrs. Barr and Son, Covent Garden, had a large display. *Princess Ida*, trumpet primrose-yellow, deeper at the margin, pale coloured segments; *Bishop Mann*, and *Richard Boyle*, very pretty, were worth a note for their distinctness; all are of the *moschatus* class. Another fine form is *Priscilla*, perianth almost white, trumpet sulphur-yellow. A good *Ajax Daffodil* is *Camoens*, the trumpet rich yellow, and the segments broad, slightly twisted, and pale yellow. *N. incomparabilis Princess Mary of Cambridge*, the cup orange-scarlet; *Santa Maria*; *spurius Henry Irving*, *Golden Spur*, *Golden Plover*, and *Her Majesty* were exceedingly fine. A silver medal was awarded.

A group also came from Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, and a similar award was made. *N. Golden Spur*; *capax*, double yellow; the neat and pretty *N. Johnstoni*, *N. triandrus albus*, and *t. pulchellus*, which has a yellow perianth and white cup, a very distinct variety, were conspicuous. There were large bunches of the noble *Sir Watkin*, and also of *N. poeticus ornatus* and *Muzart orientalis*, which has an orange cup. Besides these were *moschatus tortuosus*, *Grand Monarch*, *spurius*, and a plant of *Convallaria majalis* var. *prolificans*, the flowers double. There were *Freessias* in abundance, and it is a wonder such easily grown bulbous flowers are not more cultivated.

Fruit committee.—There was little fruit to adjudicate upon.

AN AWARD OF MERIT went to Mr. W. Unwin, Covent Garden, for *Cucumber Covent Garden Favourite*, a well-shaped, straight, and handsome fruit. Mr. Divers, Maidstone, showed plants of ornamental Beet cut from the open ground where sown last year, and *Improved Sprouting Broccoli*, which has been in use for the past two months. Mr. R. Dean exhibited *Early Sunrise Potato*, and a splendid batch of plants in fruit of *Strawberry A1 Early Forcing* came from Mr. Harris, Great Lodge, Tonbridge; the fruits are large and very freely produced. It is evidently an excellent variety for forcing.

Tubular flower-holders, as figured and described in *THE GARDEN*, were exhibited by Messrs. G. Smith and Co., Pimlico.

ROYAL BOTANIC SOCIETY.

APRIL 10.

A CONTINUAL downpour of rain and a heavy yellow fog are quite sufficient to spoil a flower show, and it was under these unpleasant circumstances that the Royal Botanic Society held its second spring exhibition last Wednesday. There was a good display of both indoor and hardy flowers, but comparatively few to see it. We hope the society, who are peculiarly unfortunate in the matter of weather for exhibitions, will not have the same run of misfortune as was the case last year.

Hardy flowers were exhibited in plenty, and in the class for a collection Messrs. Paul & Son, The Old Nurseries, Cheshunt, were first, staging an excellent selection of hardy Primroses, double and single, the pretty blue *Muscari Heldreichii*, the pure white *Sisyrinchium grandiflorum album*, *Caltha palustris monstrosa plena* (double yellow), and *Fritillaria Sewerzowi*, which is more curious than beautiful. There were also *F. pallidiflora*, yellow; *Triteleia uniflora lilacina*, *Primula vulgaris altaica*, soft pink; *Megasea Stracheyi*, *M. speciosa*, *Epimedium pinnatum elegans*, yellow; and a prettily variegated variety of the common Christmas Rose. Mr. T. S. Ware, Tottenham, who was second, had splendid plants of *Lilium Harrisii* and *Spiraea palmata*, besides *Convallaria majalis prolificans*; this is not apparently very free, and, as far as we can see at present, no acquisition. There was no first prize given in the class for a collection of alpine, but only a second, though Messrs. Paul & Sons' group contained many interesting things. There were such gems as *Primula viscosa*, *Soldanella alpina*, *Gentiana verna*, *Megasea Stracheyi*, *M. coriophylla*, pure white; and *Tulipa Leichtlini*, a small-flowered kind, yellow on the inner surface of the segments, but bright red outside. Mr. James Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, was first for twelve well-grown plants of *Polyanthuses*, and also for twelve *Auriculas*. Amongst these were Sapphire, one of the Rev. F. Horner's seedlings, a rich sapphire-blue variety, clear white paste; a bright claret-coloured seedling; and Negro, of a beautiful self deep claret shade. Mr. Charles Turner was second, but first in the class for twelve alpine *Auriculas*. Mr. Douglas, in his collection of *Auriculas*, showed a variety named *Heatherbell* (Simonite), a beautiful addition to the grey-edged class.

Amaryllids were strong and well flowered. Those from Messrs. Paul and Son, who were first in the class for twelve, were unusually good. Vulcan, deep crimson, and *Salvator Rosa*, purplish crimson, are two new varieties of considerable beauty. Mr. James Douglas came second. The nine *Pelargoniums* from Mr. D. Phillips, Langley Broom, Slough, were a mass of bloom, especially such kinds as *Rosetta*, bright rose-carmine; the old Digby Grand, and *Mme. Thibaut*. Mr. James, Farnham Royal, Slough, was of course first for *Cinerarias*. Conqueror, rich self carmine; Victor, deep crimson; Paul Jones, bright crimson; and Favourite, deep lake colour, were typical of his best kinds exhibited. Those plants from Mr. Douglas, who was second, were well grown. Mr. R. Scott, gardener to Miss Forster, The Holme, Regent's Park, had the finest *Azaleas* in the class for six, Mr. C. Turner coming first in the trade division. His plants were a mass of bloom, and comprised Franklin, fine clear white; Duc de Nassau, bright crimson; Roi d'Hollande, scarlet; Apollo, white, striped sparsely with red; and Mrs. Turner, pink, the upper petals blotched with a deeper colour. Twelve well-grown specimens of *Mignonette* were shown by Mr. D. Phillips, who was first in the class for these.

Roses made a beautiful display. Nine large and well-flowered specimens were exhibited by Messrs. Paul and Son, who were first. The lovely Ulrich Brunner, Perfection de Monplaisir, yellow; Mlle. St. Joseph, flesh colour, were noteworthy; and the same firm also showed Her Majesty in splendid condition; *Mme. Treve*, brilliant shining rose;

Columbia, very neat, delicate peach colour; and Lady Alice; also a fine mass of the beautiful Lilac Marie Lemoine. Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, was second.

Messrs. Sander and Co., St. Albans, had a group of Orchids in which most of the kinds mentioned in the report of the Royal Horticultural Society were exhibited. There were good varieties of *Odontoglossum crispum*, one especially, which was richly blotched on the lip. There was also a plant of the interesting *Dendrobium Harveyanum*; it is quite yellow, the petals frilled like the lip of *D. Brymerianum*, and there is also a delicate fringe to the labellum, but not so pronounced as in that Orchid. A silver medal was given. Messrs. J. Laing and Sons, Forest Hill, exhibited a miscellaneous group in which the *Clivias* were magnificent—compacta, delicatissima, purpurascens, with quite a purplish tinge, and Orange Perfection, all being good types. *Saxifraga sarmentosa bicolor superba*, a pretty variety of the Mother of Thousands, but with an absurd name, was also shown (silver medal). Messrs. Veitch and Sons, Chelsea, showed *Amaryllids* Sirocco, Romeo, dull red; and Zephyr; also a fine rich scarlet greenhouse *Rhododendron* named Ne Plus Ultra, R. La Belle, white; *Dendrobium Wardiano-aureum*, and *D. micans*. Several of these are described in our report of the Royal Horticultural Society. A form of *Phalænopsis* named *Schilleriana alba* was sent by Mr. F. Collier, gardener to Mr. G. Firth, Manningham, Bradford; the flowers are absolutely pure white. Mr. J. James had plants of his unique strain of *Cinerarias*; a few of the best of the new kinds are described above. The *Cineraria* named Emperor Frederick, which has been recently described, was shown by Messrs. Carter and Co., High Holborn; we think it a novelty. An *Anthurium* named *Scherzerianum giganteum* Chambersi was shown by Mr. Chambers, Westlake Nurseries, Isleworth. Why it should have this name is not clear; it is not so good as *A. Wardi*. The same exhibitor showed plants of the double Violet Chambers' Victoria and the pure white *Viola* Snowflake. Messrs. Keynes, Williams and Co. exhibited climbing *Niphetos* Rose, mentioned in the report of the Royal Horticultural Society. A box of Carnation flowers came from Mr. C. Turner; Lord Rothschild, dull crimson, very full, and Phyllis, white, striped at the edge with scarlet, were two good kinds. Mr. J. Douglas had a yellow fancy *Primula* named Sunshine; it scarcely merits its name. We do not admire the washy colours of the fancy *Auriculas*. Mr. C. Turner had a few new *Auriculas*, one, Ambassador, having a large flower of a velvety purple colour, the margin washed with a paler tint. The splendid bouquets from Messrs. Hooper and Co., Covent Garden, were awarded a bronze medal, and a similar award was made to the *Peonies* and *Maples* of Messrs. Gordon, Twickenham. The best varieties were described in the Royal Horticultural Society's report. The group of Persian *Cyclamens* from Mr. Hibburt, gardener to Mr. W. Clay, Kingston, was also given a bronze medal.

A beautiful group of standard and dwarf Roses was shown by Mr. Rumsey, Waltham Cross, and a silver medal awarded. The Tea-scented *Perle des Jardins*, *Magna Charta*, the lovely *Mme. de Watteville*, especially bright in colour, and Marie Rodocanachi, rich rose, very sweet, were fine.

Daffodils were exhibited largely by Messrs. Barr and Son, Covent Garden, and the following we picked out as worthy of a note: F. W. Burbidge, a moschatus variety, large trumpet, primrose-yellow segments; Santa Maria, rich yellow; Leeds' Duchess of Brabant, almost white, the cup tinted with primrose colour; variformis, the trumpet large, rich yellow, and the broad segments of a paler tint; Mrs. H. J. Elwes, rich yellow; and Her Majesty, rich self yellow, handsome trumpet. Bronze medal.

Mr. T. S. Ware had a mass of coloured Primroses embedded in Moss, a very pretty display of this hardy flower; several alpine *Primulas*, the lovely *P. marginata cærulea* included; *Saxifraga scardica*, yellow, something like *S. Malyi* of Messrs. Paul and Son; and also a fine bank of Daffodils, &c., in which Achilles, spurius, Golden Spur, the pretty

Johnstoni, Sir Watkin, and *Anemone fulgens* were beautiful. A flower of a variety of *Narcissus*, named Thomas S. Ware, was shown; it has an immense trumpet and broad massive paler segments. Bronze medal.

A collection of Apples in excellent preservation came from Messrs. J. Cheal and Sons, Crawley. The fruits of Blenheim Orange, Cox's Pomona, Gascoigne's Seedling, Ribston Pippin, Wellington, and Schoolmaster were exceptionally fresh. Bronze medal.

A full list of awards is given in our advertising columns.

The Gardeners' Orphan Fund.—A meeting of the combined committee to promote the floral fête on behalf of this fund, to take place in the Wholesale Flower Market, Covent Garden, on May 22, was held at the Caledonian Hotel on the 5th inst., Mr. George Deal presiding. The secretary, Mr. A. F. Barron, reported that the Marchioness of Salisbury, the Countess Spencer, Baroness Burdett-Coutts, Lady Bolsover, and Lady Dorothy Nevill had given permission for their names to be announced as lady patronesses of the fête. It was resolved that refreshments should be supplied upon the same lines as last year. Arrangements were made for the provision of seats and a first-class band engaged. Through the limitation of the number of tickets of admission, the market cannot be at any time inconveniently crowded, and the comfort of visitors is receiving a good deal of attention on the part of the committee. On the suggestion of Mr. Assbee, the superintendent of the market, it was arranged that carriages should set down in Tavistock Street and take up in the Market Square, while visitors on foot will be admitted in Wellington Street.

Insects on Vines.—Will you kindly tell me what the enclosed little insects are? I find them very troublesome.—J. T.

* * In reply to the above, the insects you forwarded are the black Vine weevil. They are indeed troublesome. They feed on the foliage and young shoots of various plants, Vines and Ferns being special favourites. The grubs, too, are great pests, as they feed on the roots of *Primulas*, *Cyclamens*, Strawberry plants, Ferns, and many other plants. The weevils hide themselves very carefully during the day, and may be found feeding at night-time. If a white cloth be laid under a plant which is attacked and a bright light be suddenly thrown on it, they will probably fall off; if they do not even after a smart shake, search the plant well.—G. S. S.

Death of J. A. McKenzie.—We regret to learn of the death of Mr. McKenzie, junr., in America, whither he had lately gone and was actually at work there as a landscape gardener. Only a few days ago we received from him an American journal called *Building*, which contained an article of his on landscape gardening. His father writes to us as follows this morning:—

I am sure you will be sorry to hear that my poor boy, who was making a splendid career for himself in America as a landscape gardener, died suddenly yesterday from a severe attack of pneumonia. On Friday last I had a long letter from him bristling with sanguine hope, and sending me two papers he had written to *Building*, an American paper, on landscape gardening in America. Yesterday a wire announced he was seriously ill, and night brought another that he was dead.—ALEX. MCKENZIE, *The Warren, Loughton, Essex.*

Death of James Ridout.—We are sorry to hear of the death of Mr. James Ridout, gardener to Mr. T. B. Haywood, Woodhatch, Reigate. Rosarians especially will receive this news with regret.

BOOKS RECEIVED.

"Practical Rose Culture." By John Harkness, Bodale, Yorkshire.

"Bulletin of Miscellaneous Information." No. 28, April, 1889. New Garden Plants.

Names of plants.—*J. C.*—*Cymbidium Lowi* (poor form).—*J. C.*—*Duranta Baumgarti*.—*E. M. G.*—*Narcissus cernuus*.

WOODS & FORESTS.

THINNING SCOTCH FIR FORESTS.

ALTHOUGH the Scotch Fir (*Pinus sylvestris*) is one of our hardiest native trees, yet it is very impatient of sudden exposure, and instances have repeatedly come under my observation where whole plantations of it have suffered considerable damage by injudicious thinning. My attention was in particular attracted to a plantation on a piece of flat ground about 900 feet above sea level, where the soil is composed of sandy loam resting upon gravel and shingle, and in every way suitable for the growth of this tree, and as the ground was naturally dry and required no draining, and the site by no means exposed, it was surprising to see trees in such a position making little or no progress. At the time of my inspection the trees appeared to be about forty years old, and had been thinned some few years before to a distance apart of about 12 feet. In place, however, of the trees making progress, the foliage had gradually changed from a dark green to a light green colour, and in some cases had assumed that of a yellowish tinge, while the bark on the stems, instead of presenting a clean, smooth, glossy surface so indicative of health and vigour, exhibited a dry rough corky appearance, and in many cases got gradually infested with different species of Lichens, which find a congenial home on the Scotch Fir under such conditions. One of the commonest of these Lichens is the dark beard (*Alectoria jubata*), which more or less infested almost every tree in the plantation. The *Parmelia physodes* was likewise at home and seemed to thrive on the dry bark of the trees and on the surface of rocks and stones in the vicinity, whilst *Evernia prunastri* and *Ramalina fastigiata* with their shaggy tufts in many cases imparted a hoary appearance to the trees. These with some few patches of *Lacanora sanguinaria* may be said to constitute the principal species of this tribe of plants attached to the trees.

None of the insects destructive to Pine trees were found in the plantation, although one would naturally have expected to find them under such conditions. This plantation, in place of being thinned gradually at different times, had been subjected to a severe thinning all at once by cutting out about one-half of the best trees, thus exposing the stems and surface roots of those left to alternate bursts of heat and cold. The lesson taught in this case is, that the hardiest trees can be injured to a serious extent by rash injudicious thinning, and by removing too many trees at once. As a general rule, the trees even of the same species in a plantation, although planted at the same time and under the same conditions as regards soil, generally show considerable difference in their size and habit of growth, and the system of cutting out the largest and finest trees in the course of thinning is far from commendable, although it is occasionally put into practice when a certain size of timber is wanted on the estate, or a large sum of money realised out of the thinnings. This system, however, is false economy, and more especially in the case of trees of the Pine tribe. When a Pine plantation has been mismanaged in this way, the proprietor should never hesitate, but have it cut down at once and the ground replanted. In addition to starving the Scotch Fir by injudicious thinning, I have known cases where the trees suffered considerable damage by merely pulling the Heather from among the young trees, and thus exposing the surface roots suddenly to extremes of heat and cold. One plantation in particular attracted my attention in this way, where the trees had never been thinned at all and were well furnished with side branches from the ground upwards. As a quantity of Heather was wanted for some particular purpose a supply was obtained from a division of this plantation, and although it may appear rather strange, yet the trees on the part from which the Heather was pulled could be readily distinguished by their stunted growth and light green colour of foliage, as contrasted with those of others in the same plantation from which no Heather had been pulled. The above shows clearly how

careful cultivators should be in the management even of the hardiest tribe of timber trees.

J. B. WEBSTER.

Home-grown timber.—Mr. J. B. Webster, THE GARDEN, March 30 (p. 302), takes exception to the remarks I made about home-grown timber, and states that I should know that it is not requisite that all timber used for building purposes should be thoroughly seasoned. This I readily grant, but it depends very much on how and where it is used, and I do not think he would get any architect or clerk of works to pass home-grown and unseasoned deals, except for the commonest purposes, and few will be found to allow them to be made use of at all. I live in a house in which the joists and floors are made from home-grown timber, and the boards are so warped and twisted at the edges, that we had to plane them to prevent the carpets being cut through, and most of the joints stand open sufficiently wide for a penny-piece to drop through; while as to the skirtings, it is an easy matter to poke the finger between them and the floor. For sheds and farm buildings home-grown timber may do very well, but I should draw the line there and keep it out of dwellings and for all work of that class, as it is sure to be unsatisfactory, and do the builder who uses it much harm in the end. Those engaged in the trade know this, and it will take a good deal of persuasion to get them to purchase for the purposes of their trade an inferior article because it is home grown, and the only way to remedy the evil, if such it be, is to plant and cultivate trees that will equal in their timber those from abroad. Against Oak, Ash, Beech, Sweet Chestnut, Walnut, and such like, I have nothing to say, as they are all valuable and always command a ready sale for the different uses they are put to, but to try and show that deals from English-grown trees are equal to those of foreign growth seems to me wide of the mark. I have a high opinion of *Abies Douglasi*, which is full of resin and very weighty, and the tree does well here in all kinds of soil, and makes rapid growth where it can have a little shelter.—J. SHEPPARD, *Woolverstone Park, Suffolk*.

Selling timber growing and felled.—On an estate with which I am acquainted, a timber valuer was employed to number and value a quantity of growing timber in a coppice.

VALUER'S MEASUREMENT.

	s. d.	£ s. d.
70 Oak trees containing 1090 cubic ft. at 1 6	81 15 0	
3 Oak poles " 251 "	1 0 12 11 0	
1 Wych Elm " 3 "	0 8 0 2 0	
Total	£94 8 0	
Sold to timber merchant for	86 0 0	
Expenses of felling the timber, peeling bark, &c., which was also paid by the merchant who bought the timber	29 11 5	
Total expense to timber merchant	£115 11 5	

Now, when the above timber was felled and peeled, it was found to contain a total of 2000 cubic feet. There were also 13 tons 15 cwt. 2 qrs. of bark, which were sold for £58 10s. 9d.; and 254 cords of wood sold for £7 11s. 6d. I may state that the timber was very clean and good, and the only rough portion belonging was 78 fence posts, or 152 cubic feet, which was sold back to the owner of the estate at 9d. per foot—£5 14s. Now, it will be seen from the above that the bark, cord-wood, and fence posts were sold for £71 16s. 3d., leaving still in the timber merchant's hands 1848 cubic feet of the best of the timber to be disposed of. The question I would like to ask is, Was the timber in the first place valued properly? or would it not be better for the owners of estates to sell their timber when felled?—THOS. S. CANNING, *Aldenham Park*.

The Marsh Birch (*Betula nana*).—This species of Birch is a mere shrub, and seldom exceeds 4 feet or 5 feet in height. The stem is creeping, and the branches are very numerous. The bark when young is reddish, but when old it changes to a bright silvery hue. The roots consist of long red fibres, which spread widely over the ground; the leaves are

small, almost oval, and deeply serrated, and, like those of the White Birch, they yield a fine yellow dye. It is a native of Northern Europe, and is also the only Birch found in Iceland.

Dry rot in timber.—A remedy has been discovered, by the use of which this destructive enemy to the woodwork of a house may be destroyed or arrested. What is known as "dry rot" is caused by the spores of a species of fungus (*Merulius lachrymans*), which, though they are sometimes carried by currents of air to the scene of their future devastations, are more frequently present in the soil upon which the house is built at the time of erection, and are brought into near contact with the woodwork in the filling up between the joists, or sometimes even in the mortar. Notwithstanding its name, dry rot does not act upon perfectly dry timber, but begins its ravages whenever the wood is in the necessary state of humidity. It may be prevented by mixing with the rubbish used for filling in the floors the "tank-waste" from alkali works, or the same substance will completely check it if already developed. Tank-waste is of no commercial value, and may be had at alkali works for fetching; it wholly destroys this species of vegetable life, and generates no bad smell whatever.

Wood margins.—The beauty of a wood or any plantation of trees when viewed as a whole or from a distance depends in a great degree on its shape and outline. I remember an old planter once remarking when speaking of planting estates, "Always remember to show the edge of the wood, and to let the outline be clear and distinct and well filled in"—a piece of advice that has often occurred to me since, and which will prove to be sound in the laying out of parks and plantations. In some parks it is not easy to distinguish where the park begins and the wood ends, and the effect is bad. Broad expanses of Grass and masses of wood should alternate, and the borders of each should imitate the "line of beauty" as nearly as possible, and be easy, sweeping, and pleasing to the eye. A ragged edge, abrupt or angular corners, and stiff, formal, and frequent bends are to be avoided, but the proportions of the curves should always correspond with the extent of the ground and the compass taken in by the eye. In offering this advice, I daresay I am but expressing in a roundabout way one of the fundamental principles of landscape gardening; but it is one of those points that often present themselves to the notice of even those untrained in such matters, and which furnish a simple rule to go by. As to filling in the margins of woods and copses, those who are in any way familiar with the subject know how very different the effect is, when the branches of trees or shrubs rest upon the Grass and fill up the foreground with a mass of foliage compared to groups of tall trees whose trunks are exposed, especially in a near view. It does not matter so much when the woods are distant, but near to the mansion or point of view both the wood and the park are greatly improved when the edge of the former is densely filled in with shrubs and low trees, and the more Evergreens there are among them the better, particularly if there be a sunk fence or ha-ha to be screened. For such purposes no plant answers better than the common *Rhododendron*, because it loves the light, and the edge of a wood just suits it. It will extend and fill up perfectly every cranny close to the ground. But all trees fill up more or less at their bases when fully exposed to the light. There is hardly any greater eyesore than a hedge or visible fence of any kind round a plantation, and they are too often used. Where necessary they should be made of wire and be invisible.—Y.

"The Garden" Monthly Parts.—This journal is published in monthly bound Monthly Parts. In these form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d., post free, 1s. 9d.

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London: 37, Southampton Street, Strand, W.C.

No. 909. SATURDAY, April 20, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

W. COLEMAN.

JUDGING MELONS FROM APPEARANCE.

THE antiquated and demoralising practice of cutting fruit, Melons included, at horticultural shows is bad, and the sooner it is done away with the better. If cutting and tasting a great number of Melons, good, bad, and indifferent, invariably put the new saddle on the right horse, the better method of simply boring the fruit with a cheese-taster might be tolerated; but I maintain that it does nothing of the kind, especially when the palate becomes nauseated by tasting a great number of fruits, which the officers of the society must know are unworthy of recognition. When, where, and how this method of cutting and carving fine large Melons originated I am not prepared to say, neither does it matter, but one thing is pretty certain; growers of this fleeting-flavoured fruit have themselves to thank for a practice which in many places has dealt the death-blow to exhibiting. If shows could be held to suit the Melons, experienced fruit growers would have little difficulty in selecting the best by their delicious aroma, by their weight and finish, and last, but not least, by the variety, for we must not lose sight of the fact that well-grown examples of certain sorts under the existing method of cutting almost invariably turn out prize-winners. Take, for instance, a fine, highly-perfumed example of Turner's Scarlet Gem or Read's Scarlet, and I question if any of the more modern hybrids would touch them. Shows, however, are advertised for fixed dates, and those who have Melons just up to the mark as a matter of course win; but nine-tenths of the exhibitors possibly may have been keeping extra fine fruit for weeks in a dry cold place until the aroma has departed, the flesh is melting into insipid water, and the rind is showing unmistakable signs of discoloration and decay. Some fine fruits, again, are cut too soon, simply because the show will not wait, and it is these fine over and under-ripe specimens which led J. Muir (p. 311) to assert that it is unsafe to trust to appearances. Do the experienced growers who stage these provoking fruits expect to head the list? Nothing of the sort, but knowing other fruits may be as bad or worse, they enter in the hope that a fluke may land them somewhere. Having myself grown and shown a great number of Melons, I know how cutting from the plant a day too early or a day too late handicaps the exhibitor; also I know that certain sorts—I will instance Cox's Golden Gem—no matter how well grown or how fit, hardly ever win a prize—that is, where the true green or scarlet-fleshed varieties are staged against them. This hardy, handsome white-fleshed variety was raised by a dear old friend of my own, now gone over to the majority; it sells well in the market, and tells in the exhibitor's collection where cutting is never practised, but other varieties less handsome might be put in to which I should give an extra point were I judging them. A certain class of exhibitors who magnify their ducks into swans—and their ducks generally are very poor ones—feel slighted if on entering they find their Melons have not been cut, so what are poor judges to do? The days of washing out the satiated mouth with bad brandy happily having

gone by, judges avoid an attack from the owners by risking an attack of English cholera; they soften the makers of the show by tarring all with the same brush, although in nine instances out of ten they might pick out the winners with their eyes and mouths shut and their knives in their pockets.

Cutting and tasting, unfortunately, do not always commence and end with Melons, as some judges persist in tasting everything from a Royal George Peach down to a Norfolk Beaufin Apple. The awards these gentlemen make, independently of the magnificent fruit they spoil and pass over, are simply ridiculous and shocking, but here, as amongst Melons, they must have learned to what grade the different fruits belong before they can adjudicate from appearance. Also they must know fruits at sight, otherwise an adept at exhibiting might easily cast dust in their eyes by setting up, say, a dish of Lord Palmerston Peach, very fine, but always second-rate, and dubbing it Grosse Mignonne or some other sterling variety above suspicion. By all means allow judges full licence to taste any fruit where they are in doubt, but the systematic cutting and wasting of good samples should be put down, not only as superfluous, but as one of the evils which must put an end to showing.

—In reply to your request for opinions on this subject, I write to say that, having had some little experience in adjudicating on fruit, I should certainly decline to decide on the relative merits of a number of Melons as long as they remained uncut. The fragrance of a Melon is very deceptive, and this fruit often falls short of the high expectations raised by a perfect outward appearance and agreeable perfume. I should think it as fair to judge stands of Roses with the lids on the boxes by sniffing at the lids as to decide truly on the merits of uncut Melons, for appearances are so deceptive, and nowhere more so than amongst Melons. —J. T. POE.

—Much has been written on cutting Melons at exhibitions to determine which is the best. I should say that in nine cases out of ten it is easy to tell a good flavoured Melon by the perfume, but when several highly scented fruits have to be decided upon, which shall be placed first, second, or third, it becomes necessary to taste each to ascertain which actually is the best flavoured. —J. T. FLETCHER.

—Anyone having much experience in growing and judging Melons may, when he is thoroughly acquainted with all the varieties, be able to judge a fruit from appearance and smell without cutting it. When, however, the judges are not conversant with the varieties sometimes presented to them for adjudication, I maintain that it is impossible to judge Melons correctly—that is, if flavour is to be the leading point. The persons who advocate judging Melons by appearance only, and who object to the practice of cutting and tasting all the fruits staged, on the score of taste being impaired, ought to know that the first-rate fruits are very few, while many, if the competition be severe, are very bad. Take, for instance, the variety William Tillery, a Melon perhaps more easily judged by appearance and smell than any other when it is in good condition as regards flavour. Any experienced person may know almost at a glance, and certainly by smell, when this variety is in the best condition, but other varieties, especially scarlet-fleshed kinds, have not a strong perfume; indeed, some will hardly smell at all, yet be of capital quality when tested by cutting. How, then, is it possible to test such as these latter by appearance only? In the case of Melons shown for flavour, very often quite a small fruit will be awarded leading honours, but seldom, if ever, will a small fruit have the greatest weight given to it if it be in a collection of fruit, provided there are any large fairly well-coloured specimens staged. Surely if it is absolutely necessary that a Melon should be of high flavour to take leading honours in a class for Melons

only, why should not the Melons in a collection of fruit also be judged in the same way? As a rule, size, and not quality, in a Melon, if it be tolerably well coloured, is the first consideration when judging a collection of fruit. Melons cannot be judged like Peaches or Nectarines, for instance, by colour alone, because in the case of these, high colour generally carries with it flavour, while in the case of Melons it does not always follow that good quality is to be had in a highly coloured Melon. It has become a fashion to judge Melons in a collection of fruit by their appearance only. In the case of collections of fruit which contain varieties of Melons so well known as Hero of Lockinge or Blenheim Orange, it is easy to pick out the best fruit in those cases, but when unknown varieties are staged it is not so easily and accurately done. —E.

—I believe Melons can be judged more satisfactorily by appearance than by cutting, as who cares to have a fruit spoiled to test its flavour when it carries its own stamp of quality outside, as nearly all fruits do? There is no reason why a Melon should not be judged in the same way as Grapes, Peaches, Nectarines, Plums, &c. At one time judges went in for tasting all these, but if these fruits are properly finished flavour is there; and the same with Melons. What are the distinguishing marks of good Melons? First, they should be of fair average size for the particular variety, and if a netted kind, the netting regular and the colour good; but, above all, any Melon, of whatever sort, should have the usual natural cracking around the stem, as no fruit finishes off without that beginning to part from the flesh. It will be necessary, as now, at shows to have two classes, one for red-fleshed varieties and one for green-fleshed, as the latter are the best; and it need hardly be said that it will be requisite for those who adjudicate on the Melons to be well acquainted with the several kinds, of which there are at present far too many, the majority of them being worthless as compared with the few favourites now most generally grown. —J. SHEPPARD.

SYRINGING VINES IN BLOOM.

HAVING, I believe, been the first to bring the syringing method of setting Grapes under the notice of readers of THE GARDEN, a few further remarks on the subject may not be out of place at this season, when many who have Vines that are bad or uncertain setters often have cause for anxiety about their crops. Unfortunately, some of the best and also best-looking varieties of Grapes do not set well. To this fault in a great measure no doubt is attributable the limited extent to which some of the varieties in question are grown. Otherwise now, when appearance quite as much as quality is taken into consideration, they would be oftener met with.

The ordinary methods for securing an even setting, such as drawing the hand down the bunches when in bloom, the use of a camel's-hair brush or a rabbit's tail wherewith to remove the capsules and distribute the pollen on the stigmas, are more or less slow operations and not always certain in their results, as the stoneless berries that are frequently seen prove. Syringing is certain in its effects, provided it is carried out properly and at the right time. Where syringing fails it is much more likely to be through the work not having been properly done than from its not having been done at the right time. Where the method in question fails or is only partially successful, there is little doubt that the work is imperfectly done through the water not being directed with enough force. The sprinkling, which I have found that some who have tried syringing have supposed was sufficient, is all but useless. It is necessary to impress upon those who intend to try this method that the water must reach the bunches with enough force to remove the capsules, which in the Grapes that require this treatment are not so easily moved as might be supposed. The rose that is used must not be too fine, and the end of the syringe should not be more than 3 feet or 4 feet from the bunch at which the water is discharged, and at which it must be sent with a moderate amount of force. I do not mean to say that the water should be driven

against the bunches as if the object was to wash the incipient berries off, but I have never yet seen an instance in which any harm was done through too much force being used.

Regarding the time in the day when the syringing should be done, it should be after the atmosphere has got dry, either with sun-heat or in dull weather by the use of as much extra fire as will effect the object and keep up the requisite heat, with enough top air on to let out the moisture. The best way is to operate on each Vine separately, beginning at the bottom and taking the bunches in succession on one side, and, when the top of the cane is reached, to go down the opposite side, treating each bunch alike. By thus syringing the bunches on both sides, the work will be effectual. My own practice has been to go over the Vines about three times whilst they were in bloom. I have advised many who complained of not being satisfied with the methods they had used with Muscats and other more or less shy-setting kinds to try the syringing, and the result has been successful, except in a few cases, and in these I found that the mistake of sprinkling instead of using a reasonable amount of force was the cause. In several cases that have come to my knowledge where the setting had not been so even as it should have been, I found that there had been timidity in using the syringe. Some there are who seem so wedded to old practices that they evidently dare not try the syringe. Neither is this to be wondered at, seeing that so much has been said and written about the necessity of a high temperature and a dry atmosphere whilst Muscats are in bloom. Nevertheless, the practice is coming much more into use than it was for a time after it was first mooted. Within the last two or three years I have seen a number of houses filled with Muscats that had been set with the syringe, and the bunches were so even that they seemed as if every bloom had set. If my memory serves me rightly, someone who had tried syringing has written that the practice did not appear to answer well with all shy-setting varieties; I think Alnwick Seedling was named as not doing well with it. I have not grown this beautiful-looking Grape, but I have seen it in the most perfect condition, with the bunches as full and as even as it was possible for them to be, where syringing and no other means was used in the setting.

T. BAINES.

NOTES ON HARDY FRUITS.

UNDER this head "W. C." (THE GARDEN, April 6, p. 303) writes very dolefully as regards the prospect of a crop of Peaches and Nectarines, and I must say that a short time ago I was not much more hopeful than he appears to be. I am glad to say that lately I have had good reason to change or modify my previously formed opinion, as fruit trees are now opening a fair quantity of flowers, most of which look strong and healthy. A month or two ago I did not expect this, as at that time not only did the wood look green, but the buds were small and attenuated, and there seemed great danger, as the weather was then and had been so mild, of their getting much too forward, but, fortunately, winter set in in February, and we had six weeks of cold, which kept the flowers from opening. I am the more disposed to think that we shall have a crop of fruit of Peaches and Nectarines on open walls if weather conditions are favourable after this, from having lifted for indoor planting some trees which have opened their blooms satisfactorily and set a good crop. This, I think, promises well for outdoor trees. Young trees have too many gross and unripe shoots in them, and one can readily understand how they must have suffered in nurseries where the trees are in the open without the advantage of a wall to help to mature their growth. I bought in a few maiden trees, the tops of which have been killed back more than half their length, and I have headed them down to within 6 inches of where they were worked. Apricots seem to have withstood the cold and wet of last season worse than Peaches and Nectarines, as the bloom on them is exceedingly thin, and if all set there will only be a partial crop. Not only is this so, but trees lost more branches than usual from canker

or dying off, and gaps which it will be difficult to fill again are very frequent. Although the bloom on Peaches, Nectarines, and Apricots is not, perhaps, just what one would desire, Apples look wonderfully well, and are thickly studded with bloom buds that are now fast swelling with every promise of opening strong. The same may be said of Pears, which, like Peaches and Nectarines, are later than usual and ought to be safe. Still there are so many slips between the cup and the lip, that all these fair promises may be dashed and spoiled by May frosts. Nuts must, I think, be a poor crop, as there are scarcely any catkins on the bushes, and therefore there cannot have been sufficient pollen to fertilise the blooms, and what little there was had unfavourable weather for its distribution. Cherries and Plums both look well, so that, on the whole, we have not such a very bad outlook as regards the fruit crop for the present season. What "W. C." says about timely thinning and disbudding there is much in, as a good deal of the success or otherwise attending Peach growing outdoors depends on how the trees are attended to during the early part of the season, as then it is that green-fly is troublesome, and if the shoots are allowed to remain on the trees and become crowded, this insect gets a more secure lodgment, and soon cripples the growth.

S. D.

HARDY FRUITS.

ALTHOUGH the season is unusually late and fruit prospects in many places the reverse of promising, the stitch in time, wherever aid can be given, must not be neglected. Blossoms neither too plentiful nor too plump are now opening better than I expected, and, provided the trees are perfectly clean, that best of all crops, a thin one, may yet be secured. Where Apricots have set well, singly or in clusters, the latter should be thinned down to a reasonable number, and those naturally the finest nestling nearest to the wall. As sharp frosts may be expected up to the 20th of May, a very liberal percentage of fruit must be left to compensate for mishaps, but on no account must they be allowed to force each other out of shape, as so often happens when the trees become aged and densely furnished with spurs. As thinning is proceeded with, all the strongest foreright shoots should be pinched in to two or three leaves, whilst others, where they are too much crowded, may be removed altogether; the first to induce the formation of fruit spurs, the second to let in light and air, and to force the sap into channels leading to the least vigorous parts of the trees. Our vernal enemy, the lively grub, too, must receive a full share of attention, otherwise, no matter how carefully all other operations are performed, this diminutive pest will very soon destroy the crop and greatly damage the foliage of the most vigorous trees. Disbudding, as I have often remarked, should be performed piecemeal, especially upon trees exposed to the vicissitudes of our springs, and, contrary to all other operations, it should be deferred until the trees are well advanced and the weather is favourable. Should the weather set in dry, the borders should be very lightly pointed up, covered with fresh stable manure, and well watered to an extent that will ensure a thorough moistening of the soil quite down to the drainage, whilst the syringe, when there is no danger of frost or keen cutting winds, may be vigorously plied upon the branches and foliage.

PEACHES, now well protected with nets or movable shading, must have the fullest benefit of light and fresh air, otherwise the blossoms, already weak enough, will be greatly enervated, and the foliage will be pale, tender, and literally devoured by aphids. Black and green-fly are almost sure to be troublesome, this season especially, where the walls and trees have not been thoroughly cleansed and soapsuds have not been forced into the walls with the garden engine. Where every tree is detached and washed, and the walls are painted with Venetian red, quicklime, soot, and sulphur, reduced with a little linseed oil and boiling water, green-fly does not make much headway, unless a keen wind sets in from the east. But, independently of these preventive measures, it is well to be prepared with

tobacco powder for dredging purposes the moment a curled leaf becomes visible. This insecticide may not kill every fly at the first dressing, but it is easily plied through a penny pepper-box, and being dry it can be used when the trees are in flower or when frosty nights render dipping or syringing impracticable. Once the fruit is set and safe, tobacco powder may be discontinued, and pure water or a weak dressing of soap, sulphur, and tobacco juice may be syringed over the trees. Insecticides, good, indifferent, and dangerous, are very numerous, and often slay their thousands of tender fruit as well as insects, but this need not happen if a close watch were kept on the earliest shoots and all mistakes in point of strength were made on the weak side. Anything new should never be used on a large scale until it has been thoroughly tested, not by rule of thumb, but by weight or measure, and then I should give preference to good home-made soapsuds, which injures neither fruit nor leaves, whilst its manurial properties stimulate the surface roots as it passes into the border. When Peaches, like Apricots, are properly set, we syringe copiously, first of all with pure water, then with our liberal supply from the laundry, and by these means prevent insects from crippling the early growths at the most critical period in the Peach tree's existence.

SWEET AND MORELLO CHERRIES are often most seriously injured by black-fly, not unfrequently before they are out of blossom, but this can be prevented by syringing with soapsuds once or twice a week from the time the trees are trained until the flowers are ready to open. Another important preventive is vigorous root action in well-drained and somewhat elevated borders, especially upon naturally cold, north aspects. Some fruit growers recommend heavy mulchings of rotten manure, and dwellers upon dry, warm soils may profit by this advice, but here it would not answer, as I find annual or biennial root-lifting, confining the roots to the wall path, and covering with fresh stable litter, result in moderate growths which get well ripened.

BUSH FRUITS

are very late, but Gooseberries and Currants so far look promising. Bullfinches at one time made a faint attack, but in accordance with annual custom nets were brought out and cast over the quarters before they had time to do a particle of mischief; nay more, acquainted with our ways and means, they took the hint and fled to more lenient admirers. If the bushes were well mulched early in the winter they will not require further manurial aid, but the quarters should be hoed and cleared of weeds, when a light dressing of quicklime and soot, whilst stimulating the surface roots, will prevent the ascent of leaf-devouring marauders.

RASPBERRIES made excellent canes, and the crops of fruit should be plentiful and good; but growth is backward, and the buds on the strongest canes look half blind and badly ripened. Strawberries on north borders are late and weak in the crown, especially where the stools are more than three years old and food is abundant. Younger plantations on open quarters have wintered well and may flower freely, but we can hardly expect the fine large trusses invariably thrown up after good average seasons. If not already done, a good layer of fresh long stable litter should now be placed between the rows, and a second dressing of soot sprinkled round the stools will make the favourite haunt of slugs and snails untenable.

FIGS.—If these have been covered, the material must be removed bit by bit when the weather is fine, as it is now time for pruning and training to be brought to a close where the fruit is expected to ripen. Figs, as a rule, have not ripened their wood well, but the winter fortunately has been mild, and the points of the shoots, innocent of all covering as far as I am able to judge, have escaped injury. Fruit may not be plentiful, but this scarcity will not justify the neglect of the most trifling detail in summer management.

THE ORCHARD.—The grafting of Pear and young Apple stocks should be brought to a close and all clearing-up finished. Older trees, headed

back in February, are very late, and will not suffer if grafting is deferred until May, always provided the scions are kept under north walls or partially buried. We use two-year-old wood for aged stocks, attach upon the crown principle, and let them in with the saw and chisel, driving very light when bending is quite unnecessary. Young stocks worked in March should be examined and redaubed where the clay shows signs of cracking.

WORK IN FRUIT HOUSES.

EARLY ORCHARD HOUSE.

If all has gone on well, the fruit upon the early varieties of Peaches and Nectarines will now be stoning—a process which demands time and careful attention to every detail, including good feeding with rich top-dressing and liquid, a very steady temperature, and not too high through the night, rather early closing with sun to save fire, and good syringing. It is not a good plan to pinch too hard during this process, but once the fruit begins to move into the last swelling, all laterals and sub-laterals must be shortened back by degrees to let in light and air, as well as to throw size into the crop. All danger of further dropping having ceased, it will now be necessary to make the final thinning with a free hand, as it is better to have a score of fine fruit from each tree than double the number of stones sparsely furnished with a thin covering of pulp of inferior quality. As progress to maturity will now be rapid, not one day must be lost in renewing the rich top-dressing, in giving the roots copious supplies of warm, diluted liquid, and in keeping down aphids by careful fumigation. Spider thus early should not have gained a footing, as there is nothing to prevent thorough syringing certainly once a day, and twice when the weather is bright and favourable. If, however, it has got the better of good culture—a most unlikely event—a small piece of soft soap the size of a Walnut may be thoroughly dissolved in each can of soft water for syringing over and under the foliage of the trees affected. Soot water also may be used, but this, as I have often stated, can be had in a mild form by sinking small bags of soot in the tank and renewing the charge, say, once a fortnight. This high-class feeding may be continued until the fruit has attained full size and is colouring freely, when stimulants must be given up, pure soft water, or water free from lime, being substituted for watering and syringing purposes. Light, too, by some means must be admitted, not only by the removal of all superfluous laterals, especially where the trees are large, but also by turning or tying back the main foliage. Night air—at all times an important element—may now be increased, but considering that this alone may lower the temperature some 6° or 8°, say to 58°, it must be shut off at daylight to favour a rise for the morning syringing. Day ventilation may be commenced at 65° and continued little and often with a rising glass until 75° is touched, when the house must be closely watched, first to prevent a rise above 80° with full air and bright sun, and second to catch the earliest tendency to a decline when reducing, and final closing ready for the afternoon bath should find the temperature again rising to the maximum. Fire-heat should be dispensed with as much as possible, but in order to hasten the swelling process which really takes place in the afternoon, the valves should be slightly opened when syringing is finished and kept so through the night. If Strawberries were started with the Peaches, the fruit will now be ripening and needing more air than can be good for the swelling Peaches; hence the necessity for removal to another structure where they can have a free circulation of fresh warm air and water in moderation. As spider invariably originates upon the shelves devoted to Strawberries in all sorts and conditions of forcing houses, the removal of the plants should be followed by a good scrubbing down with soft soap and water and the washing of the walls with quicklime and a dash of sulphur.

Late houses.—If the latest trees in this structure are still in flower and fly has put in an appearance, others upon which the fruit is set must be divested as far as practicable of curled leaves and shoots,

and dusted with tobacco powder to prevent the enemy from spreading until the house can be properly fumigated. If the shortening of the shoots of any of the trees was deferred by those who are not thoroughly experienced in the use of the knife they must now be cut back to a good break in advance of one or more of the best fruit not only near the base, but point upwards, as these are in the best position for attaining size and colour. From this stage forward the syringe will play a very important part, first when the temperature begins to rise, and second when the house is closed. Top-dressing, too, as in the early house, little and often must be placed upon the pots and renewed as it is washed in or away in the process of watering. Pure water only should be used at first, but when the fruit is thinned and swelling freely it may be tinged with liquid to-day, with soot or guano water to-morrow, and so on, as pot fruit trees, like ourselves, enjoy a change of diet. Ventilate freely on fine days, but avoid cutting draughts and shut up in time to ensure an upward tendency for the second syringing. If Cherries, Plums, and Pears occupy the coolest end of the house, dredge all infested spurs and shoots with tobacco powder to keep down green or black aphids, also handpick the Plum trees before grub has time to perforate the fruit. Insecticides in the case of the grub are of no use, but its position is easily ascertained by the curled state of the leaves.

Trees in unheated houses must have an abundance of air through the day, and night, too, for that matter, when freedom from frost is certain. Being so completely at the mercy of the elements, all watering and damping should be performed in the morning, but the less slop the better, as flowering trees in a thoroughly dry atmosphere will stand with impunity frosts that would do serious mischief in a house only slightly charged with moisture. Should morning frosts get into cold structures, especially those facing full south, the ventilators should be kept closed, and covering of some kind drawn over the roof should exclude every ray of sun the whole of the succeeding day. Cold water syringed over frosted plants in a darkened house or pit when the thermometer has risen to 32° is a good preventive of mischief, but this remedy must not be tried in a house filled with flowering trees; not that the water might not restore the flowers, but the atmosphere becoming saturated, a repetition of the frost the next night might settle the crop for the season. Hot-water pipes and boilers being so cheap and easily fixed by any handy man, notes upon the management of cold or unheated houses and the restoration of frosted flowers seem almost out of date, and yet I know for a fact that many a poor gardener's sleeping hours are sacrificed to this penny-wise-and-pound-foolish system of half-hearted gardening.

The compost yard.—The stocking of this important department again, like unheated houses, in many places causes much heart-burning, and yet the gardener cannot grow good fruits or plants where he is denied the selection of suitable soils. The villa owner near towns, of course, buys his loam and peat, but there are very few country estates which are not rich in all that a gardener requires if crusty agents would only bow to his superior judgment in these matters and allow him to help himself. A few square yards of old turf might very easily be obtained from secluded spots, and knolls might be thinly skinned, reduced, and turfed down again, and no one would suffer loss or annoyance. But there is yet another mode of satisfying the grumbling grower, who will steal if he cannot beg, for he must and will have his calcareous and sandy loams too often refused on account of his uncompromising method of going about the business. Let him fix upon a suitable piece of pasture, out of sight, of course, and for each load of turfy loam let him make good with a load of rich soil from the kitchen garden. Exchange is no robbery; indeed, this exchange is a mutual advantage, as spots so treated and thickly sown with lawn Grass seeds in six weeks will be found the greenest and richest part of the pasture. Sheep and stock, as a matter of common sense, must be kept

off for a time, but this small difficulty can be compassed by the use of a few hurdles or bushes immediately after the seeds are sown and rolled in. Spring is the time to replenish the compost yard, also to sow Grass seeds. Let those dejected followers of Paxton then, who have not thought of this plan, or having thought of it have not had the heart to suggest it, go at once to head-quarters, and if these lines do not conciliate the most obdurate owner of broad acres, the fault does not rest with me.

Turf of all kinds, I may say, should be cut, carted, and stacked in the open air when the weather is dry, or if cut when wet it should be tipped and lie loose until the sun and air have carried off the superfluous moisture. The stacks should be long and about 4 feet in width, convex on the top and roughly thatched, or in some other way protected from sun in summer, cold rain and snow in winter. If for any special purpose, a Vine or Peach border say, in the autumn suitable correctives, like burnt earth, old lime rubble, or dry road scrapings, may be introduced. Soot also may be added for the destruction of wireworms, but on no account should rotten manure be added, as this substance encourages worms, if it does not turn the whole mass sour and pasty. For Melons or Strawberries, again, the same preparation may be made, but for the thousand and one plants which a gardener wishes to grow, each staple should be stacked pure and simple, and stimulants and correctives in large or small quantities can be added in the potting shed. Peat should not be obtained in large quantities, as it soon loses its life and fibre, whilst that of a boggy nature remains sour and acrid when stacked in a wet state and in large bulk.

Leaf-mould, another article in daily use, is best made in the woods or from newly carted leaves conveyed direct to the soil yard. Oak and Beech leaves make the best potting mould, as they are hard and full of fibre, lasting a long time in a sweet healthy condition in the soil. Soft leaves which soon decay should not be mixed with them, but they may be turned to good account where poor or heavy soils are used for ordinary purposes. In wooded districts where leaves are used for the production of bottom-heat, the mould enriched with liquid manure in due course comes out in fine condition, and soils to which this is added are greatly improved, but great care should be devoted to its selection, as mildew, red spider, and other insects often bide their time in the heap and spring into new life when and where least wanted or expected. An open shed and good bins are invaluable adjuncts to the compost yard, as soils of all kinds can be stored and worked into condition in these places, especially during the winter. Ordinary composts, too, can be made up, thoroughly dried and pulverised upon the floor of the open shed, and not unfrequently this preparation, as compared with the use of the same materials in a cold crude state, makes all the difference between success and failure. W. C.

Plum culture in Bosnia.—The most important product of Bosnia is Plums, and the food in a dried state is the principal article of export. The poorest peasant has a few Plum trees by his hovel; wealthy landowners never think of planting any other kind of tree by their country houses; and on the results of the Plum crop, more than any other, depends the well-being of the agricultural population. Accurate statistics of the crop are not available, but in a good season about 40,000 tons of the dried fruit are exported, representing a money value exceeding £200,000. The fruit is not only grown for dessert, however; a large quantity is consumed in the making of a spirit commonly drunk in the country, and known as Slivonitz. The Bosnians, moreover, are great makers of jam, and they prepare from the Plum a great quantity, which is manufactured without sugar. The export of dried fruit is almost entirely to Austria and Hungary. Possibly, however, a market may hereafter be found for it in England, for the product is increasing, and the local Government has turned its attention to the establishment of drying ovens of a superior descrip-

tion to those hitherto in use. A large proportion of the crop of 1887 is said to have been lost owing to the primitive and inefficient way in which the fruit was dried.

NOTES OF THE WEEK.

Rhododendron fragrantissimum.—As an Easter flower this is unique. Plants in 8-inch pots have bushy spreading heads and the point of every shoot is terminated by a cluster of large bell-shaped bluish white and sweetly-scented flowers.

Orchis longibracteata, though not so striking in appearance as *O. pallens*, is well worth a place in the cool house. The flowers, of a dull purple, are produced in greater abundance than in the case of *O. pallens*. A native of Sicily.

Saxifraga Stracheyi is about the best of the big-leaved Saxifrages that I have seen. It was shown in good form recently. The large and leathery, purple-tinged leaves set off to advantage the stout spikes of pinky white flowers.—A. D. W.

Phalænopsis Manni.—"H. G." in THE GARDEN, April 13 (p. 337), describes the above as carrying a pendent scape. I have flowered it for two seasons, and the scape has been perfectly upright. Is this unusual? Will "H. G." describe the difference between *P. Manni* and *P. Boxalli*?—G. H.

Tulipa Leichtlini is a dainty little flower. It was blooming recently in Messrs. Paul and Son's nursery at Broxbourne, we are told, for probably the first time in England. It has a small flower, the inside of the segments of a kind of buff-yellow tint, the outer surface flushed with red.

Tulipa Kolpakowskiana.—This beautiful species is in bloom with Messrs. Paul and Son, of Broxbourne. It is one of the finest of the early Tulips, and is most variable in colour, ranging from scarlet to chrome-yellow. The bulbs bloom three weeks before those of the bulk of outdoor Tulips.

Algerian Iris.—I enclose for your inspection a few blooms of *Iris stylosa speciosa* a little out of season. I think the flowers are of a better colour than those of the type, but not so fragrant.—W. H. BLAIR, Cork.

*** A deeply coloured form of the Algerian Iris. A very good colour.—ED.

A crimson Daisy.—I send what appears to be a fine variety of the common Daisy which was found last summer half way up the Grande Salene near Geneva. It is, as you will see, of a fine colour, and if it will remain single in cultivation it is worth growing. I should like to hear from you whether these high-coloured varieties are common in a wild state.—J. C. L.

*** Very pretty. We have never seen anything like it.—ED.

Orchis longicornu, now in bloom in the alpine house at Kew, is a very pretty, though small-flowered species, and seems easily managed. Flowers velvety purple, the lip striped with lilac; a native of North Africa. The most beautiful, however, is the Winged Orchis (*O. papilionacea*). It resembles *O. militaris* both in height and flower, with usually a large lip about the size of the thumb-nail, sepals and lip being purple. It is a native of Spain and Carniola, and may be grown in the open air with little trouble.

Primroses from Devonshire.—I send you by this post a box of my Primrose blooms. I see much talk about a certain blue Primrose, said to be of a deeper shade than Scott Wilson. But I many years ago raised one considerably deeper in shade than that variety, and now have several others, a few of which I send you. Also a new terra-cotta colour, which appears to me to be striking and novel. Your opinion will oblige.—R. W. BEACHEY.

*** The "blue Primulas" are finer than we have ever seen. They are of a rich and good dark purple shade, and appear to be vigorous.—ED.

Saxifrages in flower.—Amongst the Saxifrages in flower on the rockery at present (now the oppositifolia section are over), *S. Rocheliana*, *coriophylla*, *luteo-purpurea*, and *aretoides* are far ahead of the others. *S. sancta* is now at its best, but it is quite eclipsed by *luteo-purpurea*, misnamed *Frederici Augusti*. *S. sancta* is interesting with its dense masses of dark green foliage, and in spring with its numerous young growths. It, however, promises more than it performs, and the flowers, when they

appear, are disappointing. *S. Burseriana* is not quite over yet, and it is being succeeded by *S. Boydi*, a most charming plant, of which no one seems to know the origin. *S. ciliata*, *Stracheyi*, and indeed most of the *Megasea* forms are about at their best, and present a beautiful and pleasing picture with the huge bunches of pink flowers peeping from amongst the massive foliage.

A well-flowered Coelogyne.—Mr. F. C. Ford, gardener to Mrs. Henry Pease, exhibited at the Newcastle show on the 10th and 11th of April a splendid specimen of *Coelogyne cristata* with 300 blooms on it. The plant was necessarily very large to carry such an immense number of flowers, but the sprays were so thickly spread over its surface, that they formed a sheet of snowy whiteness.—J. D.

The Winter Sweet (*Toxicophlæa spectabilis*).—I send you some flowers of this. I have exposed the plant to the full blaze of the sun while growing, and it is now flowering freely and bearing long racemes 2 feet and more in length. I also send a spray of *Impatiens Clarki*, a seedling from *Impatiens Hawkeri*, with beautiful mauve-coloured flowers.—JOHN T. EBBUTT.

*** Beautiful heads of this ivory-white *Ixora* like flower. The blooms of the *Impatiens* had all faded, so that we could form no opinion of them.—ED.

Forced Sweet Peas.—I forward you a few Sweet Pea flowers, from which we have been cutting freely since April 2. I have grown them for nine years in 10-inch pots for the conservatory, and their flowers prove a very welcome addition at this time of the year. *Laburnums* and double pink Thorns in variety we have had since February.—J. EBBUTT, Winslade Gardens, Exeter.

*** Many thanks for the Sweet Peas. The flowers are as sweet, sturdy, and large as we generally see them outdoors in the best of seasons, and show how the season of hardy flowers may be prolonged.—ED.

Spring flowers from a Dutch garden.—My garden is now gay with the following spring flowers, specimens of which I enclose for your inspection. I think you will agree with me that the new *Tulipa Kaufmanniana* is likely to prove a valuable addition to the already large assortment of Tulips grown at the present time. Its colour being a delicate creamy white with yellow centre is exactly the shade wanted to break up the endless variations of red, which, with a few exceptions only, is the chief colour among the various species of Tulips. The plant is thoroughly hardy, with ample and extraordinary robust foliage; the flowers when fully open attain an immense size. Last year one of my strongest bulbs produced a flower over 7 inches in diameter; moreover, it is so early that it even precedes the earliest *Duc Van Thols* by a fortnight. Of Grape Hyacinths I enclose another flower of *Muscari azureum* that you may see of what a wonderful durability the flowers of this species are; it seems incredible that any bulbous plant should be flowering from the midst of January till now, although exposed to all the roughness and inclemencies of a Dutch winter. *Muscari Helldreichi* looks especially fine with its strong spikes and the deep blue and white colour of its large flowerets, which attain double the size of those of *M. botryoides*; this one and the sweetly fragrant *M. Szovitzianum* are very choice representatives of the genus *Muscari*. *Fritillaria inodora*, of which I possess two distinct varieties, a deep purple and an orange one, will be at their best in a few days; these throw up noble heads of bloom with ample foliage rising to a height of 4 feet, in every respect identical to the common Crown Imperial, except this great feature, that neither bulb nor foliage nor flowers possess any trace of a disagreeable smell. The bright yellow flowers of *F. pudica* are lovely miniatures compared to the massive beauty of the former. *Erythroniums* present quite a charming picture on account of their handsome marbled foliage and prettily-tinted flowers. I enclose what I consider to be types of very large-flowered forms of *E. dens-canis*. The clear yellow *Nuttallianum* is the earliest North American species;

its canary-yellow flowers and plain green foliage render it a very distinct plant. *Corydalis Halleri*, *bulbosa alba*, *Kolpakowskyana*, and *Ledebouriana* are pretty spring flowers, succeeding in any position. *Trillium sessile album* is a lovely plant when grown in a peaty border in a shady corner. *Puschkinia libanotica compacta*, with its pretty bunches of white and porcelain-blue striped flowers, is a perfectly hardy, really charming bulb, and very valuable for cutting. *Calypso borealis*, *Ophrys arachnites*, *Orchis Branciforti*, *provincialis*, *Speculum*, and *undulatifolia* are blooming in a cold frame, and, as usual, command the undivided admiration of every beholder.—C. G. VAN TUBERGEN, JUNR., Haarlem.

*** A very distinct and fine Tulip is *T. Kaufmanniana*.—ED.

Rhododendron Veitchianum.—One of the finest specimens of this *Rhododendron* ever seen is now in flower in the garden of Mrs. Henry Pease, of Darlington. It is a compact bush, is in excellent health, and furnished with upwards of 300 of its large white flowers, which are crisped round the edges and quite 5 inches across. The plant was the centre of attraction at the great show of spring flowers, held at the Town Hall, Newcastle-upon-Tyne, on the 10th and 11th of the present month.

Prunus Pissardi in Wales.—This is one of the first of all deciduous trees to come into bloom in the open air in spring. Some specimens of it in the pleasure grounds here were in flower on March 1, and they are still in bloom. The flowers resemble miniature Cherry blossoms, and being so early, are very conspicuous and attractive. At first the foliage is pale purple, but in summer and until late autumn it is extremely dark. *Prunus Pissardi* deserves planting on account of its early and late decorative character.—J. MUIR, Margam.

Cineraria cruenta.—This lovely species is a great acquisition for the conservatory during the spring months, its graceful habit rendering it a general favourite. Plants 5 feet high and a yard through laden with the soft-coloured flowers make up a splendid group. I have found that *C. cruenta* is also very useful for cutting, as its long sprays show off to advantage when arranged with other flowers or Ferns, and it lasts a long time in water. Being a native of the Canaries, it does best under cool treatment, like all other *Cinerarias*, and deserves to be much more grown.—F. G.

Moutan Pæonies in pots.—Although it is a century since the Moutan or Tree Pæony was introduced into this country, it is by no means a common plant, and is not grown nearly as much as its merits deserve. Many of the new varieties far excel the typical form both in size and colour of the flowers. Pæonies will not force early, but grown as pot plants and kept in a cold frame, they produce a grand display of bloom at this time of year. Being gross feeders they require liberal treatment, and should never be allowed to get dry. Amongst the best varieties are *Reine Elizabeth*, *Comte de Flandres*, *Caroline*, *Impératrice Josephine*, and *Salmonia*. A fine group of these is a great attraction in the greenhouse at Kew.—F. G.

Orchis pallens.—This charming species, now flowering in the alpine house at Kew, is well worth noting. The only fault we can find is its being so badly represented. Instead of two in a pot, one would like to see a panful of it; and, indeed, this may be said of all the hardy Orchids worth cultivating. *O. pallens* is of about the same height as *O. Morio*, with the appearance of *O. sambucina*, but the bulbs, instead of being palmate as in *sambucina*, are undivided. The pale sulphur-yellow flowers are borne in a close oblong head, the lip a deeper yellow than the sepals, the three lobes being quite entire, and the spur twice as long as the lip. Haller observes with regard to this species that "it agrees in many circumstances with *sambucina*; that the root-leaves are 2 inches wide, the stem naked and scarcely a span long in height, and that the flowers emit a disagreeable smell." In the plants in flower at Kew this is not observable. It is figured in the *Botanical Magazine* as *O. sulphurea* and is a native of Italy, Austria, &c.

CUCKFIELD PLACE.

NEAR the quiet town of Cuckfield is a fine old house situated in a park of wild, but charming beauty. The exact date of the mansion's erection is somewhat doubtful, but the style of architecture tells its own tale and carries us back a period of at least 300 years to the Elizabethan times, when it was probably built. In its early days it was the home of one or two ancient families, but nearly two centuries ago it passed into the hands of a Charles Sergeson, and in this family's hands it now remains.

A peculiar interest centres in Cuckfield Place, it being the Rookwood Hall of Mr. Harrison Ainsworth's exciting romance called "Rookwood." In the preface he says:—

Cuckfield Place, I may state for the benefit of the curious, is the real Rookwood Hall; for I have not drawn upon imagination, but upon memory in

An air of romance and superstition seems to pervade the whole place. At the end of the avenue the last tree on the left is the "Doom Tree," to which superstition attributes that at times this tree would shed a large branch, which was a presaging sign of death to the head of the family. Old inhabitants of Cuckfield still assert the truth of the legend, and say the tree was an "harbinger of doom." At any rate, Ainsworth adopts the occurrence as the groundwork of a ballad, "The Legend of the Lime Tree," which appears in the first chapter of "Rookwood." Legendary tales, however, do not come within the scope of the present article, but as Ainsworth so lucidly describes the whole place, some comparisons may be drawn between the Cuckfield of 1833 and 1888. The avenue is the same, and doubtless the house, for, except where Ivy or other creepers cling against the walls, the stone's surface

ing all the triumphs of Topiarian art, the gayest of parterres and greenest of lawns, with its admonitory sundial, its marble basin in the centre, its fountain and couched water-god, the quaint summer-house surmounted with its gilt vane, the statue glimmering from out its covert of leaves, the cool cascade, the urns, the bowers, and a hundred luxuries besides, suggested and contrived by Art to render Nature most enjoyable, and to enhance the recreative delights of home out of doors (for such a garden should be) with least sacrifice of indoor comfort and convenience. All these delights might once have been enjoyed. But at the time of which we write this fair garden was for the most part a waste.

There is great inconsistency in Ainsworth's love of the formal in the garden when contrasted with all that he says of house and park. There are nicely kept Grass lawns, which spread out on two sides of the house, terminating at a sunk wall, no line of demar-



Cuckfield Place, Sussex. Engraved for THE GARDEN.

describing the seat and domains of that fated family. The general features of the venerable structure, several of its chambers, the old garden, and in particular the noble park, with its spreading prospects, its picturesque views of the hall, its deep glades, through which the deer come lightly tripping down, its uplands, slopes, brooks, brakes, coverts, and groves are carefully delineated.

Anyone who has read "Rookwood" and visited Cuckfield Park cannot but testify to the careful delineation of the whole place in the course of the romance. Avenue, house, garden, park, stream, and lake are vividly painted in word-pictures, each enchanting scene being faithfully portrayed with commendable exactness. A splendid avenue of Limes leads up to the house. In their leafy summits a colony of rooks have long taken up their abode, and doubtless they suggested to Ainsworth the title "Rookwood."

has long since been "wrapped over with Lichens."

It is, in short, one of those manorial houses that sometimes unexpectedly greet us in our wanderings, and gladden us like the discovery of some hidden treasure.

To pass from house to garden is an easy transition, for all around is lawn. The house terminates the avenue, and immediately the ground begins to slope, forming a gentle declivity upon which the house stands, and which, forming a part of the lawn, passes into park and then declines more rapidly till the lake is reached. Speaking of the garden as he knew it in its early days, Ainsworth says:—

To the right was the garden—the pleasure of the place—formal, precise, old-fashioned, artificial, yet exquisite. This *was* a garden! There might be seen the stately terraces, the trim alleys exhibit-

cation being visible more than that shown by the greater length of the park Grass. These lawns neither savour of "meadow nor wilderness." They are what they are intended to be, and as foregrounds to a grand old house are beautiful in their simplicity. The park may be described as the crests and sides of two hills. The farther one is a little the higher. Dark, rich masses of wood fringe the park's outer margin and conceal its exact extent. The upland slopes of the farther portions are broken into numerous Fern dells, or spread out into flat tree-adorned glades. Suddenly the uplands begin to slope down in a diversified gradation, sometimes easy, sometimes steep. A quiet stream, which emerges from a distant wood on the right, gradually widens its course, and spreads out into a smooth expanse of water, down to which the grassy banks dip on either

side. Whilst gazing upon this sheet of water it is seen that away to the left the ground is much lower, and thither the water ought to pass. A natural embankment restrains it, but the lake is full and the surplus water wends its way as a little stream, and again it finds a deep vale with a restraining embankment at its end. Here it spreads out into a still larger sheet, while its banks on both sides are fringed with a long line of Alders, each about 30 feet high with branches to the ground. Both ends being open and free, all this expanse of water is seen from the lawn. The restraining bank here also forms a natural bridge, the only means of communication with the home park and the park across the water. Through this embankment the water is conducted, and there being still lower ground beyond, it rushes down a long cascade and winds away with a tortuous course between cliffs of clay till it passes under the London and Brighton Road which skirts the park, and finally joins the river Adur.

Of all the parks in Sussex, and there are many, not one of them exhibits before the mansion's front such a combination of hill and dell, lake and stream. To stroll in the further reaches of the park and look back upon the house and lawn and avenue in the rear is not the least interesting. The spreading prospects and picturesque views of the hall are quite unique, and though immortalised in "Rookwood," not a word too much has been said in their praise. A. H.

KITCHEN GARDEN.

SAVOY CABBAGE.

Not nearly enough of these are grown by the majority of holders of medium-sized and comparatively small gardens, those who arrange their own crops not being the only gardeners who err greatly in this respect. In reality, "Savoys," as they are generally termed, are of almost inestimable value, being nearly as serviceable as, and by some preferred to, the more popular Brussels Sprouts. Nothing but an exceptionally severe frost will destroy them, as they often survive the more delicate Broccoli, and ought therefore to be much more extensively grown, at the expense, if need be, of the latter. Not only are Savoys very hardy, but with very little judgment a good succession of tender, delicately-flavoured heads can usually be had from November to April. An even longer season could be ensured if required, but this would have to be lengthened at the wrong end, that is to say, by cutting from September, or when they are less needed and not so good in quality.

The list of varieties is not extensive, but it comprises several that are of the best quality or are otherwise serviceable. For an early supply, Tom Thumb, King Coffee, Little Pixie, and Earliest Dwarf Vienna are suitable, one of these miniature varieties being sufficient to carry on the supply till the Early Dwarf Ulm is available. The last-named is quite a model Savoy, being of compact, quick growth and excellent quality. Gilbert's Universal, if grown in quantity, will give quite a long succession of tender, very delicately-flavoured hearts, this with us turning in both early and somewhat late. Dwarf Green Curled, though not nearly so dwarf in habit as its name would lead us to believe, is yet well worthy of culture, this being a mid-season and good-keeping variety. What is most needed is a really good late Savoy, or a variety say as late and hardy as the Drumhead, but superior to that at present indispensable sort.

Not a few err in raising their stock of plants too early, these, even if put out before they spoil in the seed bed, not proving nearly so serviceable as those raised later, and which do not heart in long before they are wanted. In very cold northern districts it may be advisable or necessary to raise the plants in March, either under glass or on a warm border, but in the midlands and more southern districts such practices are quite uncalled for. We rarely make more than one sowing, and that is on a rather cool and open border, either late in April or the first week in May. The early, mid season, and late varieties are all sown at the same time, thinly in shallow drills drawn about 5 inches apart. Should the soil be dry the drills are moistened prior to the seed being sown, and in the event of its being lumpy, the seed is covered with finely sifted soil from the rubbish heap. In our case small birds, notably chaffinches, are very troublesome, but if the seed is damped and rolled in powdered red lead it is rarely interfered with. During showery weather the seedlings require to be frequently dusted over with a mixture of soot and slaked lime, or otherwise slugs are liable to destroy the whole of them. Another advantage attending the practice of sowing seeds so late as I have just advised is, that as the greater portion of them come up quickly and grow rapidly, they are soon out of danger and ready for their final quarters. No pricking out is necessary.

Where they shall be grown must depend very much upon circumstances. Very few can adopt the plan of growing them on heavily manured, newly trenched ground, nor do I advise that such sites should be given them. Strong, rank growth is not sufficiently hardy to withstand a severe frost, and even if overgrown plants do escape destruction, the heads they produce are usually much too coarse to be good in quality. It is the neat, fairly close, but not hard Savoys that a good cook most appreciates, and these can best be grown on firm and only moderately rich ground. We annually plant several hundred Leeks on one half of a rather wide north-east border. This, being well manured, is quite rich enough for a successional crop of Savoys, and is merely hoed over prior to these being planted. Newly cleared Strawberry ground, but not dug, is also suitable for a successional crop of Savoys, and I have had exceptionally good breadths of them which had to be planted with the aid of a crowbar. Such sites, however, ought to be given up to Broccoli, and I should advise others to follow a breadth of early Potatoes with Savoys. The ground having been manured for the Potatoes will only need levelling and, it may be, trampling prior to the Savoys being planted. In any case the majority of the Savoys will be cut early and the ground prepared for any successional crop. I ought perhaps to add that it is not advisable to plant Savoys between rows of Potatoes, as they are naturally of a rather dwarf habit and easily smothered by haulm.

It is not always wise to wait for showery weather before transplanting from the seed beds, a few days' delay spoiling the plants. If the seed bed is well watered over-night, the plants may be drawn with a sufficiency of roots and soil attached, and quickly take to their fresh quarters if these are properly prepared for their reception. We draw drills with a heavy hoe, fill these with water, if need be, in order to moisten them, and render planting with a dibber a comparatively easy matter. The Drumhead being of strong growth, may well be planted 2 feet apart each way, but 18 inches is ample for Dwarf Ulm, Universal, and Dwarf Curled; while if the small early varieties are put out 15 inches

apart each way and 3 inches less on poor soil they will just cover the ground. The last-named should always be nearest the pathway, and they succeed admirably on small fruit borders. All should have the soil firmly pressed about the roots, be watered in, and during dry weather given water occasionally until they are well established, after which little further trouble, beyond keeping the ground clean, need be taken. W. IGGULDEN.

Hardy Broccoli.—"C. C." and "A. D." have done well in calling attention to the extra hardiness of field-grown Broccoli over such as are cultivated in gardens, where, in the majority of cases, not only is the soil much too rich, loose, and open, but they are too much shut in by high walls and not sufficiently exposed to the influence of air, the joint effects on the plants being that they grow up tall with soft stems and leaves, and on these the frost acts and destroys the Broccoli wholesale when we get a sharp winter. In fields, the exposure, with the poorer and firmer soil, steadies growth and the stems and tissues become much harder, the result being that the plants live when others that are soft get killed. We, fortunately, have all our late Broccoli in a field this season, and I do not think there is a single gap in the rows, and though the heads will be small, they will be valuable, as there will be a dearth of vegetables this spring, the winter having played havoc in gardens. My favourite Broccoli for eating is the Purple Sprouting, which for delicacy of flavour surpasses the white, and it is a most profitable kind to grow. Among the white varieties I would recommend Model, which has a handsome head, and grows with very short, sturdy stems that are proof against severe weather.—J. SHEPPARD.

—I quite agree with "C. C.," who in THE GARDEN, April 6 (p. 296), speaks strongly against the practice of protecting Broccoli during the winter. Three years since I covered the ground among the Broccoli stems with strawy manure, but I found the plants suffered more than when not protected in any way. A great point is not to make the ground too rich, and also to plant early before the plants get drawn up weakly in the seed-beds, so that an early start into good clean growth is the result. This is the plan I have adopted lately and with beneficial results, so much so that I consider any form of protection a waste of labour. The soil being of a heavy nature, I cannot plant with the crowbar without first digging the land; therefore I dig the land about a month before, if possible, as I consider the surplus water has a better chance of percolating through our soil than if the surface were left hard and smooth. Local circumstances have, therefore, to be considered in all cases where success is aimed at. This is the first season I have been able to cut Snow's Broccoli freely; in fact, I have not been without some from the end of December to the end of March. Thus for once this variety has behaved well.—M.

SHORT NOTES.—KITCHEN.

Soot for Onions.—There is no better dressing for young Onion plants than soot. If scattered freely between the rows and over the plants in wet weather it will obviate all danger of subsequent failure from grub, and it acts as a very powerful stimulant.—J. MUIR.

Pricking out seedling vegetables.—I have, always considered the practice of pricking out such subjects as Cautillowers, Kale, Broccoli, &c., unnecessary, except in a very few instances where the permanent space is not ready for their occupation. A much better plan is to defer the sowing of the seed until only sufficient time is allowed for the seedlings to grow large enough, then to plant them into their final position, gently drawing the plants out of the seed bed in showery weather and planting them carefully.—E. M.

Negro Longpod French Bean.—This is one of the best Beans for forcing I am acquainted with. It is very prolific and free setting, of good flavour, and forms a capital succession to Fulmer, which is the best

for very early work. To grow Beans successfully in pots, plenty of light, heat, and moisture, with careful watering and copious syringing on all favourable occasions, are indispensable. Two dozen 8½-inch pots put in every fortnight will keep up a very good supply. I believe the best way to grow the Beans is to put them into the fruiting pots at once, filling the pots about three parts full with soil, and as soon as the Beans are up and rooting on the surface, top-dress and stake them. —W. A. COOK.

THE VEGETABLE CONFERENCE AT CHISWICK.

OF the various conferences which during the present year will attract gardeners to Chiswick, none probably will have wider interest than the one devoted to vegetables on the 23rd of September. It is to be regretted, perhaps, that in fixing the late date of the end of September for the purpose, we miss so many of those excellent vegetables which serve to furnish us with an abundant supply during the summer months. Peas, for example, will be but poorly represented, although these are of all green garden vegetables without doubt the principal, and beyond that are the most popular universally. Asparagus and Seakale will be out of season also, and some other things which naturally occur. On the other hand, we find the autumn to be the best general representative vegetable season, and the list of kinds given in the schedule published shows that without summer products our garden varieties cover a wide field, and should there be that response made which is anticipated, we may hope to see a remarkable exhibition of garden varieties of vegetables. Being, with some others, a member of the executive committee, I would say that this body has no responsibility with regard to the schedule of classes for vegetables to be staged at the conference which has been issued. I am not yet certain as to what the duties of the executive committee may eventually be, but so far that body has not been called together. Had it been, I should have taken exception to some of the arrangements of the schedule, which seem to follow too closely upon the old exhibition lines, without having as stimulus for exhibiting those liberal prizes which tempt gardeners so freely elsewhere. Perhaps it will be said that in relation to vegetable exhibiting, growers have been seriously demoralised with regard to the pecuniary inducements held out to them to exhibit at shows. It may be urged that in any case our methods of vegetable culture have been largely improved; certainly many of our varieties have materially; but it is not so certain that after all such improvements are due more to the practice of exhibiting vegetables in competition than to the energy and enterprise of our seedsmen, who seem to be ever striving after perfection, although that may not be reached. The schedule prepared and published in connection with the conference invites collections of every kind of vegetable named. It would be unfortunate if it be assumed that such collections are in any way to be placed in competition with each other, whilst there is, on the other hand, just a fear that some growers may be more anxious to put up numbers of varieties rather than a selection of the very best.

Take Brussels Sprouts, for instance. Here we have a vegetable which shows a catalogue list of some eight or nine so-called varieties, perhaps even more. Really there are about two, viz., the old Imported, which, if of a good strain, will give excellent representatives of all the small sprouted forms, and the Giant or exhibition variety, which produces large sprouts. From these two anyone may manufacture, if so disposed, all the others in commerce. Now no one can wish to see such a consummation growing out of the schedule, and yet such a result may happen. What I would have preferred would have been to invite all persons to send not more than two varieties, if they have so many, and of these three stems each of the best sample, and with whatever name they have been purchased or are sent out under. Then the committee of experts should have the fullest power to classify these varieties, putting them into their proper places, and under one particular and recognised appellation. Some course should also be taken so far as practicable

with all other kinds, Carrots, Onions, Celery, Beet, Cabbages, Turnips, Cauliflowers, &c., and thus get rid of all superfluous nomenclature. Anything short of that will be to leave the work of the committee very incomplete. If each dish, bunch, or sample of any kind of vegetables were named as known generally, also had name and address of grower legibly written on a card attached, admirable opportunity would then be offered for both the committee and the public to compare the products of diverse soils and positions. In all cases in which exceptionally fine growth is shown some few words should be added to show how obtained. In the case of Onions, we see now such wonderful bulbs staged in the autumn, that the public should have information afforded as to the kind of culture under which those samples were produced. It would also be interesting to learn how far a sample of 18 oz. to 20 oz. bulbs gave bulk of crop per rod over that yielded by a sample of firm bulbs but one-third the size. Which sample will keep longest, give least waste and prove the most serviceable to the grower, we know already. Whatever may be the extent of the collections or single dishes shown, exhibitors should, to enable the committee to deal with them thoroughly and impartially, place their samples entirely at the disposal of the experts. If the conference does not prove educational, it will have largely failed of its proper uses. A. D.

KITCHEN GARDEN NOTES.

KIDNEY BEANS.

DULL weather would appear to suit forced Beans; at any rate, they were never more productive than they have been this season, and, judging from the prices quoted in the markets, they have been very plentiful elsewhere. Large quantities are annually sent from the Channel Islands, early crops being grown in the heated houses prior to these being planted with Tomatoes. At 2s. per lb. in March, however, Beans cannot prove very remunerative. They require plenty of heat and light, but bright sunshine and a dry position combined are the most frequent causes of partial failure, the plants being starved and overrun by red spider. Shelves and stages over hot-water pipes are about the worst positions that can be selected for them, but if there is no avoiding these, the difficulty may be obviated somewhat by standing the pots on a good bed of fresh Moss. This being frequently damped checks the rapid evaporation of moisture from the plants and pots, and as the roots also find their way into it a further benefit is derived, the Moss having been fertilised by the liquid manure given to the Beans. For hot positions, narrow, deep boxes are more suitable than pots, these not so readily becoming dry. Beans in pots do well if stood on the front walls of forcing pits, and we find it pays well to give a hotbed wholly up to them, the roots being allowed to ramble out into the rich bed of heating material. In this manner a limited number of plants will yield profusely and more continuously than under ordinary culture. Pits and frames now cropped with early Potatoes will soon be at liberty for Beans, and much time will be gained by raising the plants in small pots placed in heat a fortnight in advance of a light or lights being cleared. Ne Plus Ultra is the best for either house or pit culture, the longer-podded varieties being almost certain to grow too strongly and smother each other. All the preparation needed is to clear off all rubbish and level over the surface, the Beans being then put out 6 inches apart in rows not less than 15 inches apart, and running from the back to the front of the pits or frames, as the case may be. By planting first the heated pit and then the frames over slight or nearly exhausted hotbeds, a capital succession will be maintained, and the houses cleared early of what is voted a nuisance by most gardeners. In hot weather the plants ought to be freely syringed in the morning, and again when the pits or frames are closed in the afternoon, and they must never be allowed to become dry at the roots. All should be lightly staked when planted, and a slight mulching of short manure acts beneficially. If pits and frames cannot be spared for Beans, the least that

can be done is to forward some in handlights set on a warm border. As ours are taken off the Cauliflowers they are removed to a sunny sheltered border and thinly filled with Beans, previously raised in small pots, and the crops thus obtained without much further trouble are at least a fortnight in advance of those planted or sown near them, but not similarly protected. If Beans are sown in the open ground very early this season, the greater portion of them will fail to germinate, but in southern districts a breadth of Ne Plus Ultra or some other quick-growing variety may now be got in on a warm border; the drills to be not less than 15 inches apart, 18 inches being more suitable for all but the first crop, and the seedlings may eventually be thinned to a distance of 6 inches apart. A fortnight later successional sowings of Ne Plus Ultra and Canadian Wonder may be made, the drills for the latter being drawn 2 feet apart.

CARROTS.

A heavy downfall of rain and much dull weather have greatly delayed garden operations, seed-sowing being out of the question on heavy land. In our case, if the Carrot seed is not sown before the end of April, a gain rather than a loss will most probably be the result, medium-sized and small roots being preferred to those much coarser, and which frequently result from early sowing. I have often advised the owners of small gardens to be content with one variety only, viz., the Nantes Horn, and I fail to see the necessity of those in charge of larger gardens growing several sorts. Either Early Gem, Model, Nantes Horn, or Improved Early Horn, if sown during April and again in June and July, will maintain a long succession of most serviceable, well-coloured roots till young Carrots are again available. Those from the earliest sowing may be duly lifted and stored, and with us keep as well as the presumably longer-keeping Intermediate and Altringham types. The later sowings are left in the ground and drawn from as required, these being very sweet and tender. These stump-rooted varieties require much less space, as they can be left rather thickly in rows 10 inches apart. Among the large-rooted varieties, the best are the New Intermediate and Scarlet Perfection, the latter being quite distinct from the former. Altringham is usually much too coarse, and we would prefer the Long Red Surrey for keeping. The drills for the four last named ought to be drawn from 12 inches to 15 inches apart, the greater distance being required on rather strong land. Little or no solid manure should be dug in for this crop, forked ugly roots being the result of contact with manure, coarseness also being engendered. What Carrots need is a well-pulverised, free-working soil, and if sowing is delayed until the weather permits this being done properly, the seed will germinate quickly, subsequent growth being equally as satisfactory. If the maggot is liable to destroy the seedlings, soot ought to be freely stirred into the surface prior to the seed being sown, while wood-ashes sown in the drills will have a deterrent effect. The stump-rooted varieties can be evenly sown from the bags or packets containing them, but the rest should be well mixed with sand, and the seed can then be evenly and thinly sown. All ought to be lightly covered with fine soil.

PEAS.

Already several complaints have been heard of faulty germination, and uneven rows will be the result, unless the precaution is taken of sowing seed in heat directly it is discovered that surplus plants will be needed. Peas transplant readily from boxes or small pots, and seeing that the seed germinates very quickly in heat, there is no excuse for allowing uneven rows to remain. In some instances two poor rows might with advantage be converted into one good one. Patches of plants may be moved with the aid of a spade without experiencing any perceptible check, and if no soil can be preserved about the roots, the plants will, if carefully replanted, quickly take to their fresh quarters. Those we raise in boxes necessarily have the roots shaken nearly clear of the soil, and are dropped into rather deep holes and surrounded by good fine soil. The plants do not flag even in bright sunshine. Those raised in small pots or turves may be planted

intact, or they may be divided, but in any case they should be in a moist state at the roots. Where the rows are thin or marred by either slugs or birds, they ought to be hoed up and resown or planted, as they are only an eyesore, and do not pay for the room taken up. In showery weather slugs can only be kept at bay by frequent dustings of soot and slaked lime, and a boy set to work early might collect and destroy great quantities in a short time. In the vicinity of towns, birds, notably sparrows, are very bold and troublesome, nothing but wire Pea guards preserving the young plants. These must be taken off before the Peas grow through them, and if spray is employed prior to the insertion of the tall stakes, the birds are less likely to interfere with the tops. Where the birds are less bold a few lines of cheap black thread strung to short stakes on each side and over the rows has a good effect, the birds' movements being impeded by it. Only the more robust or mildew-resisting main crop Peas should be sown now, among these being included Huntingdonian, a good form of the old Champion of England, Prodigy, Duchess of Albany, Autocrat, Ne Plus Ultra, Duchess of Edinburgh, Reading Giant, Royal Berkshire Marrow, and Emperor of the Marrows, all of which range from 5 feet to 7 feet in height, while those of medium height suitable for present sowing are G. F. Wilson, Veitch's Perfection, President Garfield, Royal Jubilee, Satisfaction, Anticipation, Fillbasket and Princess Royal. Any two in either section are usually sufficient, a second sowing being made as soon as those first sown are coming through the ground. It should be remembered that Peas sown at this date will most probably have to encounter a dry, hot time, and they ought therefore to be assigned a cooler quarter, and where they can be heavily watered as required. Peas should also have a fairly rich and deep root-run, or otherwise they will in all probability collapse suddenly, or else yield a quick, but not continuous crop. Plenty of room should also be given, the taller varieties being not less than 6 feet apart, and those of medium height from 3 feet to 4 feet apart. The quality of the seed being indifferent, thin sowing is not recommended, but if it all germinates, then the plants ought to be freely thinned out.

BROAD BEANS.

These also transplant readily, and uneven rows may therefore be made good, as advised in the case of Peas. With us the seed has germinated badly, or not nearly so evenly as Peas, and much filling up is necessary. Fortunately, any plants given good room will push up several growths from their base, and though the plants may appear thin in the row, they eventually become well filled and more productive than those grown thickly at the outset. There is seldom a great demand for Broad Beans, and it is therefore only a waste of ground to grow them extensively. The best varieties for present sowing are those of the Broad Windsor type, the green-seeded Windsor being the best in point of quality. Broad Beans succeed well in a rather cool position on firm, fairly rich ground. We usually sow the seed thinly in drills drawn 3 inches deep and 30 inches apart, while many angle the seeds in double drills 3 feet apart. In the former case the plants are thinned to about 6 inches apart, and in the latter to 9 inches apart. If there is any uncertainty about the seed germinating properly, sow a small portion in boxes of fine soil and set these in a warm spot in the open, and by this means obtain the requisite number of plants for filling up any gaps that may occur.

W. I.

Sowing Tomatoes early.—Like Mr. Gilbert, I believe in sowing and raising Tomatoes early and getting them large and strong before planting out, for if they are not in that condition it is impossible for them to ripen their fruit, unless they are specially favoured as to position and the season happens to turn out warm, with plenty of sun. Our plants are now in 7-inch pots and standing in a cool house where they get full light. By the middle of May or soon after they will have fruit set, and be turned out on south walls, where, to protect them, we stick a Laurel branch on each side to keep off the

wind, but leave them open and exposed in front. Plants so managed always seem to me hardier than younger ones, resembling in that respect Potatoes, which, as everyone knows, often get cut off when first through the ground, whilst those more forward are not injured. The check, too, in being a little pot-bound is beneficial to the plants, as it induces early flowering and a more fruitful habit.—D. S.

TOMATOES AT CHISWICK IN 1888.

THE following extract from a paper read by S. Summers at a meeting of the Chiswick Gardeners' Mutual Improvement Association, on the treatment of the plants last year in the large house in the Society's Gardens, Chiswick, will, we hope, prove interesting:—

"The seed was sown early in March, and the seedlings were potted three into a 5-inch pot, and kept growing in a warm frame until they were planted out about May 3. The beds were filled with garden soil brought from the kitchen garden. It was a light loam, a little stable manure being added. Without any other preparation the plants were put out, the house was kept closed for a few days, with the result that they soon started, and made rapid progress. Plenty of air was admitted on all favourable occasions, but no fire-heat was used from the time of planting until the cold nights in September, when a little was employed. The top ventilators were kept open every night and the house kept dry. In fact, after the plants were established no water was applied until the first bunch of fruit was of considerable size. Then a good soaking was given and this sufficed for quite a month or more. I found this the best plan, for the plants made very vigorous growth, and what is of more importance the fruit set freely. Fertilising was attended to every day, with the result that very few flowers failed to set. This will show how important artificial fertilisation is in the successful culture of the Tomato. There were 460 plants, and two men could fertilise the flowers expanded at any one time in an hour. They were all grown with single stems, and reached a height ranging from 12 feet to 14 feet, carrying fruit nearly the whole length. The first fruit was cut on August 1, and the last on December 28. Over two tons of fruit, which realised over £100, were gathered. The prices realised in the market were, during August and September 5d. per lb. for the smaller and 6d. for larger fruits, during October and November 8d. to 1s. per lb. was obtained, and in December the price advanced to 1s. 3d. per lb. No doubt the season helped the price to a considerable extent. No disease made its appearance excepting the black spot which appeared on a few fruits, but none at all on the plants; this I attribute to the atmosphere being kept dry, and a little air being always admitted to the house. The sorts planted were Perfection, which is one of the best, many single fruits of this variety weighing over 18 oz. each; Ham Green Favourite, Horsford's Prelude, and Laxton's Open Air, which was the first to ripen, with several others.

"Before speaking of the best varieties, I will briefly refer to the diseases, of which there are several. The worst is perhaps the one that resembles the Potato disease, and like that, it generally appears on the leaves first in the shape of small brown spots. The leaves soon die; the disease appears to run through the stem, and it soon destroys the plant. The only remedy is to burn the plants, for so far there does not appear to be any other means of destroying it. As already stated, a damp, close atmosphere is favourable to the spreading of the disease; therefore it will be found much the safest plan to maintain as dry an atmosphere as possible, consistently with the requirements of the plants. Another important point is not to save seed from plants that have been attacked with disease. Another disease is the black spot, which, unlike the former, does not attack the plant, but only the fruit. It first appears on the surface of the fruit, and causes it to ripen prematurely. The part affected rots, but the disease does not generally spread over the whole of the fruit. This, so far as

I have seen, is not so serious as the first-mentioned, and it is easily detected. The best thing to do is to take of all affected fruits and destroy them at once. Of insects which attack the Tomato, the most troublesome is the white fly, which appears to increase very rapidly, and to be most troublesome towards the end of the season. It can be destroyed by fumigation, but care must be taken not to overdo it. Green-fly also makes its appearance sometimes, and may easily be destroyed by the same means.

"In considering a few of the best varieties, I may say that a trial of about eighty-six reputed sorts was made in the gardens here during 1887. On comparison it was found that of that number only twenty-seven were considered really distinct, these including many of the small types, which are useless, except for ornamental purposes. In selecting varieties one has to be guided by circumstances, and more especially as to the purpose for which Tomatoes are required. For general purposes I consider Perfection stands at the head of the list. The fruits are large, round, smooth, of good colour and substance, and borne freely. Hackwood Park Prolific is another good variety which was largely grown, and deservedly so. It is of a somewhat different habit to Perfection, the bunches of fruit being more loose, and the fruits generally having a small hole in the centre. Hathaway's Excelsior has fruit of medium size, quite smooth, of good colour. Advancer is a better type of this; it sets more freely, and is not quite so vigorous in growth. We find Hathaway's rather too vigorous. Trophy is another very good variety, somewhat after the style of Hackwood Park. These are some of the best of the large, smooth kinds; there are many more, but these are sufficient, if we add Ham Green Favourite, which is one of the best of the new Tomatoes. The fruits are medium to large, smooth, and of good colour. The fruits are deeper than those of Perfection, pointed, and borne very freely. It is altogether a decided acquisition. It has been grown here three seasons, and has proved to be a really good Tomato. Another type of fruit is the Large Red, which is largely cultivated by the market growers. The fruits are flattened and somewhat corrugated, which is an objection. There is also the Early Red, which is a smaller, firmer kind of the large red class, though earlier. To this class Laxton's Open Air belongs. It is undoubtedly very early, but there is not substance enough in the fruit for it to become very popular. Acme or Dedham Favourite types produce very fine fruits of good quality, but the colour is against them for market purposes, though for private use, where colour is not an object, they are undoubtedly useful.

"Of smaller varieties the best is undoubtedly Horsford's Prelude, which is most prolific, and sets more freely than any I know; the fruits small to medium size, smooth, clear, and of fine flavour. Of Plum-shaped varieties, Chiswick Red is perhaps the freest, though the quality is quite second-rate. Nisbet's Victoria is one of the best of this class, and another is Tennis Ball. The fruits are of medium size, very solid, and of fairly good quality. Of yellow Tomatoes the best is Golden Queen, which has fruits of fair size, smooth, round, and of a deep yellow colour. Prince of Orange is another good sort, the fruits flattened and slightly corrugated, and the colour is very clear. Greengage, though small, is one of the best flavoured of this type. The yellow Tomatoes should be more extensively grown than they are, especially where they are required for salads or to be eaten uncooked, as they are sweeter and more delicately flavoured than the red kinds. They are largely used in America, and they also make an excellent jam. I find that anyone who has once tasted them generally asks for them again. I do not consider the very large varieties worth growing, as they are so coarse and ugly, but if very large fruits are wanted, irrespective of shape, President Garfield, Hepper's Goliath, and the Mikado may be mentioned."

— It will be remembered by those who saw the large Tomato house at Chiswick last year that all of the hundreds of plants fruited close to the ground, every raceme of early bloom being well set. That was regarded by many as remark-

able, especially in a large lofty house where the small young plants were so far from the glass. The grower attributed this good setting of the early bloom to artificial fertilisation, but it is doubtful whether some of the success was also not due to the ample atmospheric area in the house which kept the pollen fairly dry, and, of course, fertile. But it may be said that the plants were pushed on in heat and the blooms assisted to set in warmth before being planted out. That would, however, be an incorrect assumption. The plants were put out into the beds and borders when about 6 inches in height only, and the flowering took place after they had become well established in the soil. As such remarkable success attended the earlier fruiting of the plants, it is well that these facts should be clearly understood by any who may desire to imitate the Chiswick venture of last year. It seems to be the case that a hot, dry atmosphere is not very favourable to fertilisation; neither is a moist one. Naturally, ordinary summer heat, which is not exceptional, seems to be the best for bloom fertilisation, but in houses it is perhaps best where possible always to give artificial assistance. It may not be wise to grow more than one variety in a house when it is desired to maintain a good selected stock, for pollen grains sometimes fly about in great profusion, and an annoying mixture soon follows. —A. D.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS IN NORTH AMERICA.

SOME time since we received photographs showing good examples of Chrysanthemum culture in New Jersey. The accompanying engraving is reproduced from one of these, and we also give the following notes sent by the grower:—

By this mail I forward you a few photographs of my November garden (taken in the middle of November) which will serve to show what a wealth of flowers, by very simple and inexpensive appliances, may be had at this usually bare season. With the exception of a score or two in pots, my Chrysanthemums are bloomed where grown during the season. When the usual hard frosts of October threaten, those at the side of the house are protected by a light temporary frame. If plants in such a position are kept quite dry, they will usually finish blooming before severe frost comes. I have about 250 plants standing in a perfectly open position in double rows about 18 inches apart each way, and with 30-inch paths between. When sharp frosts threaten, a tent, which can be opened or closed as the weather requires, is readily pitched in a few minutes. My tent, 20 feet by 30 feet with 14-foot ridge and two masts, is made of light sail-duck, well corded, and with proper side poles and guys. The walls are detachable by snap-hooks from under the curtain which serves to cover the connection. Tent-pegs, of course, make the walls secure when lowered. To furnish heat I have a 2-inch flow and return pipe around three sides of the tent (it should encircle the square) attached to water heater in cellar. The pipes being provided with union joints, they are readily taken down and stored away. Our season has been exceptionally wet this year, and heat has been used mostly to keep moist air in circulation, but we have had two nights with a temperature of 20° Fahrenheit, and the plants are not injured in the least. Last season this tent was heated by oil stoves, which produce sufficient heat, but will smoke.

Of course, I raise no fancy trained specimens in such close quarters. As I grow for amusement and private use, my object is to secure as large a supply as possible of good characteristic flowers on long stems with little labour. My plants are set out early in May with a strong stake to each, and watered mostly overhead. When coming into bloom they are securely fastened to long strips of wood running from end to end of the rows. The plants usually average over 5 feet in height. It is not contended that this method of protection

is perfection, but it offers a very satisfactory one for the early and part of main crop at least, even when one has glass, which can perhaps be more profitably used. When blooming is over the tent occupies small storeroom, while extra glass cannot be condensed.

JNO. N. GERARD.

Elizabeth, New Jersey.

CULTURAL NOTES.

THIS is a busy season amongst growers of Chrysanthemums where large numbers of plants are cultivated both for exhibition and home use. I will take first into consideration the plants of all sections that are cultivated mainly for exhibition blooms, chiefly in a cut state. My notes are mainly intended for those who previous to this year have not hitherto grown a number of plants either for the purpose named or for home decoration and for those who have tried and not

February or early in March, as I have heard some people affirm is early enough, then the first natural break cannot be expected at the time named. It has been proved that cuttings which are struck at the date last named never produce blooms of the same or of nearly such good quality as those which are struck in December. The reason of this is not far to seek. There are certain natural laws, so to speak, in Chrysanthemum culture which must be obeyed before success can be assured, and it is idle to suppose that the plants can be forced into growth by any means to make up for the time lost at the start. It is the same with those plants which have the point taken out of the leading stem at 4 inches, 6 inches, or 8 inches high, as some growers practise. The varieties *Avalanche*, *Val d'Andorre*, and *l'Adorable* will form their first break at from 1 foot to 2 feet



Chrysanthemum growing in America; showing method of protecting the plants.

been so successful as they could have wished. Many collections of plants have been ruined through a want of knowledge as to the best mode of training the growths. I have before advised that the plants be allowed to grow with a single stem, and not be stopped or in any way interfered with until they break naturally into additional growth, which takes place at various times, some even towards the end of April, while some will not form their first break until June. As a general rule, the middle of May is the time when the bulk of the varieties form their first or natural break. This detail in the growth of the plants is guided by circumstances—such as the variety—as nearly all the various types differ somewhat in their time of the first break, or by the season at which the cuttings were struck. I am supposing that the cuttings were inserted from the early part of December to the same time in January. But if the cuttings were not put in until the end of

high, while some other varieties, such as *Mme. C. Audiguier*, *Belle Paule*, *Fair Maid of Guernsey* among the Japanese; *Prince Alfred* and its sport *Lord Wolseley*, *Sir Stafford Carey*, and even *Princess of Wales*, in some instances, among the incurved sorts, will not show their first break until the plants have attained a height of from 3 feet to 4 feet. So unlike are the varieties in mode of growth, that a knowledge of the sorts is of great assistance to the beginner in their culture. Yet with all this variation in growth the blooms develop about the same time, showing clearly that the Chrysanthemum requires treating somewhat in a natural manner. The "break," as it is termed, is caused by the formation of a flower-bud in the point of the stem of the plant. While this is taking place a temporary check to the growth of the leading stem occurs, the nodes or joints below then forming additional shoots, which vary in number according to the variety. Some sorts will

throw out as many as six, while others will only produce three or four. Now comes the critical time for the learner to know how to manipulate these additional shoots. Many plants are spoiled through a lack of knowledge in this respect. If all were allowed to grow, the consequence would be weakly crowded growths and by far too many blooms for the plants to properly develop, because additional shoots would be added later on by the formation of a second break. As soon as the flower-bud can be seen rub it out, select three of the strongest shoots, which are generally those nearest to the point of the plant, remove all other growths below this point and all subsequent growths as fast as they appear. At this juncture support of some sort must be allowed the plant. This is best done by placing to each a single stake to loosely secure the selected growths. If tied too tightly, the growth being rapid at this stage, the succulent shoots will buckle and snap off, a circumstance to be avoided. These three shoots are to ultimately produce the same number of blooms, which are sufficient for each plant if the finest quality is desired; if not, and quantity is more of an object, four shoots may be allowed to grow at this time. These can be multiplied later on when the cultivator determines how many flowers each plant shall be allowed to develop. He should bear in mind that the fewer in number, down to three to each plant, the higher the quality of those retained. The word "quality" does not merely mean size in diameter, but is consistent with the depth, form, breadth, and colouring of the florets, as well as solidity of the flower as a whole. This latter is of importance, as anyone can readily tell by seeing a bloom large in diameter, but thin in build—that is, in the number of petals produced—and one which is not nearly so broad, but which is much higher in its building-up properties.

It is the incurved section which suffers the most by topping of the single main stem in its young state; the depth of the blooms is more affected than in the case of Japanese varieties, but these also are not nearly of such good quality as when a free uninterrupted growth is encouraged. All subsequent side growths must be removed as fast as they appear, so as to concentrate the whole energy of the plant into the selected growths. Again, in July some varieties will form another flower-bud, but as this will not happen generally with the plants, such premature breaks must be attributed to a freak, owing possibly to the early maturation of the first break. In all cases buds formed at this date must be considered as useless, and must be promptly removed. At the point of each branch flower-buds will form later on, commencing early in August and continuing through September. From these buds the blooms will be produced. This method is the one adopted by most of the leading growers for exhibition, and one which produces the best results. Much easier for the beginner is this system than that advised by some, such as cutting down the plants to within a few inches of the pots at a given date, or merely pinching out the points of the shoots at stated times. These two latter methods do not allow of the growths becoming properly solidified or matured, because the wants of the plants are not met at the right time. It is on the thorough and proper maturation of the growth that success mainly depends, and by no method can this be gained so well as by following the advice I have here given. E. M.

Chrysanthemum Mrs. Alpheus Hardy.—In reference to F. W. Burbidge's article on this

new *Chrysanthemum* (April 6, p. 307) I would like to draw his attention to the fact that we already possess several varieties of *Chrysanthemums* with the same spiny or hair-like outgrowths on the backs of the petals, exactly in the same way as shown on your engraving of this variety. I might mention *Chang*, *Mons. John Laing*, and others as sorts having the same peculiar formation on the back and edges of their petals. I do not quite see why the term hair-like should be given to the serrated edges and spiny covering on the backs of the petals. They are more like spines on a *Rose* shoot than anything else I could describe, being tapered to a point, and usually harder than the rest of the petals. In this American variety we certainly have a new *Chrysanthemum*, but not possessing any new characteristics different from those of some varieties we already possess.—CORONA.

TREES AND SHRUBS.

THE CHINESE JUNIPER.

JUST now the male variety of this charming columnar tree is one mass of rich golden inflorescence, a feature which entitles it to a prominent place in the most *recherche* collection of Conifers. This, however, is not its only good quality, for it is perfectly hardy. We have some scores of trees of it which have never been touched by the sharpest frost or the keenest wind experienced in the west midlands. It is a moderate grower, the leader giving it a pyramidal form for the first twenty years, during which period the tree will attain probably as many feet in height, but as it grows older the ascent is slower, the side shoots ramify, and the top fills out, when, unaided by knife or shears, a perfect column, soft, easy, and graceful, 20 feet to 30 feet in height and 3 feet to 5 feet through, stands unrivalled in the pinetum. All the Junipers—a large family—are good, and most of them are hardy, but this, the male form, is one of the gems which cannot be too freely planted. Some of them, notably *J. recurva* *femina*, get injured in hot seasons, especially on dry poor soils, by red spider, but *J. sinensis*, to the best of my belief, is never touched by this troublesome insect. It is not fastidious as to soil provided it is free from stagnant water, moderately deep, and capable of holding moisture throughout the summer. A sound sustaining loam, however, suits it best, and annual top-dressing, too much neglected in the pinetum, is a great help when the trees attain age and have exhausted the modicum of soil originally given to them. All the Junipers can be increased by cuttings or layers, but the kinds in the section to which *J. sinensis* belongs are now grafted on the Red Cedar (*J. virginiana*). Our oldest trees are on their own roots, whilst others not half their age, grafted on the pencil Cedar, are growing equally well, and being worked close to the root, the union is buried beneath the surface of the soil. Planters who cannot find room for more than one dozen Conifers should certainly have the male form of *J. chinensis*.

J. chinensis *femina* has a looser habit of growth, and does not form such a dense compact column. It is, nevertheless, very handsome, and invaluable for forming screens, for mixing with choice shrubs, and being so thoroughly hardy, for planting on the north side of buildings where the sun cannot reach it.

J. chinensis *aurea*, a sport from the male plant which originated in the nurseries of Mr. Maurice Young, Milford, near Godalming, is a very beautiful and distinct variety. Like the parent, it enjoys a deep, holding, but well-drained soil, and the young growth, richly suffused with gold,

puts on its best garb when fully exposed to the sun. *J. chinensis* *albo-variegata*, *J. japonica*, *J. japonica* *aurea*, and *J. j. aurea* *variegata* are very nice for grouping, for facing groups, or for shrubbery planting, but the male variety of *J. sinensis* and its golden sport form the best lawn specimens. W. C.

The large-fruited Almond.—This is a very showy variety, and one of the earliest of all the Almonds to flower. The individual blooms are about 3 inches in diameter and of a pleasing shade of very pale pink, the colour being deepest towards the base of the petals. The Almonds and Peaches being the earliest of all our trees to unfold their blossoms, they certainly deserve more than a passing notice, for they are not particular in their requirements and can be depended upon to flower well, added to which a tree when old presents a very picturesque appearance.—T.

The Leather Wood (*Dircapalustris*).—This little N. American shrub is now in full flower, and though not showy, yet it forms a very interesting miniature bush. The plant is seldom seen more than a yard high; indeed, its usual stature is from 1 foot to 2 feet, but it forms a compact many-branched specimen. The flowers are produced before the expansion of the foliage, and are borne in clusters of three or four together, their most prominent feature being the yellow pendulous stamens, while the bark is also of a yellowish hue. It was introduced into this country more than a century ago, but is quite a rare plant, no doubt owing to the fact that it will not hold its own in the shrubbery border, but needs a cool moist spot, preferring a soil with at least a certain proportion of peat. The Leather Wood is a near ally of the *Daphnes*; indeed, when out of bloom and clothed with foliage, it might easily be taken for one.—T.

The golden-leaved Currant.—This is a form of the dwarf alpine Currant, known as *Ribes alpinum* *pumilum* *aureum*, of which the foliage is, when first expanded, beautifully golden, but as the summer advances it becomes green. Just now, in a spot fully exposed to the sun, the partially opened buds clothe the branches as with little golden rosettes, their colour appearing all the brighter by contrast with the dark-toned bark of the plant. During the first half of the summer it is very effective as a golden-leaved shrub, but it must not be planted where at all shaded, otherwise the foliage will never acquire its characteristic tint. This *Ribes* is perhaps most at home when treated as a rock-work shrub, as an exposed ledge on the rockery is just the place for it, and no fear need be entertained of its encroaching on weaker neighbours. If desired to increase it, a few of the branches that are most conveniently situated for the purpose may be layered, when they quickly strike; indeed, roots are often produced when a branch happens to touch the ground.—T.

Dimorphanthus mandschuricus.—The distinctive features of this singular-looking tree are so well set forth on page 308 that on this point nothing remains to be said. One thing, however, I have noticed which was not mentioned in the article in question, and that is the readiness with which the *Dimorphanthus* can be increased by root cuttings; indeed, very few of our hardy trees and shrubs can be so readily propagated in this way. All that is necessary is to take some of the fairly stout roots and cut them up into lengths of 3 inches or 4 inches. Then, if they are dibbled into sandy soil, so that the top is just below the surface, they quickly form fibres and push up leaves, the whole plant then making rapid progress. In the case of a specimen that had been transplanted, several roots were broken and allowed to remain in the soil, the result being a crop of young plants. The appearance of a number of the hardy *Clerodendron trichotomum* in a spot from whence a plant of it had been removed first called my attention to the fact that it is nearly as readily propagated in this way as the *Dimorphanthus*.—T.

Bossia linophylla.—The *Bossias* are a genus of Australian leguminous shrubs, most of

which have been introduced into this country many years ago, but owing to the way in which the beauty of these plants is now so generally ignored, the majority of them would be sought for in vain in the catalogues of our nurserymen. The species under notice is especially remarkable for its elegant habit, and if the leading shoot is tied to an upright stake the side branches depend therefrom most gracefully. These branches are very slender and clothed with narrow, bright green leaves, while at this season of the year the small Pea-shaped flowers are borne in great profusion. The major portion of the flower is orange colour, while the keel is brownish purple. These *Bosseras* succeed under much the same conditions as their allies, the *Chorozemas* and other Australian shrubs.—T.

SPRUCES, FIRS, AND PINES HARDY IN THE WEST OF ENGLAND.

WE have so often protested against the result of the prevailing fashion of dotting Conifers about country seats and gardens, that we perhaps owe the race an apology. It is not their fault that people use them so ill. A collection sent us from Eastnor Castle, in beautiful health and full of mature fruit, proves how favourable some parts of our country are for Conifers, the bad use that has been made of them notwithstanding. Their good qualities indeed were so apparent, that people were led to make mistakes with them, and neglected the European and American hardy trees, which are more fitted for our lowlands. No doubt a great many kinds are grown in England which are not fit for its general climate; but others are admirably suited for certain districts and for the hills. Having selected a thoroughly hardy kind, of the value of which in this country we have some proof, the best way would be to plant it in masses, or large groups or colonies, so that one might feel its full effect in the landscape, and judge of it fairly as a tree, not merely a dot in the pleasure ground. The common pinetum, and method of dotting Pines, is most unworthy of the subject. Mr. Coleman kindly sends us these notes of the kinds that do best with him at Eastnor Castle gardens:—

I send you a list of Conifers which I consider thoroughly hardy. Having a rich choice of soil, from heavy calcareous marl to igneous rock, rough, uneven ground, and shelter from the Malvern Hills, a great number of Conifers which fail in other places east of Devonshire do well here, but these I will exclude, or, at any rate, confine to a separate list, which may be of use to those who are as well off in point of soil, situation, and climate as we are, if not better. Had I thought of it earlier, I could have sent you scores of splendid pieces laden with cones; but nearly all of them have fallen, or gone too far, so this matter must stand over for the present. The grass-green *Pinus insignis* and the Monterey Cypress are weeds here. Above a certain level *Pinus Montezumæ* and *P. leiophylla* grow well, and Japanese Conifers are a host in themselves.

CONIFERS CONSIDERED QUITE HARDY IN HEREFORDSHIRE.

- Abies alba* (the White Spruce).—Slow grower, handsome, suitable for facing plantations in exposed situations; wood of little value; North America.
- A. Engelmanni*.—Very handsome, and no doubt perfectly hardy.
- A. E. glauca*.—A most beautiful tree, well adapted for lawns.
- A. Menziesii*.—Grows to a very large size; requires a moist, deep soil; also shelter from gales, two of our largest trees, 80 feet in height, having been torn up by the wind.
- A. nigra*.—A companion to *Abies alba*; distinct; North America.
- A. orientalis*.—Slow growing, compact tree, suitable for the lawn.
- A. Smithiana* (syns., *Morinda*, *Khutrow*).—Forms a most graceful and beautiful specimen on stiff, moist soils.
- A. Tauga* (Hemlock Fir).
- A. Albertiana* (syn., *A. Mertensiana*).
- A. canadensis*.—Well known; not half enough planted.
- A. Hookeriana* (syn., *Pattoniana*).—Slow grower; most lovely lawn specimen; has stood untouched here more than twenty years.
- A. Douglasii*.—One of the finest and most valuable timber-producing trees ever introduced; likes a deep, moist soil, free from stagnant water.

A. D. taxifolia.—A most beautiful and more compact-growing tree than the preceding; several trees planted here, now 60 feet to 70 feet in height, have never looked back, whilst a great number of seedlings of the species, when 10 feet to 20 feet in height, turn yellow, lose their leaders, and eventually die. Where these trees do well, too many cannot be planted. I give preference to *Abies Douglasii taxifolia*, because our soil suits it best.

Picea amabilis.

P. bracteata.—A perfect gem.

P. cephalonica.—Quite hardy; young growths in some places get caught by May frosts; should be planted above the frost and fog line; if shaded from early morning sun, so much the better; our trees do not get caught. We have here a tree under the name of *P. Regina Amelie*, a tender form, not worth planting.

P. concolor (syns., *P. lasiocarpa*, *P. Lowiana*, *P. Parsonsii*).—One of the best, perfectly hardy, and a capital grower.

P. grandis.—Of this beautiful Conifer we have here two forms, one from Oregon, the other from Vancouver. I like the latter best.

P. magnifica (syn., *P. nobilis robusta*).—Here a painfully formal tree, and less pleasing than *P. nobilis*.

P. nobilis.—One of the finest Silver Firs ever introduced. The glaucous form should be perpetuated by grafting, layering, or cuttings; seedlings do not thrive in our soil.

P. Nordmanniana.—Too well known to require comment; one of the hardest and best Silver Firs for general planting.

P. Pinsapo.—Quite hardy here, but loses its leaves in some places after severe winters; should have shelter from very cutting north and east winds.

P. brachyphylla, *P. Mariesii*, and *P. Veitchii*.—Three Japanese varieties or species; will, I have no doubt, prove quite hardy, but they require more time.

Pinus austriaca.—Dense, sombre, handsome, hardy, and invaluable for shelter in the most exposed situations. As a nurse this tree is unsurpassed; as a single specimen few can beat it.

P. Laricio.—The well-known Corsican Pine grows faster and taller, and being less knotty, is considered superior to the preceding for timber. This also makes a capital nurse, and a very handsome specimen; here unfortunately it grows too fast, and not unfrequently loses its leader. A variety called *P. caramanica* makes a most beautiful specimen.

P. Pallasiana or *taurica* is another form of the preceding, and equally good for planting in exposed situations, or as a single specimen in the pinetum.

P. pyrenaica.—A good Spanish Pine. This dense-growing tree appears quite as hardy as a Scotch Fir; it forms a roundish head, composed of several strong branches, all of which strive for the mastery as leaders.

P. densiflora.—A slow-growing, grotesque Pine, introduced from Japan; will not make a large specimen, but its peculiar growth renders it valuable for natural ornamental planting.

P. Edgariana.—Described by Messrs. Veitch as a synonym of *P. muricata*; the trees I had under the name of *P. muricata* were killed in 1860, but *P. Edgariana* stands all weathers. The late Mr. J. Veitch recommended this tree as a substitute for the more tender *P. insignis*, but it cannot touch this gem in soft gracefulness and depth of colour; it forms whorls of cones at every node, often the whole length of its branches, and retains them for years.

P. Pinaster (syns., *P. brutea*, *P. Hamiltoni*).—A beautiful tree, with very long leaves and rough bark; the cones are borne in clusters, and sometimes form masses of thirty or forty together. A good tree for the seaside and sandy soils.

P. Pinea.—The Italian Stone Pine belongs to this section; it stands well here, and is worth trying everywhere. Many planters lost their trees in 1860.

P. Jeffreyi is a stately and rather formal tree, with glaucous green leaves about 10 inches long; it is quite hardy, and has borne cones at Eastnor; one of the best for the pinetum.

P. ponderosa, or Western Pitch Pine, introduced by Douglas from Oregon, with us is less formal than the preceding, and the leaves, equally long, are a deeper green.

P. Sabiniana.—To lovers of formal trees this *Pinus* might not be acceptable; to those who admire trees with twisted and contorted branches it is invaluable for planting in the pinetum. One of the finest trees I have seen is growing in Mr. Bidulph's grounds, Lechlery Park, and so charming in my

eyes is this specimen, with its long greyish-green leaves, also touched with the peculiar twist of the branches, that I never pass that way without paying my respects to my old friend.

P. Cembra.—The close, compact, slow-growing limestone Pine, once seen never forgotten, is a most useful tree for forming dense screens, or dark specimens in front of taller and looser-growing Conifers.

P. excelsa is a very handsome tree, assuming various forms, all of them very beautiful; the foliage, a light bluish-grey, is most elegant, and the cones are very fine. Although a native of the Himalayas, our trees, on low ground and in proximity to water, have never been touched by frost. Some trees here on high ground have attained a height of 50 feet, whilst those a short distance from them are as broad as they are tall, and seem quite at home on the limestone brash.

P. Lambertiana.—Of this we have a very fine specimen, growing on a dry limestone rock thinly coated with poor loam; its associates are *Abies Douglasii taxifolia*, *Abies canadensis*, the common Spruce, *Cedrus Deodara*, an Oak, and an Ash with ample space for full development. The picture thus formed in winter and summer is charming.

P. Strobilus.—The Weymouth Pine was planted here rather sparingly some years ago, but we have not a good specimen left; the finest, cut down twenty-five years ago, I had converted into boards for inside work, and they are still sound.

OTHER CONIFERS.

Junipers.—Of these, *J. chinensis*, one of the best, has been extensively planted, and fine columns, more than 20 feet in height, are now assuming their rich coating of gold.

Other good varieties are *J. communis*, *communis oblonga pendula*, *drupacea* (very distinct), *excelsa*, *phœnicea*, *recurva*, *recurva densa*, *thurifera*, *virginiana*, *virginiana pendula*, Swedish and Irish.

Cupressus Goveniana, *macrocarpa* (magnificent), *Lawsoniana*, *sempervirens*, *torulosa*.

Thuja aurea, *elegantissima*, *pendula* (very fine), *orientalis*, *gigantea*, *Lobbi*, *Vervœneana*.

Thujopsis dolabrata, *borealis*, *lætevirens*.

Widdingtonia cupressoides.

Cryptomeria elegans, *japonica*, *Lobbi*.

Cephalotaxus Fortunei, *drupacea*.

Cedrus atlantica, *Libani*.

Araucaria imbricata.

Wellingtonias, scores, all doing well.

Sequoia sempervirens does well and stands well on the limestone and light red loam. A tree 70 feet in height and 11 feet round the stem a yard from the ground has few equals in this country. This Conifer, like *Cupressus Lawsoniana*, *Thujopsis borealis*, and *Retinospora obtusa*, is well adapted for covert planting, as this, indeed all four of them, stool as freely as an Ash or Hazel when cut over a foot or more above the ground.

The *Retinosporas*, as a section, are not quite at home on our cold limestone, but succeed when light sandy loam and peat are worked into the compost.—Field.

THE GOLDEN WILLOW.

(*SALIX VITELLINA*.)

IN contradistinction to the majority of trees and shrubs, the name golden as applied to this Willow has no reference to the colour of the leaves, but to that of the bark, which is of a distinct creamy yellow. I often think that if nurserymen charged four times the price they now do for this singularly distinct and beautiful tree, or rather big-growing shrub, it would find a home in far more English gardens and parks than it does at present. That it is when suitably planted one of the richest ornaments of any garden, few readers of this note who have seen a good-sized specimen, or, far better still, a big, irregularly-shaped and well-set-off clump, will care to deny, and the great pity is that it is not planted at present by the hundred instead of by the half-dozen.

Not long ago I could not help stopping to admire several giant specimens—they were probably about 30 feet in height, and as much or nearly so in diameter of branch-spread—that were very judiciously arranged alongside a public road in the north of Ireland. The soil inclined much to peat, but I found out that at the time of planting several cart-loads of road-scrapings had been incorporated with that naturally present, and this no doubt had much

to do with the bright healthy appearance of these beautiful specimens. The twigs were literally of a shining golden hue, and so thickly were the branches produced, that at 100 yards away on that sunny October day, when every leaf was wanting, the trees looked like masses of shining brass. Associated with this Willow, nothing looks so beautiful as the common Dogwood; at least, such was my opinion on being shown a ten-acre woodland, the margins of which had a dozen years before been planted with this combination. Where the Golden Willow can be planted in front of a mass or clump of the Portugal Laurel, Holly, Yew, or Austrian Pine, then its full beauty is set forth to perfection, the golden-yellow bark contrasting so markedly with the dark green of the trees in question. The best position for this Willow is on the margin of a lake or pond, where, if ample room is afforded, its distinct character is clearly revealed, and the moisture so procured is of special value in its growth and full development.

Unlike most deciduous trees, the chief beauty of the Golden Willow is during the leafless season, but this does not imply that it is not an object of great admiration during the growing period, for even then the golden tint of the bark is revealed in glimpses through the foliage. In most of the trees of the Golden Willow that I have seen the main branches are rather stout for the size of the specimen, but so many somewhat pendulous secondary twigs are produced by these, that even in winter it is almost impossible to see through a full-grown tree. These twigs, too, are what produce the golden tint in greatest perfection, the older branches gradually changing with age to a bronzy yellow, but they are highly attractive, nevertheless.

The propagation of this Willow should induce everyone to indulge before the planting season is at an end in a few young trees, for it is simple indeed, cuttings rooting with the greatest freedom. Even posts driven into the ground to steady neighbouring trees take root with such alacrity as sometimes to cause considerable annoyance. Clean twigs of from 9 inches to 12 inches long root very freely, and in a couple of years from time of first insertion will have formed nice bushy trees that will be well able to take care of themselves when planted in their permanent positions.

A. D. WEBSTER.

SHORT NOTES.—TREES AND SHRUBS.

Dimorphanthus mandshuricus.—This plant here has been subjected to 15° of frost, and it remains uninjured. I have two plants on a north border, where the sun never touches them, and they flower freely every year.—G. HOWES, *Merton Hall Gardens, Thetford*.

Alders in Beddington Park.—This park contains many fine trees, but none equal to the grand old Alder trees (*Alder glutinosa*), which are upwards of 60 feet high, with enormous boles and beautifully furnished. The river Wandle runs through the grounds, and it is near this that the Alder trees are the finest.

Daphne Mezereum and its white variety album are now flowering beautifully in Canon Bridges' garden, their fragrant flowers being highly appreciated. I have also seen it in various cottage gardens round London, where it does well, and I am surprised it is not more often used in such situations. It is cheap, and the flowers are very lasting.—G.

Rhododendron dauricum atrovirens.—We have eight or ten plants, each 4 feet to 5 feet high, of this the earliest flowering of all the Rhododendrons planted amongst Ghent Azaleas, *Pernettya mucronata*, and *Gaultheria Shallon*, the whole edged with a broad band of *Erica herbacea*. The bed, which faces south, is partly sheltered from the north and easterly winds, but thoroughly exposed to west and south-westerly winds, which frequently prevail here.—SOUTH HANTS.

Daphnes in bloom.—The *Mezereum* (*Daphne Mezereum*) is now beautifully in bloom in many places around London; indeed, some are so far within the smoke-laden district, that it is rather a matter for surprise to see them flowering so well, though, of course, they are not so satisfactory in a smoky atmosphere as in the pure air of the country. Where conditions are most favourable to them each

shoot is simply a mass of bright-coloured, deliciously fragrant blossoms, which during a sunny afternoon I noticed were visited by an enormous number of bees. Where quantities are grown together there is a marked difference in their blossoms, some being of a much brighter hue than others. The variety with white blossoms is equally as free-blooming as the type, and though of course not quite so showy as the other, is well worth a place wherever the ordinary form is grown. These *Daphnes* delight in a cool, moist, fairly holding soil, and so situated they may be fully exposed to the sun, but where the soil is of a lighter and drier nature they do best where they are partially shaded from the full rays of the mid-day sun. Beautiful as the blossoms are, the berries towards the end of the summer present another attractive feature, those of the white-flowered variety being yellow.—H. P.

HARDY BAMBOOS.

It is at this season of the year that the peculiar merits of an Evergreen are best displayed, and all who have seen hardy Bamboos in the form of strong healthy specimens will be ready to admit that they stand out distinct from all other Evergreens, and are among the finest ornaments of the outdoor garden in winter. A short time since I noted several large plants of *B. Metake* in a small villa garden, and the effect they produced was so good as to cause surprise that they should be so rarely seen in gardens of moderate extent. Gardens of a very limited area are apt to be wanting in variety at this time of year. I have passed through districts where, judging from the kind of evergreen shrubs and trees to be seen in them, it would almost seem that they were all planted by the same person. I believe that the Japanese possess in a high degree the art of varying the aspect of small gardens, and it is a great pity that we do not in a general way make more liberal use of the great wealth of Evergreens now in cultivation, so many of which, like the Bamboos, are well fitted for gardens of very limited area. Bamboos love moisture at the roots and shelter from cold winds. It is curious that many of them are so perfectly hardy, that severe frosts only seem to deepen the hue of the foliage; but at the same time they acutely feel cold winds, which brown the tips of the leaves to such an extent that the handsome specimens are suddenly converted into unsightly objects. I have seen plants go through a winter of unusual severity unscathed and be quite disfigured by a few days of easterly winds in spring, even when not accompanied by hard frosts. I believe that the majority of Japanese Evergreens display this extreme susceptibility to cold parching winds, which probably do not prevail in Japan to the extent that they do with us. In any case the intending Bamboo planter should bear this fact in mind and choose, whenever practicable, a position for them where they are sheltered on the north and east. It is of little use planting them in shallow soil, for therein they will do little more than live. They ought to throw up strong shoots in a couple of years after having been planted, and this they cannot do if the roots are not able to go down after moisture. The lighter the ground the greater necessity is there for deep culture. One point in favour of Bamboos is that they are by no means particular as to the nature of the soil. I have seen them doing

well in the stiffest of loams and in almost sand. It is, however, by the water-side that they attain to their true dignity of growth. The moisture at the roots and in the atmosphere fosters a development not often seen under other circumstances. It is much to be regretted that the hardiest and most vigorous-growing kinds are not more frequently employed in this way. All know how effective clumps of such things as the common Reed are by the water margin, but masses of Bamboos running up to 15 feet in height put into the shade all other kinds of water-side vegetation. J. C. B.

GARDEN FLORA.

PLATE 697.

PHALÆNOPSIS GLORIOSA.*

THE subject of the accompanying plate is a plant from a batch imported by the Messrs. Low, of Clapton, who are by far the largest growers of this genus in the trade. It was exhibited before the Horticultural Society on the 12th of



Phalaenopsis amabilis.

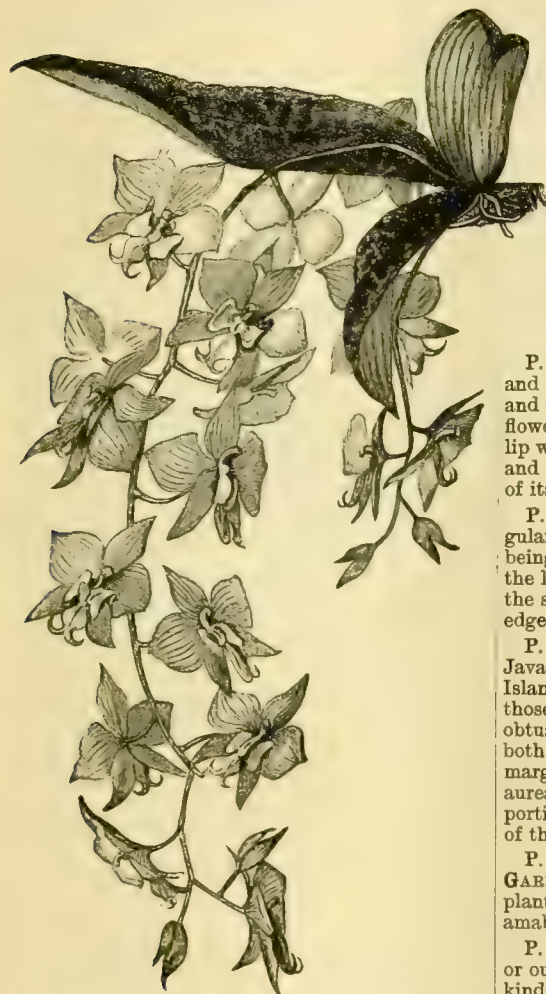
June, 1888, and received a first-class certificate for its distinctness. It appears to be a form with the leaf of *P. grandiflora* and the flower of *P. amabilis*; the rich colour of its lip resembles that of the variety known as *amabilis Dayana* (and which, I believe, was also one of the Messrs. Low's introductions), but *P. gloriosa* is destitute of the yellow tinge at the base of the lip. In 1837 Cumming sent to the Messrs. Rolleston *P. amabilis*, and in September, 1847, Mr. J. Schroder, of Stratford, exhibited a plant, which at first was considered a large-flowered form of *amabilis*; but in January, 1848, in the *Gardeners' Chronicle*, p. 39, Lindley figured the two forms, and here Schroder's plant is named

* Drawn for THE GARDEN by H. G. Moon, at Messrs. Low's, June 20, 1887. Lithographed and printed by Guillaume Severyns.



PHALAENOPSIS GLABERRIMA

P. grandiflora. In the illustration referred to, the petals of *amabilis* overlap the dorsal sepal, this character being made much of in separating the two plants. This distinction, however, I think, from the number of forms to be seen in the Clapton Nursery and in private gardens, will not now hold good. In our plant (*gloriosa*) the flower is decidedly more of the shape of that of *amabilis*, and the lip also accords more with that species. For a long time *amabilis* and *grandiflora* were the only sorts known to cultivators, but friends had from time to time told me that they had seen these plants in quantities in the Philippines and other islands in the Indian Seas, and the great quantity of different forms which are now in cultivation really breaks down the distinctions which have so long held



Phalenopsis Schilleriana.

away, more especially as the Messrs. Veitch have proved beyond doubt that the kinds do hybridise with each other naturally, as they have obtained by artificial means the rare kind (*P. Portei*), which so long remained a mystery to collectors. The genus is exceedingly beautiful, and at the present time is again becoming popular, after having been behind a cloud so long, although in some gardens these plants have retained their popularity and have been grown with the same loving care for years. Notably has this been the case in Mr. Buchan's garden at Southampton and in other places. By far the best collection of these plants belongs to Mr. Partington, Heaton House, Cheshunt, where the great success attending Mr. Searing's culture lies, I believe, in not smothering their

roots with peat or Moss. I have before remarked in these pages that I had never seen such examples of *Phalenopsis* in quantity. Here and there one may find them, but gardeners will commit this fault of overloading the roots. A striking example of this came under my notice recently in a garden in Surrey, where a specimen of *P. Schilleriana* of enormous size and as large as any of the Cheshunt plants was growing and rooting freely, when all at once the gardener thought it required a fresh basket. This was supplied, and a quantity of rough peat and *Sphagnum* Moss was put round it and considered an improvement. On seeing it I predicted that it would soon die. I frequently called to see it, and it was pointed out to me as rooting splendidly, and my predictions were laughed at, but the last time I called was in the middle of March, and to my question of how the *Phalenopsis* was getting along, the answer came that it had been going back all the autumn and died before Christmas. I have grown these plants well myself years ago, and my greatest success was with plants that really had very little material about their roots, and I am fully persuaded that herein lies the secret of their cultivation. The *Phalenopsis* enjoys bright light and moderate sunshine and a fairly warm atmosphere, which at the same time should be moist and with a free circulation of air. The following are some of the best kinds:—

P. AMABILIS.—The leaves of this plant are obtuse and of a deep green hue above, purplish beneath, and thick and fleshy in texture. The scape is many-flowered, the sepals and petals being pure white; lip white, striped within with yellow and rosy-pink and purple. It varies considerably in the density of its markings.

P. AMABILIS DAYANA.—Flowers large and regular. It differs from the type in its lower sepals being minutely freckled and dotted with carmine; the lip also is heavily marked with bright crimson, the side lobes also being rich yellow on the lower edge.

P. GRANDIFLORA was originally introduced from Java, but it is also found in various of the Indian Islands. The flowers are very much larger than those of the preceding kind; the leaves are less obtuse, being more oblong, and bright green on both sides. The flowers are pure white, the front margins of the side lobes yellow. In the variety *aurea* the lip is of a rich deep yellow over the front portion. It is known in gardens also by the name of the Bornean variety.

P. SANDERIANA.—This kind was figured in THE GARDEN, September 29, 1883, and a very beautiful plant it is. It may be called a rose-coloured *P. amabilis*.

P. SCHILLERIANA is a grand plant, beautiful in or out of flower. It is more robust than the other kinds. The leaves are rich deep green in colour, irregularly streaked, and spotted transversely with greyish white; beneath they are deep purple. The scape is much-branched and many-flowered, as many as 400 flowers having been produced by a single plant, but not upon one spike, 120 flowers being the largest number I have seen on a single spray. The flowers are from 3 inches to 4 inches across; the sepals and petals of a delightful shade of mauve, the lip being of a deeper hue. Around the yellow disc are numerous spots and dots of reddish brown. The anterior lobe is destitute of the tendrils which are shown in our plate of *gloriosa*, but instead the front lobe is anchor-shaped. The variety named *vestalis* is a form with pure white flowers; this was also an introduction of Messrs. Low. *P. Schilleriana* was figured in THE GARDEN, August 5, 1882.

P. STUARTIANA.—This is a very distinct form of this genus, named by Professor Reichenbach in honour of Mr. Stuart Low, the head of the Clapton firm, by whom it was introduced. A coloured figure

of it was given in THE GARDEN, August 5, 1882. It belongs to the *Schilleriana* section, its leaves when young being variegated in a similar manner. The lighter markings, however, fade as the foliage becomes older, the leaves then assuming a nearly uniform green colour. It produces a much-branched, many-flowered raceme; the flowers are large, the petals and dorsal sepal pure white, the lateral sepals white on the outer half, the two lower halves being pale yellow, dotted and spotted with reddish brown, the lip is also spotted in a similar manner, the upper portion of the side lobes being also white, as also are the recurved horns on the anterior lobe, where the flower resembles that of *Schilleriana*. Several varieties of this plant are in cultivation.

The above are the best of the large-flowered forms of *Phalenopsis*; there are, however, several beautiful kinds with smaller flowers of which I must reserve notice until a future occasion. W. H. G.

ORCHIDS.

HARDY ORCHIDS.

BLETIA HYACINTHINA was long considered and treated as a greenhouse Orchid, but experiments made during the last few years have clearly proved that it is almost as hardy as our early purple Orchid (*Orchis mascula*). This is a matter of great moment, for so distinct and pretty a plant could ill be spared from our rather meagre list of hardy Orchids. That it is perfectly well suited for outdoor culture I have proved, for I have had it fully exposed for over five years to the average English winter weather. It received no particular care, simply an annual top-dressing of well-decayed leaf-mould, in which the stringy rootlets seemed to revel. The prettily arranged racemes of showy pinkish flowers and Grass-like leaves combine to make it one of the most desirable of outdoor Orchids, and few there are who see a well-established clump when in full flower but express pleasure and satisfaction at such an unexpected sight. My plants succeeded best when placed in soil that is directly opposed to that usually recommended in our nursery lists, for instead of either peat or leaf-mould, limy loam was used with perfect success. I tried for three years to get the plants to flower when placed in sandy peat and sandy leaf-mould, but without success; certainly they did well enough and increased, too, in such a mixture, but immediately they were removed and planted in about equal parts of loam, peat, and lime rubbish, a decided change for the better took place. I do not think that excessive damp is necessary for the plant's welfare; indeed, mine did best where they were moderately dry and sheltered. Those who have strong specimens should try them outdoors.

SERAPIAS.—Three species at least did unusually well with me; they grew strongly, flowered freely, and increased slowly. Sandy leaf-mould was the soil used, and they were planted in a fairly moist, partially shaded situation. *S. lingua*, with its long tongue-like lip, is a most curious and interesting plant, the spike of deep pinky flowers being particularly attractive. They are of great substance, and last well either when cut and placed in water or allowed to remain on the plant. *S. cordigera* and *S. neglecta* I have also successfully managed out of doors, and they are showy plants, the latter in particular having dark red flowers with a big crimson labellum.

THE SATYRIUMS have been more than once recommended to me as hardy Orchids, but I have been always ill-rewarded for my trouble, big leaves and no flowers being invariably the rule. If anyone has grown them successfully out of doors I would be most happy to know how the plants were managed, for certainly they can well hold their own in point of size and profusion of bloom with any terrestrial Orchid I know. The species that I have tried are *S. carneum*, *S. aureum*,

and *S. albidum*. The large fleshy tubers must be handled very carefully, for if they become in the least damaged disease sets in. Sharp sand should be placed around the tubers, as this partially wards off disease and rot, especially when such arises from too much moisture in the soil. As pot plants, I have found them do well when placed in a frame or greenhouse, but I hardly think that the trouble expended in their culture is rewarded to any great extent.

A. D. WEBSTER.

Oncidium concolor.—Mr. J. Jamieson sends me a nice spike of this beautiful species. The advice given you respecting the treatment is quite correct. The plant in question comes from cool regions in the Organ Mountains, and succeeds at home under cool treatment admirably. I never was able to grow the plant in the heat of the Cattleya house.

—W. H. G.

Angræcum Sanderianum.—This superb plant was recently flowering freely in Mr. Smee's garden at Hackbridge, where it appears to be perfectly at home. We also noted it in quantity in the establishment of Mr. Sander at St. Albans. Here it was growing in a cool house, but its flowers did not last long in beauty, a sufficient proof that the plant requires strong heat for its proper development.

Odontoglossum Cervantesi.—Forms of this species, of large size and beautifully coloured, are now flowering in Mr. Smee's garden. These flowers have been open a very long time, and yet they remain fresh and good. It is a charming old species, which deserves the greatest attention from growers of these plants on account of its free-flowering qualities and for the length of time its beautiful blooms continue in full beauty.

Cypripedium bellatulum.—The more we see of this new Lady's Slipper the more we are convinced that it is an introduction of priceless value. It has been compared to *C. Godefroyæ*, but it is infinitely better than even that beautiful species; the flower larger, more richly and conspicuously blotched, and this on a fairly clear ground. The growth is stronger and the plant freer than *C. Godefroyæ*. It is now comparatively common, as large importations of it have been received.

Oncidium Wentworthianum.—A species which some years ago was highly prized, but which until I saw it recently in Mr. Low's establishment I had nearly forgotten, so seldom does one see the old favourites. The variety in question is the plant usually grown, the flowers yellow with rich brown bars on the sepals and petals, lip clear yellow, marked with a rich brown spot at the base. It comes from Guatemala and thrives well in the cool house, and when established blooms nearly all the year round. Its flowers are extremely useful for cutting.

—W. H. G.

Odontoglossum Halli.—Many beautiful forms of this fine species are now flowering in various collections. Numbers of flowers have been sent me differing considerably in size and richness of colour, but all are grand. The flower from "T. W. M." is a fine form of the variety *xanthoglossum*, in which the flowers are bright rich yellow, profusely spotted and blotched with chestnut. This species was first discovered about fifty years ago, but it is rather more than twenty years ago since it first came into cultivation. I have always found it succeed well under the coolest treatment.

—W. H. G.

Cypripediums at Clapton.—Vast quantities of the majority of the species are always to be found at Clapton, and here it appears to me that they are kept slightly warmer than in many places. Amongst those flowering we recently noted beautiful forms of *C. bellatulum*, introduced last season by this firm; a large and richly-coloured form of *C. Hookeri*, an old introduction of the Clapton establishment; exquisite blooms of *C. niveum*, which, although to be ranked with the older kinds, is always charming; *C. philippinense*, which years ago was called *lavigatum*, and was first found by Mr. John Veitch, is here in profusion, associated with the much spotted *C. Argus* and the grand variety of *hirsutissimum*, introduced recently by Mr. Low. Here also was the beautiful *Haynaldianum*, which

may be said to be always in flower. Such kinds as *Roezli*, *Dayanum*, *Warneri*, *vernixium*, and many other kinds, all of which are pleasing subjects, well deserving the attention of the young Orchid growers, were also to be found in quantity.

Odontoglossum Andersonianum.—From Mr. Bridger, gardener to Lord de l'Isle, Penshurst Place, Kent, comes a spike of the above-named plant. It is really the most beautiful form of the variety we have ever seen. The sepals and petals are suffused with rich rose colour, saving the base of the petals, where these are pure white; the sepals are spotted with chestnut-brown; lip long and pointed, pure white, with a large blotch of chestnut-brown in front of the crest, which is white; behind the crest it is rich yellow, streaked with chestnut, as also is the back of the column.

STOVE AND GREENHOUSE.

INDIAN AZALEAS.

By forcing some and retarding others as long as possible, the flowering season of the different Indian Azaleas is extended over many months, as the earliest forced plants may be had in bloom long before Christmas, while those that have just been given the protection of a greenhouse are now rapidly unfolding their blossoms. Where required to flower very early the best results are obtained when the same plants are forced year after year, provided suitable treatment is given them when the flowers are over. As the heat required to induce the blooms to open will, of course, cause the plants to push rapidly into growth, they must not, after flowering, be removed to a cool structure, as the plants will thereby receive a check which is certain to act injuriously. If encouraged to continue and complete their growth, it will, of course, be matured early in the season, and consequently the plants may be induced to flower before others that have been always subjected to cool greenhouse treatment. Of Indian Azaleas, immense numbers are imported into this country every year, chiefly from Belgium, but the majority of them must soon die, otherwise we should be inundated with Azaleas. Those that fall into the hands of the market growers and are disposed of principally to floral decorators may all be regarded as certain to die, but with the private individual who can devote more attention to his plants the case is different. Where Azaleas are employed for the embellishment of the dwelling-house a fertile source of ill-health is the over-supply or otherwise of water, more especially the latter, as the peaty or decayed vegetable substance in which the roots of the Azalea delight to run dries far more quickly than any potting compost which contains a certain proportion of loam, and the delicate hair-like fibres of the Azalea quickly perish if allowed to become dry. Besides this, stagnant moisture is almost equally fatal. The bulk of the Indian Azaleas reach this country in September and October in the shape of neat little bushes, generally grafted on a stem a few inches high, and in most cases set with flower-buds. Nearly all of them have been lifted from the prepared beds they have been grown in and packed directly into the baskets, cramming as many together as possible in order to lessen the cost of carriage. As the object is to retain as many leaves as possible, they should, when received, be carefully examined, and all that are too dry for potting be soaked for a few minutes in a pail or tub of water and then placed somewhere to drain. The object of this is to thoroughly wet the ball of soil, for if potted in the dry state, it is almost impossible to do so by watering in the ordinary way. These Azaleas are very impatient of fire-heat when first received. The weather at that time of the year is generally fairly mild, and a very good place for them then is an ordinary garden frame, which should be kept pretty close for a week or ten days till the roots commence to grow. It is rather difficult to understand why the practice of grafting Azaleas on to naked stems, 6 inches or thereabouts in height, is so generally followed, the idea probably being that the plant looks larger in this way than it would if not so

tall; but where numbers are sold, the dwarf sturdy plants are generally the easiest to dispose of. Again, grafting, though so universally followed, is by no means necessary in the propagation of Azaleas, as cuttings of the young growing shoots are not difficult to strike, and most kinds grow freely on their own roots. With regard to training Azaleas, the less this is done the better, as a few well-flowered plants that have been allowed to assume their natural character are infinitely more pleasing than when tortured and twisted into the hard outline of a pyramid or standard. Some varieties of the Indian Azalea are much hardier than others, one of the most marked in this respect being the old white, which stands the winter in various spots in the south of England.

H. P.

FORCING LILAC.

FROM the month of December until the time when the Lilac flowers naturally in the open air, flowering plants of it with white, pink, or violet-coloured blossoms are delivered every morning by cartloads in the Paris markets. These plants always command a high price, and consequently their culture forms a very important and remunerative branch of the horticultural trade. The process of forcing Lilac demands a great deal of care and attention, to which, if complete success is aimed at, must be added a certain amount of dexterity which is only to be acquired by practice. It may be also remarked that almost every forcer has a special or private plan of his own, which he mostly tries to conceal from his colleagues (who are specialists like himself) and also from other cultivators; hence it is a rather difficult matter to obtain admittance to the forcing houses of some Lilac growers.

The varieties which are usually employed for forcing are the Rouge de Marly, Charles X., alba virginalis, and a few others. Before the plants are introduced into the forcing house they are subjected to a course of drying-off treatment, in order to prepare the flower-buds for undergoing the subsequent operations. This is effected by placing the plants under shelter and allowing the balls of earth around the roots to become thoroughly dry. From two to three weeks' treatment of this kind is required to render the plants fit for the forcing house. Another preliminary operation is the removal of any suckers that may exist, and also of all branches which bear no flower-buds or only such as appear to be too weak, and which would consequently yield an insignificant cluster of bloom. The plants thus prepared are then removed to the forcing house, in which the temperature ranges from 76° to 86° Fahr., and are then planted as closely as possible to each other, the root-balls being covered with soil about 4 inches deep. After being planted they are copiously watered, and thenceforth during the entire process the roots can hardly be kept too moist. The glass of the forcing house is covered with mats or with strawy manure to ensure total darkness. Lilac plants can also be forced in a temperature of from 58° to 68° Fahr., and in this way finer flowers are obtained than when the higher temperature above-mentioned is employed, but a much longer time is required to produce them. During the first eight or ten days the plants must be watered four or five times a day. After the first week, when the clusters of flower-buds are beginning to form, care should be taken that no water falls on them, otherwise they will certainly turn black, and afterwards rot away. A whole houseful of plants has sometimes been irretrievably spoiled through carelessness of this kind. About the same time the operation of disbudding is carried out. The flowering shoots of the Lilac usually have three flower-buds at the extremity. Of these the small one in the middle is carefully removed, the result of which is that the two which are left develop into finer clusters of bloom. When the flower-cluster has attained its full size and the flowers at the base of it are commencing to open, a little daylight is admitted for two or three hours every day, by removing small portions of the covering of the glass here and there. This modicum of light gives

a certain degree of firmness to the flower-clusters. A little air may also be given for about an hour if the weather is favourable. The flowers should be cut in the evening and kept for the night in a cool place where frost will not reach them, with their stems placed in a vessel of cold water. Treated in this way, the flower-clusters have a better appearance and last longer.

In order to obtain Lilac flowers slightly tinged with pink, which are now very much the fashion, all that is necessary is to admit light progressively until all the glass of the house is uncovered, and in two or three days the flowers, which previously were perfectly white, take on a violet or pink tint, the depth of which may be increased at pleasure according to the amount of light that is admitted. The variety which appears to answer best for this purpose is Charles X.

In conclusion, we may mention, for the benefit of the uninformed, that white Lilac is obtained by forcing the red-flowered Lilac—[There are some kinds of Lilac with very dark-coloured flowers which cannot be forced to produce white flowers by any process yet known.—ED. R. H.]—which is employed for this purpose in preference to all other kinds, because it is more vigorous and forces better, and it is only the total darkness in which the plants are forced which causes them to produce white flowers.—*Revue Horticole*.

The Scarborough Lily.—Your engraving of this old favourite (*THE GARDEN*, March 9, p. 211) points out the value of the Scarborough Lily grown in 6-inch or 8-inch pots in single or double crowns, or at the most in threes. In this form there are few plants to exceed them in decorative value as table, room, or window plants, or for the furnishing of shelves or stages, for the foliage is effective as well as the blooms, and perhaps both are even more telling when thus exhibited almost singly or in more minute detail. The plant thrives remarkably well and flowers freely when treated in this way, provided always that a semi-starving régime and root-pinching are adopted. The freest blooming plants have, in fact, mostly been found in pots broken through the intense strain of root-pressure, and the same holds good of the blue African Lily and similar plants. Now that the old Nile Lily is grown in thousands alike for market and in private gardens, whereas it was only grown in tens a few years since, it is hoped the Scarborough Lily will follow suit, as few plants could form a more effective pair. Unfortunately, they are seldom met with in bloom together. But improved and other methods of culture might alter all this, and I should be glad to hear of any readers of *THE GARDEN* who grow the Scarborough Lily extensively whether they have tried the effect of planting it out in the summer in the same way as the Arum is now so generally treated and with what results. Possibly the check of potting up in the early autumn might answer the purpose of root-confinement in forcing a plentiful supply of blossoms, while the planting out in rich, light soil could hardly fail to increase the numbers and add to the vigour of the offsets, which are fairly plentiful under the usual modes of culture, or rather the want of any culture at all, which is too often the fate of this magnificent old plant in so many gardens where a few specimens may be found.—D. T. F.

Schubertias.—In an article on these by "T. B.," which appeared in *THE GARDEN* (p. 234), the statement occurs that there are "only two species in cultivation, viz. *S. grandiflora* and *S. graveolens*." So far as I can learn, these two names as used in gardens are applied to the same plant. "T. B." says that "in *S. grandiflora* the flowers are white, whilst in *S. graveolens* they are pale yellow or creamy-white." Both of these brief descriptions belong to *S. grandiflora*, as the flowers are at first white and after a time change to a cream colour. The plant described and figured last year in the *Gardeners' Chronicle* under the name of *S. graveolens* is the same as that figured in *THE GARDEN*, Vol. XXXII., p. 84, as *S. grandiflora*. I believe Mr. Bartholomew, of Reading, introduced the last-named, and he sent flowers of it to *THE GARDEN* office several years

ago. These I saw and named. There is a figure of the true *S. graveolens* in the *Botanical Magazine*. Probably *S. grandiflora* is only a variety of this. If anyone knows of two distinct Schubertias in cultivation, I should like to hear of them.—W.

WINTER-FLOWERING CARNATIONS.

FEW winter-flowering plants are more showy and useful than these, as not only do they help to keep a greenhouse or conservatory gay, but the flowers are of great value for cutting, especially those of that popular variety Miss Jolliffe. Not only is the colour of this Carnation delicate and unique, but the blooms are sweet-scented, and the merit of raising it belongs, I believe, to Mr. Keene, formerly gardener at Campsey Ashe, Suffolk, who, when there, made a speciality of perpetual Carnations, and used to grow them well. The one next in favour to Miss Jolliffe is *A. Alegatière*, which is of fine form and a brilliant scarlet, the plant being hardy and of good habit, which is more than can be said of most of the so-called perpetual Carnations. The best white variety with which I am acquainted is *Mlle. Carle*, which makes short, close shoots and blooms readily. The *Bride* is also a fine kind, having large fimbriated flowers, very pure in colour.

The best time for propagating the perpetual Carnation is in March, or as soon as cuttings can be obtained without interfering with the flowering shoots. Before putting the cuttings in they should be examined and if any signs of aphid are apparent, they ought to be dipped at the tips in tobacco juice, as if these insects are left upon them rooting is quite out of the question. These cuttings should be slipped off, where it can be done, with a heel, as in that way they root more readily than when made at a joint. I have found that the cuttings strike most readily by inverting a small pot within a larger and filling up around with sharp soil, finishing off with half an inch or so of sand on the top. When struck, the cuttings should at once be potted off singly into 3-inch pots, and still have the advantage of gentle heat to give them a start, after which any cold frame will suit till the time arrives for plunging them out in the open. This will be about the end of May, when they should have a place prepared by spreading coal ashes or standing the pots on pieces of slate or tile to stop the ingress of worms. The filling in between the pots can be done either with Cocoa-nut fibre, short straw or coal ashes, whichever is most convenient, as their only purpose is to shade and stop the too rapid drying of the balls.

The soil most suitable for growing Carnations is good sound loam and road-scrappings or sharp grit, to which should be added a little rotten cow manure, and the whole well mixed up together. In this the plants require firm potting, the pots best adapted being 6-inch to 8-inch, according to the sorts. Those who prefer to plant out their stock instead of potting and lifting them again in the autumn save something in watering, but it is a question whether in the end it does not involve more labour. It is quite certain that the plants receive a great check at the time of digging up, and cannot become so well rooted as those that have stood in pots the whole season through.

To flower Carnations well through the winter months, it is very important that the plants have full light and gentle warmth, and a temperature of from 50° to 55°. Free ventilation is also very necessary. Carnations are very impatient of being kept close. In the watering, liquid manure is a great help, and this may, if weak, as it always should be, be given to them often, as it will assist the plants in throwing up bloom. The only insect that is at all troublesome to Carnations is green-fly, which gets into the points of the shoots and if not quickly detected and destroyed does much mischief and cripples the growth. The best remedy is to fumigate, and to do this two or three times in succession instead of a strong dose, which is apt to injure the foliage.

Besides raising perpetual-flowering Carnations from cuttings, they also come freely from seed, and

it is a good plan to sow a packet every year and grow on the seedlings, as there is always the chance of getting something good. Perpetual Carnations seem much more tender than the ordinary garden kinds, and they rarely stand during the winter outdoors in borders, but I have had them do well trained to low sunny walls. S. D.

THE EUCHARIS MITE.

SOME few years ago I had a quantity of *Eucharis* bulbs in pots given to me. They were badly infested with the mite and rot. The diseased state of these bulbs was caused, I believe, through their having been kept too wet while in a low temperature. I stood the pots on a stage in the stove, and watched them closely for some time. I had only to peel back the outer dead skins, and there the mites were plainly visible. These bulbs gradually grew worse, the foliage became very yellow, and drooped under strong light. I was advised to consign them to the fire, but not wishing to destroy the bulbs, I turned them out of their pots, washed them in warm water, and brushed them all over with a soft brush. In the meantime I had dissolved a quarter of a pound of sulphide of potassium, which was added to three gallons of hot water at a temperature of 120° Fahrenheit.

The bulbs having been allowed to remain in this ten minutes, they were taken out and placed on a shelf, fully exposed to the sun and close to the ventilator. These bulbs remained in this condition from the end of June to the beginning of August. For two or three hours on very hot days the bulbs were covered with a single thickness of thin paper. It is needless to add that this fairly dried out all rot and disease. The average size of the bulbs was from that of a hen's egg to a walnut. These bulbs were potted in 8½-inch pots in a compost consisting of fibry loam, made very gritty with coarse sand and finely broken charcoal. Five of the largest bulbs were placed in each pot, and others according to size; each bulb was bedded in and surrounded with fine silver sand which had been exposed to strong fire-heat.

The bulbs were just covered, the growing point only being exposed, and finished off with soil as in the ordinary way of potting. The pots were then placed in the end of the stove, the soil was watered with tepid water, and kept on the dry side. The plants at once made roots and started into growth. These plants have since been divided and grown on and they have flowered very satisfactorily. My plants are grown without bottom-heat, not from choice, but from necessity. The night temperature during this winter in severe weather frequently fell to 55°. Plants grown without bottom-heat have never under my charge made such robust growth as plants grown on in a mild bottom-heat with a strong top heat. The great cause of disease in *Eucharis* bulbs is chill at the roots, followed up with too much water while in a low temperature. I have brought plants safely through low temperatures by just keeping them from flagging. I have found this mite besides upon the decaying bulbs of *Phaius grandiflorus*, *Pancratium*, *Sternbergia*, and other bulbs, also upon cankered stems of *Dracena*, but in all cases accompanied with decay or rot. J. R. HALL.

For Warren Gardens.

SHORT NOTES.—STOVE AND GREENHOUSE.

Allamanda neriifolia.—This is a capital spring-flowering *Allamanda*. Another point strongly in its favour is the moderate amount of space required to grow it as compared with such sorts as *Hendersoni* and *Schotti*.—E. M.

Carnations Mikado and Andalusia.—One of the best winter-flowering Carnations, having dark purple, sweet-smelling blossoms, is the variety named *Mikado*, and possibly one of the best sulphur-yellow varieties is *Andalusia*, the latter having fringed petals, while in the former they are quite plain.

Vitality of *Tropæolum tricolorum* corms.—An instance has lately come under my notice of the great vitality of the corms of this *Tropæolum*. For two seasons some corms lay in a desk and were for-

gotten until the tender growths peeped through a crevice of the desk. Last October the corms were potted and commenced to grow freely, and with cool treatment they have made a free growth. At the present time they are flowering freely.—A.

Coprosma Baueriana variegata.—This *Coprosma* is very useful for the conservatory at this season. The young leaves are of a deep golden colour, and as they present the best appearance when seen from above, there is no method of training the plants better than upon balloon-shaped trellises. In this manner of training the branches, the whole beauty of the plant, which consists in the rich colouring of its young leaves, is seen to the greatest advantage.—A.

Helichrysums in pots.—It may not be generally known that these Everlastings strike readily from cuttings inserted in sandy soil in a slight heat in October. If the cuttings are placed four or five in a 4-inch pot, kept in it through the winter and potted off singly into 3-inch pots early in March, neat little plants will be formed which will flower freely and prove a novelty in the greenhouse. The dwarf yellow variety is one of the showiest and best adapted for this method of growth.—S.

Ficus macrocarpa.—Where small plants are in demand for decorations, this *Ficus* supplies a want. It does not grow nearly so strongly as *elastica*, and is, if anything, of a darker green in the colour of its leaves. Capital plants in 3-inch and 4-inch pots may be had by striking cuttings in small pots, then transferring them afterwards to the size named. Supply them regularly with water, as it is the neglect of this essential detail in their culture that often leads to bare stems.—A.

Phoenix canariensis.—This is a beautiful bright green short-leaved form of the Date Palm, which is largely grown by the Messrs. Dixon, of the Hackney Nursery, for window decoration, &c. It is a form well deserving the attention of amateurs, as it is said to stand this treatment well. The habit is compact, whilst its leaves are not so short as to rob it of its beauty, but in comparison with those of such kinds as *P. sylvestris* and *P. reclinata* they may be called short.—W. H. G.

Vriesia brachystachys.—Many notes relating to this *Vriesia* have from time to time appeared in THE GARDEN, the beauty of its blossoms and the long period they remain in perfection being two very strong claims to recognition, while the foliage is bright and cheerful and gracefully recurved. In proof of the lasting properties of the inflorescence, I may mention that some of the flower-scapes on our plants, that were objects of great beauty, at Christmas, are still very showy, having as yet lost but little of their bright colouring. As there are very few plants in our gardens that retain the showy part of their inflorescence for so long a period, the *Vriesia* is on this account especially noteworthy.—T.

Datura sanguinea.—This *Datura* is not often seen in very good condition, but when freely flowered both small and large plants are very showy. To display their beauty to the greatest perfection, the plants when small should be raised sufficiently so as to enable the flowers on the under side to be seen. Bushy little plants in 8-inch pots look extremely well and flower for many months in the year. The best plant of this *Datura* that I have seen is in the conservatory at Rooksbury Park, near Fareham. It is now breaking freely into growth, having been pruned close in to the old wood early in the year. It gives promise of a full crop of bloom later on, the plant in question being fully 18 feet high and 6 feet wide at the base.—E. M.

Solanum jasminoides.—Here this *Solanum* is quite hardy, grows well, and flowers freely every year, the position it occupies being at the base of a south wall, up which it has grown to a height of 18 feet. It has been planted eight years, and at first we covered the shoots during the winter with a mat and put a mulching over the roots, but during the last four years it has had no protection whatever. The current year's shoots die back each winter if they are sappy and soft. I have just measured the stem at 15 inches from the ground and it is 6 inches round. Where such a position and liberal treatment in the way of abundance of water to the roots, with occasional doses of liquid manure, and thorough drenchings of

water to the foliage can be given, this climber is well worthy a trial. Growing in a greenhouse, it is so liable to be covered with red spider that it is a risky subject to plant.—SOUTH HANTS.

WORK IN PLANT HOUSES.

POTTING STOVE PLANTS.—Cuttings of the various kinds of flowering stove plants that were struck in the latter part of last summer, and that have been wintered in small pots, should now have a shift. Among these may be included *Allamandas*, *Ixoras*, *Dipladenias*, *Aristolochias*, *Clerodendrons*, *Æschynanthus*, *Bougainvilleas*, *Cyrtoceras*, *Hoyas*, *Francisceas*, *Hexacentris*, *Lasiandras*, *Medinillas*, and *Rondeletias*. When cuttings of these plants are struck towards the end of summer, and are afterwards potted off and can have a temperature that will keep them moving slowly through the winter, they have a long start of those that are put in at the ordinary time in spring. Though they will not have made much top-growth during the dull season, the roots make rapid progress. The size of the pots they are moved into must be varied according to the rate of growth each kind is capable of making. Free growers, like *Aristolochias*, *Allamandas*, *Clerodendrons*, and *Medinillas*, should have a liberal shift. Supposing the plants have up to this time been in 6-inch or 7-inch pots, they may now have such as are 10 inches or 11 inches in diameter. The others will do in a size or two smaller, for if it is found that they want more room during the summer they can have another shift. Where any further increase of the plants in question is wanted, cuttings should be put in as soon as possible, so that they may have a chance of attaining strength before autumn. Plants of any of the above-named kinds that were cut in after they had flowered last autumn, or later at the beginning of the year, will mostly now have pushed young shoots that will be in right condition for striking. In all cases where practicable take the cuttings off with a heel, for though most of the plants will strike from cuttings made to a joint, still when a bit of the firm wood is attached there is no danger of damping, and cuttings of this description usually grow on more freely after they are struck. They will be better put separately in small pots, as then there will be less disturbance of their roots when they are potted on. If a bottom-heat of 80° or 85° can be given, it will help them to strike more quickly; but if this is not available, they will root in a stove if the pots are stood on some moisture-holding material and kept close under propagating glasses.

COMBRETUM PURPUREUM.—Some growers find this plant difficult to strike, and under the best management cuttings do not root so readily as those of most things. But if pieces of the firmer wood are used, they will, in most cases, root in six or eight weeks. The cuttings should be put singly into small pots filled with sand, stood in a warm stove, and covered with a propagating glass until they are callused at the base, after which plunge the pots in a brisk bottom-heat. With the ordinary amount of shade and a confined atmosphere the greater portion will strike.

IPOMÆA HORSFALLIÆ.—Both the red variety and the newer sort, which has white flowers, are more difficult to increase than many stove species. If the soft young shoots, or such as are half matured, are used, there is not much chance of the cuttings striking. Bits of the firm wood consisting of two points are more likely to succeed; these should be put singly in small pots filled with sand. Like those of the *Combretum*, the cuttings should have time to callus in a warm stove before they are put in bottom heat. After they have attained this condition they should be plunged in a striking frame, where they will have a similar temperature to that advised for the *Combretum*.

GLOXINIAS.—Plants that have been raised from seed sown at the time advised will now require putting singly into 3-inch pots. It is necessary to attend to this, for if the plants stand too long together in the seed-pans the stems get drawn up weakly, in which case no after treatment will set them right. In moving them, see that no more roots

are injured than cannot be avoided, as any check the plants receive now interferes with the progress they should make to enable them to attain a sufficient size to bloom well. Light free soil suits *Gloxinias* the best; equal parts of loam and peat, with a little well rotten manure and sand, answer for them in every way. Old tubers that were started some time ago in pots only a little larger than would hold them should be moved into others about two sizes larger as soon as the roots have got well hold of the soil in those they now occupy. All the stock—the large as well as the seedlings—should be kept close to the glass. A shelf over a path in a house or pit where a cool stove temperature is maintained will be better for them than giving more heat, for when the temperature is high and the atmosphere heavily charged with moisture, the leaves and stems are nearly sure to get more or less drawn. If any old tubers have been kept back with the object of their giving a succession of flowers after the earliest are over, they should now be started. Brought on slowly, they will bloom later in the summer and at a time when they will be found useful.

GREENHOUSE RHODODENDRONS.—The new varieties of greenhouse *Rhododendrons* that have been raised in recent times are much in advance of the earlier productions, which, like the *Java* species that was one of the parents, had mostly the fault of being thin and leggy to an extent that defied the efforts of the cultivator to make them branch out sufficiently, especially whilst the plants were young. The result of this naturally spare habit was that the flower-heads were few in number. Many of the new varieties are a decided improvement in the form and also in the colour of their flowers. This is particularly the case in the white and the yellow sorts. The disposition which these *Rhododendrons* have to bloom from each successional growth that they make in the course of the year, regardless of the season, renders them very useful for conservatory and greenhouse decoration. With a selection of the best varieties, some or other of them are in flower during the greater part of the year. They do not require so much pot room as most kinds of hard-wooded greenhouse plants through the early stages of their existence, as the growth is somewhat slow. With ordinary care they last a very long time. This is now the season to repot any that need more room. For small stock, pots two sizes larger than those they have been in will be quite big enough. Good turfy peat that is not too close and hard in texture is the best material to grow them in, adding enough sand to keep it sufficiently porous for an indefinite time, as there must be no attempt to shake them out with a view to give them fresh soil. See that the potting lath is used freely, so as to make the material sufficiently solid in the pots. The peat of a lighter nature, with more fibre in it, that is now used for nearly all hard-wooded plants requires to be rammed much closer in the pots than the close peat, which at one time was alone employed, otherwise it holds too much water, and in the course of time shrinks too much in the pots. Attend to stopping the shoots so far as necessary. It is a good plan to bend any strong branches down that are taking an undue lead, and to secure them in a horizontal position; this will generally cause them to break back, and in some cases it is better than stopping the shoots. After potting keep the plants a little closer than ordinary for a few weeks until the roots begin to move. When the plants have got into moderate-sized pots that hold enough soil so as not to dry up too quickly, they are better out of doors in the summer. T. B.

Phoenix rupicola.—This is a superb species, a native, I believe, of India. I do not think it has yet found its way into our gardens, as it should have done, for one seldom sees it. I recently noted a very pretty plant of it in Canon Bridges' garden, where it is doing well. *Phoenix rupicola* has long, arching, rich green plume-like leaves, and the segments are well defined to nearly the base of the leaf, its close compact habit and the beautifully arched fronds tending to make it one of the

handsomest of the Date Palms. Palms should not be overpotted, as they are thus rendered useless for indoor decoration, a purpose for which they are admirably adapted. To compensate them for want of pot room, surface dressings of dried cow manure and frequent waterings with liquid manure should be given. Palms also enjoy sun and light and require but little shading. They also require an abundant supply of moisture, and the Date Palm well bears out the Arab proverb, that "Palms delight to have their toes in the water and their head in the oven."—W. H. G.

FLOWER GARDEN.

CHIONODOXAS.

HAVING just read in your number of the 23rd of March H. J. Elwes' remarks on *Chionodoxa Tmolusi*, I venture to ask for a corner in your paper for the following notes:—

I do not wish in any way to question Mr. Elwes' authority as a traveller in these parts, the more so as I owe to him my first inspiration to attempt in my garden a collection of native wild flowers, but at the same time I may call his attention to the possibility, nay probability of both he and Boissier never having had the opportunity to see all that is to be seen in the shape of flora in a mountainous region covering some 10,000 to 15,000 square miles. I have lived in Asia Minor since my childhood, and as a sportsman have roamed over a good part of this neighbourhood, and yet almost every day brings to light some new shrub or flower for me to admire.

Before entering into any details I will begin by requesting your readers to excuse anything indistinct or untechnical in my descriptions, as I do not pretend to any botanical knowledge, but am simply an amateur with none of the advantages that England offers to those trying to get an insight into floriculture.

The *Chionodoxa Lucilæ* is found on the Nymph Dagh range only, beginning from the heights of Tahtali above Smyrna, and ending with those above the village of Nymphio, the Nymphæum of the ancients, from which the range has been named. The white and pink sports of the *Lucilæ* are very beautiful in a wild state, quite equal, I consider, to the mother blue, but in my garden I have observed a decided falling off. I have no doubt, however, that a few years of cultivation in England will bring them up to their proper excellence.

I gave the name of *sardensis* to the first variety I discovered, as I found it on the Mahmoud Dagh, from which in an easterly direction you can see the plains of Sardis. The distinctive features of *sardensis* are its deeper and almost entirely porcelain-blue petals and small white eye. It is found growing from a few miles beyond Nymphio to the neighbourhood of the village of Parsa. White and pink sports exist, but are not so pretty as those of *Lucilæ*.

Gigantea was so called by me simply owing to the very large size of the flower. It grows on the Boz Dagh or Tmolus range above Allah Cheir, the site of the ancient Philadelphia, and differs materially from *Lucilæ* and *sardensis* in colour. Flowering as, I see by your columns, it is with Messrs. Barr in their Tooting nursery, I need not describe it very closely, but may say that I believe it will be very much admired when properly cared for. The bulbs I sent Messrs. Barr, like those I kept for myself, appeared to suffer more than usual from their transfer in a growing state to a warmer temperature. The white and pink sports are very handsome.

I may remark, before referring to *Tmolusi*, that *gigantea* differs so widely in many respects from the preceding varieties, that at times I am tempted to believe that it is not a *Chionodoxa* at all. I must leave the classing, however, to those more learned in botany than myself. *C. Tmolusi*, not *Timolusi*, as it has been erroneously called in some horticultural catalogues, grows apparently pretty generally on the Tmolus range, and from thence arose my choice of the name I gave it. To describe it exactly without the flower being before me will be difficult, but, generally speaking, I may say that the plant is dwarfer, more free flowering, and more brilliant in colouring than either *Lucilæ* or *sardensis*. The white eye is larger than in *Lucilæ*, and the blue tip to the petals more vivid than in *sardensis*. The bulbs are small, rarely exceeding that of a good-sized *Pea* in size, and when taken

require any further information, I shall be happy to lay before them all my limited stock.

Smyrna.

EDWARD WHITTALL.

** Many thanks. Any notes on the flora of your district will be most welcome.—ED.

SALPICHROMA RHOMBOIDEUM.

THIS plant of the *Solanum* family is a native of the Argentine Republic, whence it was sent to France by Dr. Sacc a few years since under the name of *Solanum pratense*. As an ornamental plant it cannot be said to be much superior to the common black-berried Nightshade (*Solanum nigrum*) of our hedges, which it closely resembles in the general character of its very abundant tufty foliage and its creeping and spreading branches. The numerous small

white flowers, however, are succeeded by berries of oblong shape (see illustration), which at first are green, but afterwards become pure white, transparent, and of elegant appearance. On lifting up an armful of the branches, as the plant lies on the ground in fruiting time, the foliage appears to be starred all over with the pretty ivory-white berries. These are too strong-tasted to be pleasant eating, the flavour somewhat resembling that of the Pine-apple, and leaving a disagreeable after-taste in the mouth; they are also, perhaps, not very wholesome. We have, however, met with some Creoles who appeared to enjoy them.

The best mode of utilising *Salpichroma rhomboideum* as an ornamental plant is to have it growing pendent over the face of rockwork, or on a trellis or a piece of wire-netting, thus displaying both flowers and fruit in the most effective manner. From the astonishing profusion of foliage which the plant produces on its creeping shoots and branches, it is also one of the very best subjects that can be employed for covering bare arid places in parks or gardens where nothing else can be grown. For this



Salpichroma rhomboideum; berries natural size.

out of the soil are whitish instead of brown, as in the other varieties. I shall be pleased to send Mr. Elwes a few good bulbs of each for trial, and am sure that after blooming the same he will agree with me that flowers showing such marked differences in colour and size merit a distinguishing name.

I enclose a photograph of *Chionodoxa Tmolusi* and *gigantea* taken several days after the flowers were brought down to Smyrna. The colouring of *gigantea*, done by a friend, is fairly good, but the flowers of *Tmolusi* were too faded to be well copied.

The fear of trespassing on your valuable space, as well as on your readers' patience, deters me from referring to the many other bulbous plants I have found in the vicinity of Smyrna, but should you or your subscribers

latter purpose the plant, which is perfectly hardy in the climate of Paris, will, no doubt, be found very serviceable in landscape gardening.—*Revue Horticole*.

Double-flowered Snowdrops.—In reply to "D. T. F.'s" query (*THE GARDEN*, April 6, p. 316) as to whether the single-flowered Snowdrop ever produces double blooms here, I may say there is no tendency whatever to doubling in this district. Strange to say, the double variety does not seem to increase here so freely as the single. I planted a few clumps of double-flowered Snowdrops a few years ago for comparison, but they have disappeared, and neither last season nor this have I found any double flowers, although I looked carefully for them. I have frequently heard that Snowdrops are earlier here than south of the Tweed. Perhaps our proximity to the sea may have something to do with it. At this date (April 8)

Snowdrops are quite over, and only a flower or two of the later varieties in shady spots can be seen. It is scarcely correct to say the Snowdrops are in a state of nature here, as about three-fourths of the area under them has been added within the last ten or a dozen years. About the end of August or beginning of September the turf is pared off lightly on a section where the bulbs have been undisturbed for four or five years previous, and will bear thinning. The ground is forked over lightly from 2 inches to 3 inches deep without injuring the tree roots and the full-sized and surplus bulbs collected, leaving enough small bulbs in the ground to stock it again. The ground is then levelled and the turf relaid, passing a roller over it to finish the work. If it is desired to stock a fresh section the turf is taken lightly off, the bulbs are sown over the surface, pointed in with a fork to a depth of from 2 inches to 3 inches, the ground is levelled, and the turf relaid and rolled as before. In this way, by doing a little each year, a considerable area can soon be stocked, and if the soil and situation are favourable, the flowers in a few years should cover the ground every spring as plentifully as the ears of Corn in a cornfield.—D. MELVILLE, *Dunrobin Castle Gardens*.

HARDY ROCK PLANTS.

"A READER FROM THE COMMENCEMENT" says, "I have nearly finished a good-sized rockery. Can you or some contributor to THE GARDEN tell me some of the best flowering plants to put into it?" I will do my best to assist you, and I daresay there are several others who can also contribute. Properly constructed and properly planted, a rockery is one of the most interesting features in an outdoor garden, and there is abundance of material to suit your purpose. The family of Saxifrages contributes a host in themselves for this purpose; many of them are small and grow naturally from apparently narrow crevices in the rocks, but this does not say that they do not require soil to grow in; therefore it behoves those constructing rockwork to so build up the whole that an ample supply is to be found beneath and behind these small crevices. The soil must be sandy and gritty, and so arranged that although it may receive a good supply of water the drainage shall be ample, and that nothing remains to stagnate or turn sour. If this has not been the one object kept in view, though the larger growing kinds may grow apace and flourish, the more delicate, and these are usually the most beautiful kinds, will not thrive. As you say the situation is prepared, I hope this point has been well studied, and if so, all will go well; but unless the crevices in the rocks or stones are properly arranged the plants will starve and present a miserable appearance. Many of these little plants root very deeply, and herein lies the secret of their existence in our climate during our dry summer months.

The family of Saxifrages is a very large one. We are told that the kinds have become mixed and have got into endless confusion; nevertheless, I will here give you brief descriptions of some of the kinds as I have known them for many years, and by the names which you will be able to get them from those tradesmen who have devoted themselves to hardy and alpine flowers. The species are arranged alphabetically, judging this will be more convenient than arranging them in groups:—

SAXIFRAGA AZOON.—This is a plant of great beauty without its flowers. The leaves form dense cushion-like silvery tufts of great beauty. I have specimens of it, each about 6 inches high, from the mountains of Salzburg, and I have grown it as a border plant to double that size. The blooms are pretty, but not showy, white, more or less suffused with green.

S. AZOIDES (the Yellow Mountain Saxifrage) is a very pretty native plant. It enjoys somewhat moist places, and, like the previous kind, will succeed low down on the rockery. It appears to most advantage when planted in large clumps. Its stems are decumbent and clothed with somewhat large leaves. The stems are much-branched and bear numerous showy flowers, which are rich deep yellow with numerous red dots.

S. ARETIODES.—This is another yellow-flowered

kind. It, however, thrives best in crevices of the rockery, and makes little silvery cushions, which are surmounted in the spring months by rich bright yellow flowers. The plant seldom exceeds 2 inches in height when in flower. It is a somewhat free grower and a perfect gem.

S. ASPERA.—When not flowering, this is a pretty, Moss-like plant; the lower leaves are closely set and over-lapping. During the end of summer, however, it flowers, and then it attains a height of some 4 inches or more; the stem leaves are larger and more widely set. The flowers are medium-sized and French white. It comes from Switzerland.

S. ALLIONI.—This is a little gem for a small crevice. It forms little rosettes of cuneate leaves, the whole plant less than an inch high. Its flower-spike, 4 inches or more high, bears a small corymb of large white flowers. It comes from the Italian Alps.

S. BURSERIANA.—A beautiful plant which grows an inch or more high. It spreads over a considerable space as it gets established. The leaves are stiff and of a light green, the flowers being large and pure white. It comes from the Pyrenees.

S. BRYOIDES.—This is suitable for little crevices which are near the eye. It forms dense little rosettes, similar to those of *S. cæsia*. I have it from Salzburg with flower-stems 2 inches high, bearing a single large white flower. The examples from Switzerland are not so high. It is a little gem, flowering in July and August.

S. CÆSIA (the silver mossy Saxifrage) is a gem. I have it from Salzburg, where it appears to grow strong, measuring nearly 5 inches high to the top of its branched spike, but under cultivation I have never seen it more than about 3 inches high. It appears like little silvery, mossy stars on the rocks, and its very slender flower-stems are much-branched and many-flowered, the flowers being large and white. Although such a neat and compact little plant, it thrives well in our gardens. I have examples of this plant also from Switzerland, where it does not appear to differ in any material degree, and I believe it is found in all the alpine regions of Southern Europe.

S. CRUSTATA.—This has been called a small form of *S. longifolia*, but under cultivation I have always noticed its distinct character. In specimens sent me from Switzerland the plant forms dense tufts, the leaves being narrow and less than an inch long, thickly margined with white dots, which give the rosettes a beautiful silvery white appearance; the flower-stem is 9 inches high, the long slender branches bearing two and three white flowers at the ends. It is a beautiful plant and requires a good depth of soil.

S. CERATOPHYLLA (the Stag's-horn Saxifrage) is a strong-growing, dense, Moss-like plant, producing in great abundance loose panicles of large white flowers. When in bloom it is about 9 inches high, but without flower some 2 inches or 3 inches. It is very free and grows in almost any position; forms a beautiful green covering, and flowers early. It comes from Spain.

S. CUNEIFOLIA is not remarkable for the beauty of its flowers, but I admire it for its pretty rosettes of entire, wedge-shaped leaves. It flowers freely, the spike varying from 3 inches to 6 inches in height; the blooms, however, are small and greenish white. It comes from Switzerland.

S. EROSA.—This kind is from North America, and is well deserving a place in all collections of these plants for the beauty of its leaves, which are 9 inches or more long and about 1½ inches wide. The panicle rises to the height of 18 inches or 2 feet, and is much branched, the flowers being small and greenish yellow. It is most suitable for a boggy place.

S. ELEGANS is a pretty Irish plant, with roundish leaves, which are deeply toothed. It grows from 4 inches to 6 inches high, the panicle being branched, and bearing numerous rather small flowers, which are white, spotted with pink. W. H. G.

Bulbous flowers in 1889.—Here all bulbous flowers are undeniably below the average in either quality or quantity—often in both. Looking round my garden yesterday, in order to answer your question, I came to the conclusion that it was needless to particularise, nearly every bulbous flower being in inferior condition. The worst, however, are such as imperatively require summer heat and a long rest—for instance, Tulipa Greigi and the Corbularias. The best, so far as I can judge of them at present, are the more robust Narcissi,

such as Horsfieldi, Empress, and the other large and late kinds. My white Daffodils look worse this year than I remember to have ever seen them look. Everything has been untoward for bulbs. Unripened in summer, they were brought into sappy leaf-growth in January by the mild wet winter, and were then checked and stunned by the frosty winds of February and March.—G. H. ENGLEHEART, *Applesham, Andover*.

Antirrhinums.—These have not borne out the promise of the early part of the winter, as old plants have died wholesale. This mortality is probably the product of the excessive rainfall of the previous year, allied to lack of sunshine to harden and mature the plants, as I have often found Antirrhinums to come through harder winters than the past one comparatively unharmed. Without doubt, the best plants, on the whole, to stand the winter are those raised from a sowing made in August, as, though small, they still seem to suffer only in a trifling degree. A sowing of seed last month, made under glass, will give an abundance of strong plants to go out at the end of May, and these will produce a very fine crop of flowers in the autumn, although perhaps late for seed-production. Still they bloom so long and so profusely in the autumn, that, on the whole, a more abundant bloom is obtained from the Antirrhinums than is produced in the summer.—A. D.

Florists' Carnations.—A writer (p. 294) says: "In small gardens the florists' Carnations are very often dismal failures." This is a platitudinous remark which might be made to apply just as well to Cabbages or anything else as to Carnations, but if it is meant to convey that florists' Carnations can only be successfully cultivated in large gardens, it only shows how little acquaintance the writer possesses with a matter on which he is so anxious that amateurs should not be "misled." The great majority of the exhibitors at the three Carnation shows in London, Oxford, and Manchester are amateurs who grow the florists' Carnations in small gardens. All Mr. Dodwell's finest seedlings up to the time of his removal to Oxford seven years ago were raised in a small garden within ten minutes' ride of Victoria Station, and all his greatest triumphs as an exhibitor were gained from the same spot. The prize for the best Carnation at the exhibition of the National Carnation and Picotee Society in London has been taken the last two years by amateurs with small gardens. The first prize for twelve Carnations and the first prize for twelve Picotees at the exhibition of the Carnation and Picotee Union at Oxford last year—the largest exhibition of Carnations hitherto held—were taken by an amateur growing his flowers in a small garden. The florists' Carnations are, in fact, true townsmen's flowers.—M. ROWAN.

Primula obconica poisonous.—It having come to my knowledge that a florist of this place, David Cliffe, was suffering from poison supposed to have been caused by some plant, I was led by what has appeared in *Garden and Forest* to suspect that perhaps *Primula obconica* might be that plant. I wrote him of my suspicion, and this is what he replies:—

I am positive that *Primula obconica* is poisonous to some persons. As you know, I was under treatment for poison which I received from Poinsettia, through cuts in my hand. Feeling much better, I busied myself potting my Primulas. In the evening I was completely blind from my face being swollen. It remained in this condition for a day. Since this my foreman, after packing up some of the plants, had his hands and arms poisoned. Last week a customer who had bought some of the plants refused to take any more, saying some who had handled them were poisoned by them.

It is hard to believe this of any *Primula*; and probably the cases in which it poisons are very few, as there is no doubt that hundreds handle it with no ill effects, just as is the case with many other plants. Personally, I am compelled to avoid any contact with the common Poison Ivy; and even the seeds of the Oregon Maple (*Acer macrophyllum*) and of the *Ostrya virginica*, both of which are covered with minute hairs, and excite an itching and inflammation of my hands, while many others

who have handled them are not at all affected. The *Primula obconica* is such a beautiful and useful plant that it will be much regretted if it should be proved to be really poisonous to many persons.—JOSEPH MEEHAN, in *Garden and Forest*.

NOTES ON HERBACEOUS PLANTS.

I SUPPOSE one may include Lilies under this designation, as they are included in collections which are exhibited as collections of herbaceous plants, and as I wish to submit one or two things in reference to them, I shall make use of the privilege and act accordingly. In nothing did I observe the effects of the drought of 1887 more than in them—at least that is what I attribute their conduct to. Many of them which had done well with me (I mean of the common sorts) were very different, thus the very beautiful, although common, *L. testaceum*, which has generally grown with me 5 feet or 6 feet high, did not reach to above 4 feet, and the flowering stems were comparatively weak; and here let me say that my experience of these things is on a limited scale. My garden is small, and I am only able to write of single clumps, where some would have hundreds in their gardens, yet as there are many similarly situated, my notes may be helpful to them.

Of all the varieties of *Lilium auratum* that I have grown, that called *platyphyllum* is the most satisfactory. Not only is the flower itself larger, with broad, well-shaped petals, but the plant seems to be of a better constitution than the ordinary varieties, which are so apt to die off. I do not know its origin, whether it is a natural variation or obtained from any different locality. I do not at all care for those varieties (*rubro-vittatum*, &c.) which have a red band on the centre of the petals instead of the yellow one; they always seem to me to have a dirty appearance, and are not at all so pretty as the type.

There is a point on which I should like to have the experience of others. We have all heard a good deal about, and most of us have grown *Lilium Harrisii*, about which your correspondent wrote recently in THE GARDEN. The point about which I want to know something, however, was left untouched; I mean whether it goes back again to its original character. It is believed to be *Lilium longiflorum*, improved by change of climate and perhaps of soil; but there are several things which thrive for a while, or when they are under the special conditions which have produced this change, but which seem to fail after a time. My experience of it is, of course, limited, but I have found that it has, in some cases after a couple of years, broken off into bulbs which only produce a single bloom, although there may be three or four stems in the pot; if this is so, I suppose, as in the case of *Ixias* and other bulbs, we must import them annually. What surprised me more than anything about Lilies was the total disappearance of two clumps of the common orange Lily which I had grown for some years, but which never made their appearance above ground last season at all. I could find no trace of them in the soil save a few scales. Why and how they went, I have not the slightest idea.

EREMURUS ROBUSTUS AND E. OLGEÆ.—I do not know when I have been more struck by the beauty of an herbaceous plant than I was by a spike of this *Asphodel*-like flower exhibited by Mr. Ware at the Aquarium last September. It led me to attempt their growth, but whether with success time must show. They evidently, from the account given of them in THE GARDEN last year, require a dry spot, or at any rate protection from much wet during the winter, and a warm locality during the summer. There is also some danger arising from the fact that they push their shoots somewhat early, and so become exposed to the spring frosts which are especially trying in these south-eastern parts of England. I believe *E. Olgeæ* is about the hardiest species yet introduced, and some day one may hope to see it in flower. Another plant of which I have had no out-of-door experience is

EURYANGIUM (OR FERULA) SAMBUL, a curious plant, the roots of which have a peculiarly strong

Musk perfume, for which reason the plant is much used in the toilet chambers of the fair dames of Turkestan. The plant has fine, large, spreading, Fennel-like fronds, and requires room. I put it out into the border last spring, but have not had time yet to see whether it will do well. If it succeeds, it ought to make a good plant on a lawn or in a wide border; it will not do to be crowded up by other plants. I saw it once well exhibited by Messrs. Dickson and Co., of Chester, but then it was as a pot plant, and, of course, it gave no indication of what it might be out of doors.

HEPATICAS.—I must confess to being thwarted in my attempts to grow these common, but pretty spring flowers, nor do I find that I am singular in this respect. They seem to me to be much like the white Lily. If you try to grow them they resist too often your well-meant endeavours; but they will grow in all manner of places without the least trouble. Speaking to a very eminent grower of herbaceous plants about them, he said three things were necessary: 1, that they should be grown in shade; 2, that the ground on which they are planted should be well trenched; and 3, that they should have liquid manure given to them in the summer. Now two of these things one can easily do, but when you have only a desire to grow a few plants it is not very easy to trench the ground. Another point is that they should not be moved. And yet I have seen plants in cottage gardens where the only one of these conditions that is fulfilled is that of leaving them alone. I have seen some growing in full sunlight and the plants crowded with flowers. *H. angulosa* I can do fairly well, but it is the older and commoner kinds which baffle me. However, I must have a try this year under new conditions, and see what the result will be.

CHIONODOXA LUCILLÆ.—Here I have a fine border of this quite 30 feet long and 1 foot wide with such a sheen of lovely blue. And now the bulbs, having been there some years, throw up the flowering stems higher and produce more flowers. Mine have seeded, too, all over the place. Some of them have come up on the walks and between the stones which line the paths, so that in a little while all the bed will be filled with them. Has anyone noticed the great depth to which the bulbs descend? I have been trying to get up some of these stray seedlings for a friend, and I found that the bulbs were fully 10 inches below the surface, so that it is almost impossible to get them up without a spade, a fork being utterly useless. I know of no bulb that roots so deeply as this. Is not the *gigantea* variety simply one that has shown the benefits of cultivation? *Sardensis* is very beautiful also, but I do not think that it can compare with the lovely azure blue of *Lucillæ*.

PRIMULAS.—It was once said to me by, I think, my good friend Mr. Llewelyn that Primulas ought to be grown from seed, for that they deteriorated in a few years. I have been reminded of this by the behaviour of mine the last two years. Some of them, such as *capitata*, *cashmeriana*, *rosea* and *scotica*, certainly seem to have lost vigour, and although for the sake of experiment I removed a plant into the border, where it would have richer and better soil, I see that the flower-heads are not what they used to be, and the stems are not one-half the height. The roots of *scotica* have disappeared altogether, and yet we are in the county of Primroses, and our lanes and woods are full of them; but we cannot tell whether the plants are seedlings, and whether the older plants perish. That a vast number of seedlings spring up every year is very evident from the size and diameter of the plants, but it is not so evident whether the old plants die off.

DAPHNES.—I was under the impression at one time that I could not grow these alpine shrubs here, but I have been agreeably disappointed, seeing how splendidly *D. Cneorum* and *D. Blagayana* did on the rich loamy soil of Mr. Bunyard's nursery at Allington, near Maidstone. I procured a couple of plants, and they seem to me to be doing very well. They are so early in flowering and so sweet scented, that I should be glad to grow them successfully.

DELTA.

Galanthus nivalis Atkinsi, or G. Imperati (Atkins).—In Mr. Barr's bulb list for 1875 a new Snowdrop was offered under the name of *G. Imperati* at 2s. 6d. per root. I learn from Mr. Barr that he got it from the late Mr. James Atkins, of Painswick, who would give no information about it excepting that "it came from the kingdom of Naples." In those days Snowdrops had not come into fashion, and I imagine that very few amateurs invested in the new kind. Mr. Barr tells me that the late Mr. George Wheeler, of Warminster, was the only one in the trade who ordered roots of it. Mr. Barr's soil did not suit Snowdrops, and in a year or two his small stock of Atkins's variety disappeared. In the spring of 1881, when looking through the Warminster Nursery, I was much struck with a row of the finest Snowdrops I had ever seen, and I at once secured some roots which I brought away with me. Mr. Backhouse did not offer *G. Imperati* until 1877. I had roots direct from him, and also from other sources at various times, but they were quite different from Atkins's form and not nearly so fine. As the more recently introduced plant is now everywhere known as *G. Imperati*, I think it would be well to call Atkins's form *G. nivalis Atkinsi*, as it would be a great pity to mix it up with the *G. Imperati* of commerce. It is a very fine plant with a vigorous constitution, and distinct in growth and flower.—JAMES ALLEN, *Park House, Shepton Mallet*.

Some new Weigelas.—"To obtain one really valuable novelty, it is necessary to test at least a dozen no better than, if so good as, those already in our possession," says Josiah Hoopes in the *Tribune*. "If flower-loving people would bear in mind," says Mr. Hoopes, "that new names are not necessarily new varieties, they might be saved much disappointment." This reflection occurred after having imported and bloomed a large collection of Weigelas, most of which proved no better than the old, well-known varieties. Among the most distinct of the newer introductions is a beautiful dark red called *Pecheur fils*, somewhat in the way of the striking *W. floribunda*. Another form with large blood-red flowers is *Voltaire*. This is a very vigorous grower with large coarse foliage, and will be useful for grouping with the lighter coloured varieties. None of the recently introduced Weigelas with variegated leaves are equal to the old *W. variegata nana* in effectiveness, although *Looymansii* has yellowish tinted foliage, which affords a good contrast in the season. *Gigantiflora* is only noticeable for a few very large flowers and vigorous growth. *Candida*, not strictly new, but little known as yet, is a strong-growing and free-flowering variety which produces an abundance of pure white flowers, which entitle it to take precedence as a valuable hardy shrub. The old *W. hortensis nivea*, which has heretofore been our only white form, is not reliable. Another little-known form of undoubted excellence is *Groene-wegeni*, which produces dark rosy red flowers in the greatest profusion. A specimen 10 feet high and the same in diameter was during the past season a perfect ball of lovely flowers, which entirely covered every portion of the plant. One of the most distinct and valuable of the newer Weigelas is *Abel Carrière*.

SHORT NOTES.—FLOWER.

Chionodoxa Lucillæ seeding.—Those who grow this *Chionodoxa* should be careful not to remove the stems after flowering, as seeds generally ripen, and these germinate freely, often at some distance from the original plants. These seedlings quickly gain strength and eventually flower freely.—E. M.

Aucuba japonica variegata as a lawn plant.—I lately saw a splendid clump of this plant growing in a sunken part of the lawn. It measured fully 25 feet across and from 12 feet to 15 feet high. It was quite round, but yet not too formal nor closely clipped, and thickly clothed with foliage right down to the Grass. It was a splendid object as viewed from the higher ground above it.—E. M.

Foxgloves.—In some parts of the woods, which are Crown property, not far from here are colonies of Foxgloves. The largest trees are Oaks, under which Hazel is thinly planted. Amongst this

undergrowth are growing acres, I may say, of Fox-gloves, and they look well when in full bloom and are much admired, being close to the high road from Portsmouth to London. They give an early promise of a fine show later on.—E. MOLYNEUX.

FLOWER GARDEN NOTES.

BEDDING ARRANGEMENTS.—Every type or description of flower gardening has its admirers and advocates, and it is well that it is so, otherwise many good flowers would either be entirely lost or partially neglected. Of all the phases of gardening none has come in for so large a share of abuse as summer bedding-out, and I readily admit that oftentimes such abuse is well deserved. The system is right enough did the gardener but strive to do his part well by following more the bent of his own notions of beauty than merely copying the arrangements of others. Notes, hints, and suggestions are very proper and sometimes helpful, but when a man copies the patterns of others he need not be astonished if his bedding arrangements prove a failure. I shall be pardoned the apparent egotism of saying that whatever success has attended [my efforts in this department of gardening I attribute to the resolution made many years since that I would make no copies, and further, that, so far as in my power lay, the bedding-out arrangements for one year should be totally different from that of the preceding. To carry out this idea the more completely, and that I might not repeat the arrangements of the previous year in the succeeding one, I determined to make no note of the arrangements, other than of those my late employer particularly fancied and wished to have repeated, a practice to which I still adhere. It may be helpful to someone wishing to work on the same lines if I give an outline of the procedure in respect of arrangements. We will suppose the garden was exceptionally gay last year with Pelargoniums, Marguerites, Dahlias, and the like, and that these were allowed to grow in what I shall call natural form, there being only sufficient curtailment of growth to keep the plants within their allotted space, no formality in fact, but as a set off, foliage beds arranged in geometrical fashion, with graceful standard plants in central positions; a third, say, of the whole of the beds being of this type, and all vases as gay as it is possible to make them. Then this arrangement would the following year be succeeded by arrangements as opposite as suitable summer bedding plants could make them. The leading flowering plants would be Fuchsias, Violas, Heliotropes, Petunias, herbaceous Lobelias, Begonias, and Pelargoniums; and as standard plants amongst other flowers would be Fuchsias, Abutilons, Marguerites. There would be the same extent of foliage beds, varied, of course, by a total change of designs and positions, the beds that were flowers last year being foliage this, and *vice versa*. By strict adherence to the rule here given, we have each season for many years been able so to change the arrangements that persons who see it frequently each year frequently say, "How different your terrace garden is from last year." This year circumstances render it necessary that the arrangements should be of a description requiring little labour, and to attain this object a greater use than formerly is being made of small ornamental shrubs—Retinosporas, Cupressus, and variegated Euonymus. These are being planted in regular form in circular beds, and it is intended to plant between them tuberous Begonias, Fuchsias, Violas, and probably Pelargoniums, arrangements that I have no doubt will prove as effective as any we have yet had. Other kinds of hardy plants we shall also use in large numbers, many of which, such as Pansies, Violas, and Sedums, are already planted.

NEW ZEALAND FLAX (*Phormium tenax*).—We have three varieties, and all of them perfectly hardy. As the *Phormium* is suitable alike for the lawn and flower beds, we have for some time been striving to increase the stock of it. The *Phormium* is a strong rooter, and the roots take a perpendicular direction; hence removal means a serious check to growth, and should only be done when it is absolutely necessary for the purpose of obtaining offsets

for increase of stock. These, taken off with a little of the root adhering, rarely fail to make plants, but they are a long while about. We plant the offsets in light sandy soil at the foot of a south wall, and in twelve months' time they make plants of about five leaves, which come in well for the sub-tropical beds. We have plants of the variegated variety in two large square vases that when first planted some dozens of other bedding plants were required to fill them out, but the whole of which the *Phormiums* now monopolise, and nothing could look more noble, and, better still, they take care of themselves.

BEAUTIFUL CLIMBERS FOR LOW WALLS.—They are *Euonymus radicans* variegatus and *Cotoneaster microphylla*—plants that in the strict sense of that term are not climbers, and yet there are few better adapted for clothing low walls. We have a few yards of walling thus furnished, and I often regret that the extent is so small. The contrast between the light variegation of the *Euonymus* and the glossy dark green of the *Cotoneaster* is charming. By a little manipulation during the first season of planting, to see that no back shoots hinder the branches fitting close in to the wall, they will after that grow perfectly flat to the wall and cling without either ties or nailing.

HARDY FLOWERS NOW IN FULL BEAUTY.—I name them according to merit as now flowering in our hardy plant borders: *Anemone blanda*, *Hyanthis*, *Daffodils* in variety, *Wallflowers*, *Primroses*, and *Polyanthuses*, the blue *Windflower*, white *Arabis*, *Forget-me-not*, and *Daisies*. *Hepaticas*, blue, pink, and white, and *Scillas* are just over.

W. W.

ROSE GARDEN.

THE ARTISTIC GROUPING OF CUT ROSES AT EXHIBITIONS.

THIS has been the pleasant dream not only of enthusiasts, but of many of the more cultured practical rosarians for years. And still it is but a dream, not from any unwillingness to make Rose shows more artistic, and consequently more attractive, but rather from the practical difficulties inherent in the nature of the problem. These difficulties are much more formidable than they seem. I do not advance this as a reason for ignoring art and substituting ugliness in the arrangement of Rose shows, for most horticulturists have long since learned to look on difficulties as things to be mastered, but rather as a plea for moderating extravagant expectations as to the possibilities and place for art in the arrangement of exhibitions of cut Roses. Some of us who have had great expectations in this direction could hardly do better than read, mark, learn, and inwardly digest the weighty remarks of Mr. T. W. Girdlestone in *THE GARDEN*, March 30 (p. 277). No one can accuse Mr. Girdlestone of throwing cold water on art at Rose shows. On the contrary, by showing what is possible, under special conditions most unfavourable to artistic combinations, he has chosen the likeliest route towards substantial improvement.

In addition to the difficulties of transit, space, time, and competition named by Mr. Girdlestone there is the greater one of the liability to perish, and the necessity for their stems being placed in water to carry them creditably through a one, to say nothing of a two days' show. The need of water to preserve the flowers fresh necessitates trays, tubes, bottles, jars, or water-tight vessels of some sort beneath the flowers. And it is hardly too much to say that these water-holders are the despair of artists, and almost incompatible with artistic combinations.

Possibly the bunching of Roses might prove a considerable improvement on showing them in singles or in threes, provided they were not over-bunched, as Mr. Girdlestone very pithily puts it, as cut flowers, including Roses, mostly are. And this phrase does not merely mean that the bunches are too large, but also that they are too formal and too tight.

The objection as to the difficulties of transit from

the size of the bunches could be met by bunching the flowers on the spot. This, however, would necessitate a very severe revolution in the management of Rose shows, viz., that all tents, stages, &c., should be ready for the exhibits at least twelve or twenty-four hours before the opening of the show.

By extending Rose bunches into groups, and arranging the latter on the ground or on raised stands or tables, based with water trays, wider areas would be furnished for the artistic combination and exhibition of the forms, colours, and more natural character of Roses.

Vases, baskets, sprays, branches, bouquets of Roses might also be exhibited of all sizes, from the most effective single bloom with foliage to masses of blooms, leaves, and branchlets of any given area, competition in vases or baskets being confined to those of similar sizes.

It might also be possible, though difficult, to form beds, valleys, and even arches of cut, climbing and other Roses on Grass or mossy banks at exhibitions.

One more point occurs to me as I write, and that is the desirability, perhaps absolute necessity, of combining Roses in pots with cut blooms before Rose shows can be made really artistic. This would enable all the more permanent features of the exhibition to be arranged in good time, and with the express object of making the most and the best of the entire Rose show from an artistic point of view. A first step at least might be taken towards the artistic showing of Roses by the offering of a few valuable prizes to the most artistic exhibition of Roses in pots and cut Roses combined at the forthcoming Chiswick show, the only limit or check in judgment or taste being that each competing group should be of the same area.

It would seem invidious to give names, else it would be easy to name several of our cultured rosarians who are eminently qualified and possess ample means of furnishing such artistic combinations of pot and cut Roses as few have ever dreamed of, and fewer have yet seen, either in a state of nature or art, or of both combined. D. T. F.

Standard Tea Roses in pots.—Those who have not seen a collection of Tea Roses growing in pots and gently forced to have them in bloom about the middle of April, have no idea how well this section is adapted to pot culture as standards. Given good treatment, they make free growth and produce blooms of high quality. Tea Roses are more suitable for growing as standards in pots than are Hybrid Perpetuals, for the reason that the growth of the Tea Roses is more of a weeping character. Arranged with other low-growing flowering plants, these standard Teas are very effective when in bloom. Liberal feeding at the roots when growing freely, fairly close pruning—say to within two and three eyes—and a temperature of about 55° by night, with a rise of 10° by day, will lead to success. The following are some of the varieties which succeed well under this form of growth: *Mme. Bravy*, *Cheshunt Hybrid*, *Souvenir d'un Ami*, *Niphetos*, *Souvenir d'Elise*, *Mme. Lambard*, and *Devoniensis*.—E. M.

Roses and Asparagus.—I much like Mr. Muir's idea (*THE GARDEN*, March 30, p. 278) of this combination. Artistically, the two plants match well on the principle of strong contrast, and I have noted for years how Roses have shown to more advantage when grown in close proximity to Asparagus beds, though I have not gone the length of mixing the two. I hope, however, to do so and report progress. Will Mr. Muir kindly say whether he has salted his Asparagus between his Roses and how the latter liked it, or has he withheld the saline dressings, which, fortunately, are by no means essential to good Grass? Also, if he has noted what effect, if any, the dual cropping has had on the longevity of his Roses. Dual cropping at times seems to add to the longevity of Rose plants, a point of much interest and importance to some whose Roses are always more or less in the throes of new birth or dissolution. The idea of Asparagus and Roses reminds me of a cruel instance of disqualification that befell a fine box of blooms,

because, forsooth, the exhibitor had the artistic feeling to dress his box with *Asparagus fronds* instead of Moss. It was in vain I contended that the flowers were the best, even without the novel greenery, and that the novelty and freshness and highly artistic effect of the *Asparagus* sprays deserved a point or two rather than the cruel brand of disqualification. Time not only brings its changes, but its revenges, and I think that unfortunate exhibitor will have his reward when he comes upon a glorious Rose bed in the flower garden overflowing with beauty and verdure, each drooping Rose resting its beauteous cheek on the soft feathery fronds of bending *Asparagus* foliage.—D. T. F.

MARECHAL NIEL AS A BEDDING ROSE.

IN the climate of Taunton, unless drowned by the recent floods, no doubt the bed of *Maréchal Niel* Roses described by "J. C. C.," March 30, p. 279, will blossom freely during the coming May and June, and probably again in the autumn. In less fortunate climates, where there is little difficulty in getting the *Maréchal* to grow like a weed on its own roots or otherwise in the open, its safe wintering or free blossoming is quite another matter. This is more especially applicable to dwarf plants in the open air. Standards on *Gloire de Dijon* and on the Brier seem considerably harder than dwarfs, and the higher the standards the more hardy they seem. The growth of standards, however, in the open seldom approximates in vigour to that of dwarfs. More singular still, the ratio of growth and of bloom is very often in the inverse ratio. In other words, the more vigorously the plants grow the less they bloom, and *vice versa*. Another peculiarity of great practical importance in regard to standard *Maréchal Nels* to which I have already called attention in *THE GARDEN* deserves to be again noted. It is this: that standard plants of *Maréchal Niel* generally flower again in the autumn, a rich and welcome result not generally nor often reaped from walls. And these late pickings of the *Maréchal*, though seldom so large, are more deeply coloured and richly perfumed than the earlier and more normal blooms.

It is to be hoped that "J. C. C." will keep us informed of the blooming of the promising Taunton bed of *Maréchals*. The prospect of seeing these in all their brilliancy of golden glory, as well as the memory of fine shows of years ago judged and enjoyed make me wish to take the long run over again, which would be well worth while should the *Maréchal* keep time with the great shows.

D. T. F.

Pruning Roses.—It is seldom that we read sounder advice or more to the point on pruning Roses than that which is contained in the article by Mr. Girdlestone in *THE GARDEN*, April 13 (p. 327). That which struck me most, as being of great importance in the work of pruning, was the recommendation in the case of the Hybrid Perpetuals to cut clean away the oldest of the branching stems that have flowered. This is what I have always maintained should be done, because observation will show that it does not matter in what form the plants are grown; whether on their own roots or worked on any other stock, they invariably send up a strong young shoot every year from near the base of the stem. It must be plain to all that these young and vigorous growths are intended to take the place of those which are exhausted, and if we would retain our Roses in vigorous health, the old wood should be cut away and the young growths preserved. In the case of dwarf bushes, I have often observed that these young shoots which spring from the crown of the plant are weaker the second year than the first, and that they invariably die at the end of the fourth. The merest novice can shear over a Rose bush, but it is one thing to prune so as to always have the plants full of young and healthy growth, and another to have them encumbered with a lot of dead and dying wood. The man who habitually prunes hard back every year for the purpose of securing large flowers is not, of course, so much troubled with dying branches

towards the close of the summer, but it is sure to be so in the case of those who prune less severely. Climbing Roses renew themselves on much the same lines as the Hybrid Perpetuals, as after the growth gets weak new shoots frequently spring out from a latent bud near the surface of the soil.—J. C. C.

Narcissus committee, Royal Horticultural Society.—At a meeting of the committee held at the Drill Hall, Westminster, on Tuesday, April 9, the following varieties were registered: *Santa Maria*, a deep yellow Ajax, collected by Mr. P. Barr, and grown for more than one season in this country. *Camoens* (Mr. Tait's bicolor, bicolor *lustratus*), with perianth segments shorter than the corona. This has been collected and distributed by Mr. Tait. *Lady Annesley*, John Bright (somewhat like *obvallaris*), and *Roslyn* (a form of *princeps*) were deferred for further trial or information. *Little Princess*, *Stansfield*, and *Sir W. Harcourt*, three new varieties from among the Backhouse seedlings, were shown, but no opinion expressed on them. *Dolly Varden*, *Prince George*, *Countess of Desmond*, *Richard Boyle*, and *Silver Bar* were not considered to possess any distinct merit or superiority over other better-known sorts. The following seedlings raised in this country were of interest: From Mr. Wolley Dod a large number varying considerably in colour, raised from *J. Horsfield*, but in most cases very greatly inferior to the parent; also a number from *obvallaris*, which differed from any shown by Mr. Wilks or Mr. Engleheart raised by them from the same variety. Mr. Engleheart brought a number of seedlings from *spurius*, showing great variation both in trumpet and perianth; seedling from a common pseudo, fertilised with pollen from *Achilles*, very like what is known as *scoticus*; seedling from *spurius*, believed to have been crossed with *poeticus ornatus*, very like *Sir Watkin*; seedling from *Vicar of Lulworth*, reverting to the common pseudo; seedling from a bicolor crossed with a white Ajax (*Hampshire albino*), reverting to a small pseudo; a double yellow seedling from *obvallaris*, fertilised apparently with pollen from *Telamonius plenus* which was growing near.—C. R. SCRASE-DICKINS, *Hon. Sec.*

SHORT NOTES.—GARDEN DESTROYERS.

Insects in Peach border.—I would be glad to know the name of the enclosed insects. I find on pointing over the Peach border that it swarms with them. Are they injurious? and if so, how can they be destroyed?—R. M.

*** The creatures you enclose are mites, belonging, I believe, to the genus *Trombidium*. They are not vegetable feeders, but are said to live on aphides and young freshly hatched caterpillars.—G. S. S.

Insect powder.—In *THE GARDEN*, April 13 (p. 330), *Pyrethrum roseum* is given as the source of the insect powder of commerce, and "in Europe these flowers are only found in Dalmatia, but these are white and not rose-violet, like those of the Caucasus form." I have always been under the impression that the Dalmatian insect powder, death to insects, &c., was derived from *Pyrethrum cinerariæfolium*, of which we have the identical, or a very similar plant, in gardens under the name of *P. Willmottei*. This species has white flowers, and has no resemblance whatever to *P. roseum*. It forms a tuft of pinnatifid glaucous leaves, from which spring the long slender stems bearing medium-sized white flowers. It is very probable that the powder from the Caucasus is made from *P. roseum*, but of that I am not certain.—K.

Grubs in greenhouse plants.—I enclose specimens of insects or maggots that are working among plants in my greenhouse. They attack the roots of the plants, and the latter gradually fade and die. The insects are small, and difficult to see with the naked eye. Can you tell me what they are, and how they may be got rid of?—E. WATTS.

*** In reply to the above, I have received grubs similar to those you sent from several quarters lately, and I am sorry to say I do not know what they are, nor can I find out. I have shown them to

various authorities, but can learn nothing definite. They are, no doubt, either the grubs of a fly or of a beetle. I hope soon to be able to answer this question more satisfactorily. I fancy their natural food is stable manure, for when I put some of them into some which was well rotted they worked themselves into it with evident satisfaction. How to destroy them without injuring your plants is a difficult problem. A quarter of an ounce of corrosive sublimate, dissolved in 10 gallons of water, might be useful if the soil were well soaked with it.—G. S. S.

Insects in garden.—Would you kindly inform me of the name of the insects enclosed? They are in very considerable numbers in my garden, and vary in size. Kindly say if they are harmful to plants or bulbs, and if so, the best way of getting rid of them.—J. F. HINDLEY.

*** The insects you have sent are specimens of the flattened millipede (*Polydesmus complanatus*). They are very injurious in gardens, and at the same time are very difficult to get rid of. Pouring boiling water over the soil in which they are would be very useful if it could be done. Strong brine will kill them if it can be made to reach them, and a mixture of soot and water (two handfuls of soot to a gallon of water), applied to the roots of plants which are attacked, will drive them away or kill them. Pieces of board, slate, tiles, or turf laid firmly on the ground make good traps, as the millipedes will hide under them. Slices of Mangolds, Turnips, Potatoes, or Carrots, buried just below the surface of the soil, will attract them. The grubs you sent at the same time are those of a beetle, I believe. I am not certain if they be injurious or not. If you have recently been manuring your ground, they have probably been imported in the manure.—G. S. S.

BOOKS.

MODERN CREMATION.*

ALL interested in cremation should see this book. The argument is very clearly and concisely put, and the part dealing with precautions as to poisoning extremely interesting. The carelessness of people in this country in regard to the question of evidence of the cause of death is shown. Those who are best fitted to judge of the matter suppose that there is a good deal of secret poisoning among us. Many thousands of bodies are buried in the United Kingdom every year without even a certificate of death, and, when a certificate is obtained, it is a very different thing from that which is requisite in France or Germany. There, no one can be buried until the cause of death is officially certified by an independent and competent doctor, who has had nothing to do with the case.

Names of plants.—H. P.—*Dendrobium chrysanthum*.—A. M. T. A.—*Narcissus minor*.—C. Abbott.—1, *Acacia verticillata*; 2, *Acacia Drummondii*; 3, *Acacia armata*; 4, *Woodwardia radicans*; 5, *Asplenium viviparum*.—G. Thompson sends six flowers of small *Oncidium* to name, two blooms of each, without any allusion to the habit or growth of the plants. This is too severe a task. 1, *O. lunatum*, flowers pale sulphur-yellow, spotted with brown, lip white, stained at the base with dull brown; 2, *O. leucochilum*; 3, *O. euxanthinum*, clear golden yellow, the sepals and petals dotted with red, crest warty, also dotted with red, a pretty species; 4, *O. jancirensis*; 5, *O. Suttoni*, greenish yellow, the basal part of sepals and petals deep brown; 6, *O. Wentworthianum*.—J. Wimpole.—1, an unusual form of *C. Mendeli*, good; 2, *Cattleya Lawrenceana*, poor; 3, *Odontoglossum Andersonianum*.—A. Lady Reader.—1, *Mackaya bella*; cannot name *Camellias*; if they are imported from Japan, they are cultivated plants there no doubt; 3, *Sparmannia africana*; 4, *Brachysema acuminata*.—Tootsy.—1, *Adiantum hispidulum*; 2, *Lastrea glabella*; 3, *Lomaria gibba*; 4, *Selaginella apus*.—G. Lane.—1, *Boronia tetrandra*; 2, *Aotus gracillima*; 3, *Laehenalia tricolor*; 4, *Streptocarpus Rexii*.

* "Modern Cremation: its History and Practice." By Sir H. Thompson. London: Kegan Paul, Trench and Co., Paternoster Square.

WOODS & FORESTS.

VALUING STANDING TIMBER AND VALUERS.

IN answer to Mr. Thos. S. Canning (GARDEN, August 13, p. 350), I have no hesitation in saying that a man who errs in his estimate to the extent of about 700 feet in a total of 2000 feet of timber, as your correspondent's figures show, is not fit to go into a wood; but I cannot believe that any "timber valuer" could make such a mistake and not know it. I have frequently seen falls of nearly 20,000 fall within a fraction of the valuation, so to speak. It is always an easy matter for the valuer to put on enough of measure and leave the purchaser to pull it off. The whole art of valuing timber consists in ascertaining the quantity and quality of the timber, and, the market price being generally pretty well known on both sides, the matter is soon settled. I prefer selling timber standing (unless the trees are of a special quality), payment within a month, all costs and risks to be borne by the purchaser. When the proprietor sells to the consumer he may now and then have an advantage, but he incurs great risk of losses. The timber is delivered before payment, as a rule; customers and risks are multiplied, and the costs of felling and lotting, &c., are great and never all got back again, and, besides, lots are often left on one's hands. Selling in wholesale quantities to large consumers is another matter and to be commended. I attended not long since a notable sale of timber that was largely advertised. It was extra heavy stuff, and had all been lotted out of the woods at a cost of over £300, I was assured. An outside valuer had been called in in this case also, who persuaded the vendor to allow him to employ a strange auctioneer from his own neighbourhood and whose charges were high enough to pay two. As soon as I entered the field, and saw the lot with all its good and bad points in every tree exposed to the eyes of critical purchasers, I said it would fetch just the same average price per foot as was realised on a neighbouring estate for standing timber of the same kind and quality a month previous, and it did, perhaps a trifle less, with this difference, that the owner of the standing timber saved all the costs of felling, lotting, and valuing. Lotting Fir poles in the north, or in Ireland is a different matter from dealing with the heavy Oak and other timber often sold in England, and averaging from 50 to 100 cubic feet each tree. Once you get your tree on to the wagon, take it away to the station, or wherever it has to go. Loading and unloading such heavy timber where neither steam power nor cranes are available, merely for the sake of lotting it for the auctioneer, mean putting 2d. or 3d. per foot on to the costs.

YORKSHIREMAN.

Effect of bad seasons on trees.—Talking on this subject to a northern nurseryman the other day, he said that the effects of cold summers and unfavourable winters had had a far worse effect upon vegetation than people generally imagined, and that the ill effects would continue to be shown for years to come upon many kinds of trees, especially those of the more tender class. These ill effects he attributed to immature summer growth subjected to the uncertain vicissitudes of cold winters and frosty springs. This conversation originated while observing the condition of some fine old Spanish Chestnuts that have in several instances exhibited symptoms of decay of late. There is an avenue of them; none of them are very old, and ten years ago they were all in superb health to the extremities of their topmost boughs. Within these last two or three years, however, one of them has

nearly died outright, all the small branches having perished, the only signs of life being the adventitious shoots pushing from the thick trunks lower down. To all appearance the tree will not live another year. Some of the others are showing similar debility, but as yet decay is confined to the tops of the branches. No tree thrives better here than the Spanish Chestnut, although it does not ripen its fruit, but a continuance of bad seasons seems in the end to enfeeble it, in our high and inland situation at least. Our trees have shown the first symptoms of decay within the past few years. Previously they were growing fast, and laying on bark and wood at such a rate in their trunks and roots as to upheave a massive stone wall several inches wherever it approached their roots. Several fine Yews in the most flourishing health have also shown similar signs of decay, and so have Araucarias, Cypressess, Deodars, and other trees.—Y.

FORESTRY.

THE planting season is now drawing to a close, and from the fine open weather experienced in many parts of the country newly-planted trees ought to do well. The transplanting of nursery stock of all kinds should now be finished without delay, and in dry favourable weather Scotch Fir and other hardy tree seeds should be sown, care being taken not to cover the seeds too deeply. The size of the seeds of the different species of trees is a safe guide in this respect. Larch seed should not be sown till the end of the month, and before being sown it should be spread out on a floor to a depth of some 10 inches or 12 inches and saturated with water. It should then be turned twice a day for about a week, by the end of which time the grains will have swelled and the embryo buds be on the move. This precaution in preparing the seed should always be well attended to, otherwise failure might result. This is also the proper time to sow the seeds of the Weeping Birch, Mountain Pine, Mountain Ash, common Juniper, Whins, Broom, &c., on bare rocky places where it is desirable to get up covert for ornament and shelter. In sowing the seeds a couple of men should be employed, one to break the surface among the chinks of rocks and other places with a hoe, while a second person follows and drops a few seeds at the spots prepared. One of the best trees for scenic effect in such places is the Aspen Poplar (*P. tremula*). In place, however, of sowing the seeds, which are very light, the better plan is to insert cuttings of the roots of the tree between the chinks of rocks and other places, and this is best accomplished by opening a slit with the common planting iron, inserting the cutting, and pressing it in with the foot. This tree grows naturally in wet, boggy spots, as well as on dry rocky places, and when once established the roots spread out among the rocks near the surface, and produce a succession of annual suckers which are relished by sheep, cattle, and deer, on which account it is not only valuable as a hardy ornamental tree, but as a useful forage plant. Cuttings made from twigs and branches of this tree refuse to grow. This is the best season to sow Grass seeds on bare ground here and there in the deer forest and elsewhere, and in doing so it is best to use the seeds of the hardy native species, such as Fescue Grass (*Festuca ovina*, *F. pratensis*, *F. calamaria*, *F. gigantea*, and *F. duriuscula*). These are a few of the best for dry ground at high elevations, but in woodland grounds some of the seeds of several species of the strong-growing kinds, such as Wood Meadow Grass (*Poa nemoralis*), Cocksfoot Grass (*Dactylis glomerata*), &c., may be added. All roads, bridges, and bridle paths in the forest should be examined and thoroughly repaired.

Young Pine plantations should have particular

attention at present, and young trees that have been cut over by vermin and which are producing several leaders should be pruned, in order to direct their growth into one principal leader. When this work is executed at the commencement of the growing season, the superfluous growths starting at the top can be removed in a very efficient manner by pinching them off with the finger and thumb, the whole energy of the plant being then directed to the formation of the proper leader during the growing season. Ornamental Coniferæ had likewise better be examined, and all broken or distorted branches of whatever nature should be removed by cutting the damaged part off with a sharp knife. It is sometimes desirable to cut back or pinch any strong rambling side branches, in order to form a uniform well-balanced top, and in doing so the part to be removed should be cut off with a sharp knife at the base of a lateral twig. Trees that are showing marks of distress through poverty of soil may be much improved in health and condition by applying to the surface of the ground around the tree a top-dressing of thoroughly decomposed manure or rich compost. This has a wonderful effect in restoring such trees to health and vigour and will amply repay the trouble and expense incurred. Ornamental hard-wooded trees of a stunted growth may likewise be treated in the same way with advantage.

Sometimes recently planted trees of any great size are allowed to suffer considerable damage for want of proper and efficient staking. When trees of any considerable size that have been lately transplanted are allowed to rock about they get strained and damaged to a serious extent; therefore the planter should be careful to have them staked and tied to keep them in their proper position until they get thoroughly established. A good mulching will also, in many cases, prove beneficial to recently transplanted stuff of this class. In order to promote the growth and healthy development of young ornamental plantations, shrubberies, and hedges, the surface of the ground had better be broken up with a hoe, even although no surface weeds are to be seen.

Insects destructive to the growth of forest and ornamental trees are now active; therefore, in order to keep them within bounds, every means ought to be tried to lessen their numbers and prevent them, as far as possible, from breeding. Many of these pests multiply in sickly and dead trees, some in the wood and others between the wood and bark. Such being the case, it is very necessary at this season to have plantations examined, and all trees that are dead or sickly, cut and removed, with the view, as far as possible, of preventing them being used for breeding purposes. All dead branches and rubbish where these pests harbour should also be collected and burned. J. B. WEBSTER.

Planting trees near houses.—In planting trees close to dwelling-houses, it is unfortunate that the size to which they attain is not carefully considered previous to insertion. Were this done, a great amount of unpleasantness and trouble would be saved, not only to the tenant, but landlord as well.

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London: 37, Southampton Street, Strand, W.C.

No. 910. SATURDAY, April 27, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

MULCHING.

ONE of the most important operations at the present time, not only in the open air, but also in fruit houses, is mulching. The most successful planters are careful to have the soil in a dry or semi-dry state when the trees are placed in position; if in leaf, they give a thorough soaking to wash the finest particles home, but knowing that constant saturation is injurious, they mulch for the two-fold purpose of keeping in moisture and economising labour in the spring. Immediate mulching is not absolutely necessary; indeed, in some situations, especially upon cold, heavy soils, mulching may advantageously be deferred until solar heat has warmed the surface, when a good covering followed by a second supply of water will start the roots, and the trees will not look back unless the summer proves exceptionally dry. As the roots are not in a condition to receive stimulants, rich manure should not be used, and yet a covering of some kind that will prevent evaporation and absorb sun heat should be placed over the newly disturbed ground before the end of the first quarter of the year. If cold, heavy animal manure is the only comeatable substance, it may be tolerated in light, warm soils, but where converse conditions prevail, finely broken lime rubble or, equally good, burnt earth and refuse from the rubbish ground, two excellent fertilisers, will be found preferable.

Established trees from which crops of good fruit are expected require stimulants from the time the fruit commences swelling until it is nearly ripe; hence the advantage of covering the borders, especially those lying at the foot of a south wall, with short manure or fresh stable litter, which has not been robbed of the droppings for use in the Mushroom house. A very light covering placed upon Peach and Apricot borders immediately after the autumnal root-lifting is finished maintains a neat and clean footway throughout the winter; but this, even on cold, heavy loams, may be drawn off to let solar warmth into the borders when the trees commence opening their flowers. As these soils often become caked and impervious to warmth and air by constant traffic, fertilisation may be aided and facilitated by pointing them up with a steel fork, the rougher the better, and leaving the clods fully exposed until the fruit is properly set. At this stage, when quite dry, the rough surface should be broken down by treading or ramming, and the mulch, whatever it may be, may be placed over it at once. Fresh stable manure is a very suitable mulch for stone fruits against south walls, as it charges the dry, warm surface with ammonia and acts as a beneficial stimulant upon the foliage. The surface of the border, moreover, covered up when dust-dry, does not again become adhesive or caked, a very important matter when the time arrives for giving copious supplies of liquid or pure water, and we feel particularly anxious for it to descend evenly and quickly to the drainage. Those who pin their faith upon rich rotten manure often do more harm than good by keeping their borders sour and cold, and by forcing a gross late growth which in unfavourable seasons never ripens. The tropical summer of 1887—a godsend for the country—caught pro-

crastinating mulchers napping; their crops suffered, and they resolved that they would prepare in time for the series of hot, dry summers which prophets told them were to follow. The past year upset their arrangements, and not a few overfed trees at the present time are less satisfactory than they might have been had the fresh air and warmth-absorbing stable manure been used.

FRUITS, including Vines, Figs, and all stone fruits grown under glass, require precisely the same treatment both as to the time of application and the quality of the mulching. If the borders are composed of suitable materials and are well drained, they contain all that is essential to the support of the occupants until after the crop of fruit is set. They absorb warmth and air, and being neither too wet nor too dry, other conditions as to the temperature of the houses being right, imperfect fertilisation is the exception to the general rule. We may brush the flowers with camel's-hair pencils and rabbit's tails. We may knock off the capsules and viscid matter with streams of water through the syringe, but unless the roots are in a warm and happy medium, neither too wet nor too dry, fertilisation will be more or less imperfect. Old Peach trees and Vines which crop profusely and do not make strong wood often derive great benefit from autumn mulching with rotten manure and an occasional watering with warm diluted liquid; but in almost every case the latter would suffice, and the set of fruit without the manure would be more certain. All forcing gardeners know the full value of fresh unfertilised stable manure, and make good use of it when their crops of Grapes and Peaches, their Figs and Pines are swelling, more so perhaps than the growers of hardy fruits who prefer it in a state of decomposition. The best time to apply it is immediately after the crops of fruit are set, and here a word of warning may be of use to the uninitiated. Too much ammonia in a close hothouse may do more harm than good; indeed, so subtle is an overdose that all the tender foliage may be destroyed in a few minutes. How, then, is this good friend to be tested, prepared, and pronounced fit for use? Easily enough; by spreading thinly in the frame ground and turning once or twice in the course of twenty-four hours; also by watering with pure water and allowing it to get dry in the open air, when it will be quite safe for use as a mulch beneath the most delicate foliage. At the same time, as nothing succeeds like success, a chink of air at the apex of the roof should always be left on for a day and night after the borders are mulched. Without mulching of various kinds, the gardener could not carry his crops to the high state of perfection so generally attained. Those who succeed best always err on the side of moderation, both in strength and quantity, and in making repeated applications from the time the crops are set until they approach maturity. W. COLEMAN.

The cotton wool nuisance.—For packing Peaches and Nectarines cotton wool is not at all objectionable, as by wrapping each fruit in one thickness of tissue paper, the wool does not adhere to the rough skin of the Peaches. Over the bottom of the box may be placed a layer of Moss, which has been dried and well beaten, while over the Moss one layer of tissue paper may be spread. Between each fruit place pieces of cotton wool, and over the top of the fruit a layer of wool may also be spread. I have also seen cotton wool used successfully for packing cut flowers. Some say it is far too absorbing to be used at all for packing cut flowers, and so it might be if used in a dry state for all sorts of flowers. I saw it used for packing some Chrysanthemums which came to me through the post.

The ends of the stems were wrapped in cotton wool, which was tied firmly on; the wool was then soaked in water, and afterwards squeezed to get rid of surplus moisture. In this manner the Chrysanthemum blooms came fresh, and the wool did not come in contact with the blooms, which were tied to cross sticks fastened to each side of the box. Cotton wool is used largely to pack Camellia blooms. I have seen many hundreds of blooms of Camellias packed daily in cotton wool and with the best results. The wool was pulled into flakes, the blooms being laid face downwards in it, and the ends of the squares of cotton wool wrapped under the petals. If the blooms are then placed in layers three or four deep no harm will result. Spinach leaves and *Selaginella Kraussiana* are excellent materials for packing cut flowers; for Roses the Spinach leaves form a capital moist medium, placing one leaf between each bloom, and finishing off with a layer on the top. The *Selaginella* forms a good foundation, being soft, yet moist. Care should be taken to secure the *Selaginella* free of grit, especially when it is used instead of Spinach leaves. In my opinion the whole question of packing materials depends on the kinds of flowers to be sent and on the material available.—M.

— Since this subject has been mentioned in THE GARDEN many useful hints with regard to fruit and flower packing have been gathered therefrom. I consider that by using tissue paper, cotton wool may be appropriated for the purpose, and it answers equally as well as the best prepared Moss that it is possible to obtain. Nothing in the way of flowers are more difficult to pack than Camellias, particularly white ones, as they become discoloured with the least bruise. After adopting various methods, the one I have found to answer best was to use stout wooden boxes, about 18 inches long, 1 foot wide, and 3 inches or 4 inches deep inside. A thin layer of cotton wool is laid in the bottom and covered with a sheet of tissue paper; the Camellias are then placed in rows across the box, the stems all one way, a stick cut so as to fit tight against the sides of the box, and pressed down on the stems of the flowers, being used to keep each row in position. The blooms are then clear of the lid, and though tossed upside down, or handled somewhat roughly, as is often the case when in transit by rail, they may be taken out of the box in good condition.—J. T. FLETCHER.

Bulbous flowers in 1889.—Seeing Mr. Engleheart's note on page 368 of last week's number of THE GARDEN, I think it would be interesting if some of the leading growers of hardy bulbous flowers would give their experiences of the results this spring. My own experience is on too small a scale to be valuable, but it coincides with what Mr. Engleheart states. A great many of my Daffodils (and I have a collection of between fifty and sixty kinds) have failed to bloom, although they have thrown up plenty of foliage. Those which have been most satisfactory so far with me are the best kinds, such as Sir Watkin, Leda, maximus, Horsfieldi, Emperor and Empress, Stella and Cynosure. Codlins and Cream and the other double-flowering varieties of a similar kind are very poor with me this spring. I also have noticed that *Chionodoxas* have not flowered so well as usual, except in old established clumps. Scillas have been satisfactory. My Tulips also do not seem to be throwing strong flowers, but it is somewhat early to judge of the May flowering varieties, which are the most beautiful, and, I think, the most valuable and interesting. Lilies look very healthy and promise good results out of doors. I think that there is a fair prospect of this being a good year for Roses and fruit—the latter I judge at present from the very satisfactory blooming of Plum trees and the plump buds of Apple, Pear and Cherry trees.—C. J. GRAHAME, *Croydon*.

— With us all kinds of spring-flowering bulbs are not this year up to their usual form either in quantity or quality of bloom. Daffodils in Grass are sparsely bloomed, especially the large double yellow, while those of the incomparable section do not promise a very rich harvest. Many kinds on the herbaceous border are weak and almost flowerless, especially the white forms

such as *N. cernuus*. Forced bulbs have been far from satisfactory, Hyacinths being thin and small in spike, while Tulips, Polyanthus Narcissi, and various other kinds are weaker than usual.—A. B.

—We have found that there is a decided falling off in bulbous plants this year where they were grown in pots. The Hyacinths showed a great tendency to open their flower-buds prematurely. Especially was this noticeable in white and blue single varieties. Perhaps those growing in glasses were more affected in the manner named than those in pots. The same defect was also noticeable in the Tulips—a strong desire to open their blooms too early. Tournesol was the worst in this respect. The blooms commenced to unfold when 2 inches high; yet the pots were full of roots and had received exactly the same treatment as in other years. As a rule, this double Tulip is easily grown and much appreciated here. Another variety which showed a decided falling off in quality was Vermillion Brilliant. Kaiser Kroon was one of the most noteworthy varieties in the single-flowered section of Tulips. Polyanthus - Narcissus and Sweet Jonquils, which are favourites here, have done fairly well. In the case of all bulbs growing in pots they had to remain in the plunging material a long time before sufficient roots were formed to warrant their removal. Double Daffodils and Lenten Lilies are extra fine this year, having appeared to enjoy the previous wet season rather than otherwise. In a park close here large patches of these last-mentioned bulbs have made a fine show.—E. MOLYNEUX.

CHRYSANTHEMUMS.

E. MOLYNEUX.

INTRODUCTION OF NEW VARIETIES.

THE remarks of F. W. Burbidge on the new Chrysanthemum Mrs. Alpheus Hardy in *THE GARDEN*, April 6, p. 307, are very interesting. The collection of plants in which this variety was found failed to find a home, no one being inclined to take the trouble to store them even as a gift, as I learn they were offered several times on those terms until Messrs. Fewkes and Son took them in charge. When properly cultivated, this variety developed qualities not thought of before; thus the introduction of Mrs. Alpheus Hardy and other kinds which I will name was brought about by a superior method of cultivation. I use the word "superior" for the reason that, under the system of cultivation adopted for the production of a quantity of flowers rather than for quality, commonly called "bush" plants, the true character of any large-flowered variety cannot be brought out to its greatest fullness. Blooms cut from plants grown as bushes, although useful and pleasing to the cultivator, fail entirely to show what many varieties are capable of in the matter of size, form of the petals, as well as of the whole flower. Only in very few instances can the colour of such blooms be compared with that produced by plants allowed to carry only a certain number. I am looking anxiously forward to the development of blooms here in England, which I venture to say will be of as good quality as any seen elsewhere. From two friends in America I have received capital accounts of this novelty. One of them, Mr. Tucker, who is a noted grower of Chrysanthemums in Staten Island, speaks very highly of Mrs. Alpheus Hardy. Take, again, the varieties *Avalanche* and *Mrs. Falconer Jameson*. It was quite by accident that these two grand sorts were introduced, and entirely owing to the method of cultivation which I am now advocating that the merits of each kind were developed. I am an admirer of freely-flowered plants for conservatory decoration or for the

production of blooms in profusion, and have never yet said one word in disparagement of the system, but, as before stated, the only thorough test of individual merit is by cultivating the plants so as to carry a few blooms only. At the Aquarium exhibition in 1886 I noticed the variety *Avalanche* in one of the stands. The blooms were very small indeed; in fact, as shown, they conveyed no idea as to the real merits of the variety. What I noticed particularly was the form of the florets and their snowy whiteness. Being able to procure cuttings in good time, they were placed under the same kind of treatment as the bulk of our plants. The variety soon gave evidence of its dwarf habit and robust growth, and in time produced the bloom with which I was enabled to take premier honours in the Japanese section for the best flower in the show held at Portsmouth, there being as many as 1000 Japanese blooms staged.

Mrs. Falconer Jameson was sent to me by the same firm among some other varieties, but no comment was made about it in any way, thus proving to me that the variety was not known to possess any merit. The plant was placed under the usual treatment, with the result that this proved to be a magnificent variety, and one that is certain to be sought for after another year's growth. I learn, indeed, that one firm alone was compelled to refuse orders for as many as 200 plants through the smallness of the stock. At the National Chrysanthemum Society's provincial show held at Sheffield in 1888 I saw this variety, but anyone not knowing the flower intimately would have failed to recognise it. The general character was altered, and it looked an inferior variety. Many more varieties could be named, notably *Lord Alcester*; this is, perhaps, the finest of the incurred section, yet it failed to even attract notice when presented in such poor form at the Aquarium, the plant having been cultivated in only a moderate way. But when it got into the hands of a first-class cultivator its fine points were brought to light. It may be pointed out that although some growers treat the plants on the big bloom method, this does not prevent others from growing bush specimens. The varieties I have named are sufficient to show that the method advocated has its advantages, and unless it were adopted, varieties possessing much merit would never be known.

Chrysanthemums Comtesse de Beauregard and Baronne de Prailly.—In Mr. Molyneux's interesting article on the above varieties in *THE GARDEN* of April 6 he states that in many instances he has seen blooms of these two varieties staged which, in his opinion, were one and the same thing. I have also noticed this, and there is no doubt several cultivators grow *Baronne de Prailly* under the two names. Indeed, I have seen it on many occasions, and did the same thing myself for several years, till I came to the conclusion that there was no distinction between them. I, however, noticed that able grower, Mr. C. Gibson, generally staged both varieties perfectly distinct. He kindly gave me a cutting from his stock, and which proved to be what I believe is the true *Comtesse de Beauregard*. It is easily distinguished from *Baronne de Prailly* in growth, and it is also one of the shyest kinds I am acquainted with in producing cuttings. This is just the reverse of *Baronne de Prailly*, and probably accounts in a great measure for its being so little grown. The colour of the flowers of both varieties is very much alike, but the flowers of *Comtesse de Beauregard* are much deeper in build and the florets more fluted than those of *Baronne de Prailly*. *Comtesse de Beauregard* is not so reliable as *Baronne de Prailly*, not being such a good keeper, and the

crown buds often fail to open satisfactorily. Both were introduced by Mr. J. Salter—*Comtesse de Beauregard* in 1867 and *Baronne de Prailly* the following year. As a great diversity of opinion exists respecting the two varieties, it would be interesting if other growers gave their opinion on them.—EDWIN BECKETT, *The Gardens, Aldenham House*.

PALE-COLOURED FOLIAGE.

MANY growers are much troubled with the foliage of their plants assuming a pale colour at this time of the year. Some localities seem to produce foliage of this kind more than others. It is very difficult, indeed, to account for the pale colour of the leaves when the treatment the plants receive has apparently been of the proper character. My opinion is that it is mainly owing to the natural properties of the soil used in potting the plants. Here, then, is an instance where a chemical knowledge of soils would be an advantage, as there is not the slightest doubt but that the soil in certain localities is overburdened with something which is detrimental to the plants. Where loam is used that is taken from land which overlies chalk, the foliage is generally found of a pale colour. The turf may have been taken from land where the chalk is quite 6 feet below the surface, but I have found in such cases that the turf is highly impregnated with lime, as chalk is often used as a top-dressing to the Grass in localities where it abounds. I have seen the leaves of some Chrysanthemums growing in a chalk district quite pale in colour, while at another place about four miles distant the foliage of another batch of plants was quite different. In the case of the plants last named the soil is of a lighter description, being of a sandy or peaty nature and where Rhododendrons flourish amazingly, thus showing that chalk or lime does not exist. Assuming that the two collections of plants received similar treatment, with the exception of the soil, what, then, if not the nature of the soil, are we to assume is the cause of one lot of plants having pale-coloured foliage, while the other has deep green leaves? Lime in some form is beneficial to the Chrysanthemum, as it assists in the maturation of the wood, without which it is impossible to have blooms of such fine quality as where proper maturation is obtained. In some instances the cuttings are of a pale colour before they are taken, and continue so for a long time. Generally speaking, at this season of the year badly-coloured leaves are most prevalent, for as time goes on they eventually lose entirely that pale colour so objectionable to some growers. It would be wrong to suppose that plants which have yellow foliage throughout the growing season cannot produce blooms of the same quality as those which start into growth having their leaves of a deep green colour.

There are a few reasons why the leaves of some plants assume a pale colour, independent of the question of soil. My object is to point out these reasons. One of the most common errors in the cultivation of Chrysanthemums for large blooms especially is the manner in which air is admitted to the plants when they are in cold frames. Although Chrysanthemums are hardy plants, they, by reason of the manner in which they are propagated and grown on through their first stages, cannot be treated all at once as hardy subjects. Where cold easterly winds prevail, and the plants are so situated as to feel the effects of such winds, air should be given cautiously, opening the lights on the opposite side to that from which the wind is blowing. Do not be in a hurry to remove the lights from the plants when the sun shines brightly and the wind is cold, although when the weather is sufficiently warm the plants are much benefited by having the lights removed for a time. Too much water at the roots, and this of a cold nature, is not the way to ensure green foliage. Although it may be a little more trouble in preparation, it is a wise plan to use the water of a tepid nature when the plants are in small pots, and then only when they are growing. Later in the season the use of tepid water may be discontinued. In all cases, if possible, use rain water only. If the plants assume a yellow appearance after they are potted

into their flowering pots, a few doses of sulphate of ammonia will quickly show its effects on the leaves. Great care must be taken that the plants do not have sulphate of ammonia until the pots are well supplied with roots, or the consequences will be fatal. The best way to apply sulphate of ammonia to the plants, the leaves of which are pale in colour, is to dissolve a quarter of an ounce in 1 gallon of clear water, giving it to the plants once a week. The leaves of some sorts are paler in colour than those of others, the worst kinds being Criterion, Golden Dragon, Meg Merrilies, Japonaise, Marguerite Marrouch, Boule d'Or, Duchess of Albany, Thunberg, Balmorean, and a few of the incurved section.

If it be possible, remove the plants so affected to a frame by themselves, where they can be kept closer for a time. Hard water where used direct from the tap has a tendency to turn the foliage yellow; therefore it should be stood in the sun to take off the chill. Plants the leaves of which are yellow when put into their flowering pots, cannot assimilate so much stimulant as those the foliage of which is green. It is much better to depend upon sulphate of ammonia entirely until a change for the better takes place, as the roots cannot be so active as in the case of green plants. E. M.

NOTES OF THE WEEK.

Pansy Golden Queen is a showy primrose-yellow self variety, the flowers large, broad, and fairly robust. We saw it in good condition in Messrs. Paul and Son's nursery at Broxbourne the other day.

Violet "Blandyana."—Messrs. H. Cannell and Sons, Swanley, send us a boxful of flowers of this exceptionally sweet and beautiful double Violet. It is one of the best of its class.

Daffodil Sir Watkin we have seldom seen finer than in the Broxbourne Nursery. It is a noble incomparabilis variety when in its finest character. The strong loamy soil of this nursery suits it well.

Ewbank's double Wallflower is a dwarf, very free, and fragrant double yellow variety. It is a better kind for the rockery than the common kinds, taking up less room. There are several tufts of it at Broxbourne.

THE spring gardens at Belvoir, in spite of the exceedingly severe weather in March and early in April, are very bright and attractive with their rich store of vernal flowers. Saxifraga ligulata presents a wonderful mass of bloom. Primula rosea and P. denticulata have been unusually free flowering.—W. I.

Tulipa Greigi varies considerably in colour. There was a batch of it at Broxbourne, the flowers variously and brilliantly tinted. One was yellow, flamed with scarlet, and another self scarlet. The splendid T. Kaufmanniana exhibits the same character. Some of the flowers are brilliantly shot with crimson.

Aubrietia Hendersoni.—In the rock garden at the present time there is no more showy plant than this Aubrietia, which is an improved form of A. græca. This variety is also better than A. Campbelli, and as it is not quite so vigorous in growth as this, it is better adapted for growing on rockeries where space is limited.

Bloodroot or Puccoon (Sanguinaria canadensis) has been improved very much. The form called grandiflora is a distinct advance on the old one, and a really charming plant for the open border or the rock garden, where it soon makes a home in peaty soil. It might be tried with advantage under deciduous trees or shrubs in the pleasure garden. The flowers are large, white, with a bunch of bright yellow stamens, the leaves being kidney-shaped.

The Spring Bitter Vetch (Orobus vernus) is certainly a most charming spring flower, and one that should be increased and encouraged in gardens. It is not at all particular either as to soil or position, and blooms annually with wonderful profusion when flowers of this class are extremely scarce. The flowers of the type are purple and blue, with a greenish keel, the fresh green adding much to their charm. The varieties flaccidus, cyaneus, and the double form are all worth growing.

Coloured Primroses on Grass.—In October last year we planted some strong roots of coloured seedling Primroses on the Grass amongst the bulbous plants. At the present time they are flowering freely, and are very showy among the green Grass. Coloured

Primroses on Grass are quite a success here, and I intend planting them largely next October. It often happens that when Primroses are planted in the herbaceous borders or shrubberies the flowers get splashed from heavy rains, and their beauty is thus considerably lessened. On Grass, however, this never occurs.—SOUTH HANTS.

Oncidium concolor.—Flowers of a very fine form of this brilliant yellow-coloured Orchid come from Mr. Gorton, the London Nursery, Maida Vale, N. The flowers are large and intense self yellow. The plant came with an imported batch of O. Marshallianum. It is a Brazilian species, and figured in most of the leading works.

Primula Palinuri.—For decoration this species is useless in a garden, and can only be recommended to those interested in curious plants. One of its chief claims is its probable connection with the florist's Auricula, some theorists alleging that the large bract is the result of crossing with this peculiar plant. It is a native of Southern Italy, and has small deep yellow flowers with a faint Cowslip perfume. The leaves are very large, and covered more or less with meal.

Primula rosea is one of the most charming of the early spring Primroses. It begins to flower in the open almost as soon as the common Primrose, and when grown in quantity the effect is most charming. Outdoors the flowers, which are of a beautiful carmine-pink, are produced in profusion, and last a considerable time in beauty. It is a native of the Himalayas, and can be increased by self-sown seedlings which thickly surround the old plants.

An interesting hybrid.—A few years ago I fertilised a buff-coloured alpine Auricula with the pollen of Primula nivea. About forty plants were reared, all being of different shades of purple, and some very showy. One of the plants was again crossed with P. nivea, the result being that two-thirds of the seedlings have pure white flowers, some flat like the Auricula, and some tubular. The seedlings are quite as hardy and vigorous as the alpine Auricula.—J. H. J.

Clianthus puniceus makes a handsome climber for a cool greenhouse. A plant of it with its large racemes of bright crimson flowers hanging down 1 foot or more from the rafter makes a brilliant show at the present time in the greenhouse at Kew. The graceful pinnate foliage always looks pretty if kept free from insects, to which it is very liable if neglected or grown in too much heat. C. puniceus, being almost hardy, may be grown against a wall or in a sheltered corner out of doors. It does not flower freely if kept in pots.—F. G.

Alpine Primulas.—Some specimens of these pretty plants were exhibited at the Drill Hall recently. To me one of the most distinct and desirable was that labelled P. marginata densiflora. The leaves are mealy, sharply jagged, and plentifully produced; while the procumbent spikes of flowers are of a most attractive colour and fairly abundant. Everyone admired a big panful of P. viscosa nivalis, it being a mass of bloom, so thickly were the stout and sturdy plants placed together.—A. D. W.

Alpine Auriculas at Broxbourne.—There are several beautiful varieties of the alpine Auricula in the Broxbourne nursery of Messrs. Paul and Son. Mrs. Llewelyn is a handsome kind; the flowers are purple, shaded with dark crimson, the paste bright yellow; also Sailor Prince, blackish maroon; Sensation, claret, shaded lake; Homer, brilliant carmine tint; Admiration, lilac, shaded dark purple; Carmine King, fine carmine; King of the Belgians, reddish crimson shade; Thomas Moore, almost black; Jason, fine carmine; Mrs. Ball, cherry-rose, shaded maroon; and Diadem, a splendid rosy maroon variety, one of the freest of all; it makes an admirable clump on the rockery.

Primula pubescens, which appears to have played such an important part in the early development of the florist's Auricula, seems to turn up everywhere. Wherever Primulas are staged in quantity, P. pubescens is always predominant in various colours, and all under different names. P. pubescens alba we have seen as villosa alba, viscosa, nivea, and nivalis, and the coloured ones under the various names of intermedia, Peyritschii, confinis, &c. The distinguishing line between these forms and allied hybrids is very narrow, and no one who knows villosa or viscosa, as they grow wild on the Alps, could in any way confuse them

with the forms of P. pubescens, which, even under ordinary circumstances, are just as variable as Auricula seedlings.

Rosa gigantea.—M. Crépin has succeeded in obtaining from India a few seeds of the new climbing white-flowered Rosa gigantea, which, it is believed, is destined to become a valuable addition to our single Roses. The flowers are dazzling white and of enormous size. It is a native of Upper Burmah, a region where frosts are unknown, so that in the Northern States Rosa gigantea must be treated as a greenhouse climber.

An exhibition of Hyacinths at Haarlem is now open in the nursery of Messrs. E. H. Krelage and Son. The display will last until the middle of May, and be in its fullest beauty at the end of this month. It consists of two large beds, each containing 600 bulbs of the rarest and newest varieties. In May a special show of early spring Tulips will take place, there being the same number of beds and bulbs as in the case of the Hyacinths.

Squirrel Corn (Dicentra canadensis).—This, if not one of the finest, is the most graceful and beautiful of this genus. It inhabits woods in North America, and is quite hardy, though it will be all the better for a little protection from cold winds, &c., on account of the delicacy of its finely cut foliage. It will do well in peaty soil under Pine trees and other cover, and nothing can be prettier than its handsome spikes of white and purple-tinted flowers raised above the close, glaucous foliage. The tubers, by which it can be easily increased, are about the size of peas, yellow, and detached in winter. Plants from the Royal Gardens, Kew, were exhibited at the Drill Hall on Tuesday last.

Primula Reidi is one of the most distinct plants we have seen for a long time, and a beautiful addition to our early spring flowers. It was found by Dr. Duthie a few years ago near Raler Glasier, India, at an elevation of from 11,000 to 13,000 feet, growing on wet rocks. It is perfectly hardy in the open air in our rockeries, where it yearly flowers with the greatest freedom. The flowers are pale sulphur, two to seven to a stem, campanulate, and rarely opening full, and very fragrant. The leaves are oval-shaped and covered on both surfaces with long white hairs. The stem is about as long as the leaf. The whole plant rarely exceeds more than 6 inches in height, and may be increased either by seeds or division.

Protea nana.—If we except botanical gardens, we may safely assert that the genus Protea is unknown in English gardens to-day. Fifty or more years ago it was represented by at least a score of species, a London nurseryman's catalogue, dated 1832, offering a selection of six species at 2s. 6d. each. Proteas are mostly handsome flowered greenhouse shrubs, and worthy of a place in the most select collection of ornamental flowering plants. P. nana is a little over 1 foot high, freely branched, with linear foliage, not unlike some of the long-leaved Ericas, and the flower-heads are in the form of drooping cups, 2½ inches across; their colour a bright crimson. The true flowers are arranged in a dense cone in the middle of this cup, which is composed of overlapping hair-tipped bracts. The plant at Kew bears nine flowers and buds. It is one of the most interesting of the plants in the Cape house just now. Close to it is a plant of the huge-flowered P. cynaroides, which also will be in full flower in a week or two.

Epiphyllum Makoyanum.—A plant under this name was exhibited last Tuesday by Messrs. Veitch at the Royal Horticultural Society's meeting, and obtained a first-class certificate. It is like the ordinary Epiphyllums in habit and the form of the branches, but it differs widely from them in its flowers. These are regular in shape and might easily be mistaken for the flowers of a Phyllocactus. Each flower is composed of about fifteen petals, which are narrow, pointed, and radiate from the centre; they are crimson outside and deep salmon-red inside. The width of the flower is 3 inches. Messrs. De Smet had in their nursery at Ghent last year an Epiphyllum named Gertien, which appears

to be identical with that here described. If there is any difference at all between the two it can only be in the shade of colour. E. Gærtneri was shown at South Kensington three or four years ago. The parents of E. Makoyanum are not known, but it appears to be a hybrid between an Epiphyllum and a Cereus or Phyllocactus.—W.

* * E. Gærtneri was sent to the Royal Horticultural Society, Chiswick, by M. Heinrich, Altona, Hamburg, and exhibited at South Kensington on April 18, 1885. A first-class certificate was awarded to it, under the name of E. Russellianum Gærtneri.—Ed.

The old double yellow Wallflower.—This is a plant one seldom sees now-a-days, and yet what can compare with it for flowering at this season. It is cultivated in quantity in the Rev. Canon Bridges' garden at Beddington, where, grown in pots, it is found very useful, whilst its rich perfume fills every nook and corner. This is another old plant which cannot have too much said in its favour.

Chionodoxa Luciliæ.—This pretty plant, associated with the blue Squill, was lately very beautiful in Sir Trevor Lawrence's garden. Why is the ground occupied with summer bedding plants not filled with these and other plants which flower early in spring? The early display is brighter and more charming. Even in a cottage close to me the little garden is gay with Wallflowers and Daphne Mezereum for a long time.—W. H. G.

Trillium grandiflorum.—The Wood Lily is flowering very freely this spring, its beautiful white flowers being also larger than usual, which may be attributed to the cool, moist summer of last year having suited its requirements. This Lily would make, I should think, a capital subject for naturalisation in shady moist places in the wild garden, planting it in masses, and using a little peat or leaf-soil in the operation.—J. G. M. G., *Coldstream, N.B.*

Erica herbacea.—In a villa garden in the neighbourhood of Cheshunt I recently observed large masses of this plant in great beauty, its cheerfully coloured flowers producing a wonderful effect. This plant thirty years ago was largely grown for spring blooming, but for many years it has been banished from our gardens, and nothing has been substituted. Why is not this plant more largely used in our parks, London squares, and town gardens than it is? The flowers last a long time in full beauty.—W. H. G.

Narcissus J. G. Baker.—This is very distinct both in form and colour, and is one of the most elegant of our Daffodils. The trumpet is bell-shaped and prettily lobed at the mouth, and the perianth petals are beautifully curved round the trumpet without covering the lips. The colour is a most delicate sulphur-lemon, the trumpet being somewhat brighter than the perianth. As this is the first season I have had this variety, I cannot as yet report on its growth and constitution.—JAY AYE.

Primula petiolaris.—It will be unfair to judge of this plant by the specimens shown this year. I only raised eight plants from the seed which Mr. Elwes kindly sent me, and I grew each of these in single pots as soon as they were fit to remove from the seed pot; for the greater part of last summer the plants were in 3-inch pots. Under more generous treatment, and especially when grown in the open, they will undoubtedly produce finer blooms; but even as seen at present the flower seems to me a very charming one. My eight plants vary a good deal in the size and the tint of the flowers; most of them are of a pale rose surrounding a white centre with yellow blotches or eyes, but two or three are of a distinctly deeper hue. In some of the plants the flowers appear almost quite sessile, but in others the stalk of the umbel of flowers is more than an inch in length, so that the flowers are thrown well up above the leaves. The amount of serration of the edge of the petals is also very variable. Unfortunately, nearly all my plants are disfigured by outgrowths from the petals, imitating a double flower, but not being a true reduplication, and it is to be feared that this feature will be propagated in the seedlings. Mr. Elwes found the plant growing in shady places in rich leaf-mould,

and he fears that it will be a "miffy doer." I am myself inclined to think that it will not be much more difficult to grow than P. rosea. Most of my plants will, I hope, find more genial homes than their present quarters, and I fully expect that if they are encouraged to make good foliage in the coming summer (if a summer be in store for us) they will bear flowers which will even gain the goodwill of the floral committee of the Royal Horticultural Society.—M. FOSTER, *Shelford*.

Virginian Cowslip (*Mertensia virginica*), also called the Virginian Lungwort, is well named, for though a Borage-wort, it has a striking resemblance to the Cowslip. It is the handsomest, perhaps, of all the family, perfectly hardy in a peaty bed or border, which will be all the better if kept moist, as this plant above everything loves plenty of water. Its large clusters of drooping purple-blue flowers are very handsome, and as they are produced in profusion early in spring it promises to become a general favourite. The leaves are of a bluish grey and very attractive. It is one of the old plants rarely seen at its best in gardens now-a-days.

Christmas and Lenten Roses.—The Christmas Roses were with us a comparative failure this season, owing to various causes, but their loss has been fairly compensated by the unusual wealth of bloom produced by their sister of Lent, *Helleborus orientalis*. The majority of them are yet in full beauty, amongst which may be noted *Commerzienrath Benary*, white spotted crimson, a beautiful var.; F. C. Heinemann, reddish purple, also spotted; Frau Irene Heinemann, purple, rose spotted; *colchicus coccineus*, fine rich colour; *Olban Otto*, white, &c. I find they succeed best when planted in a rich, moist border having a north aspect. Mulching with good strong manure in summer is of great assistance to them.—J. G. M. G., *Coldstream, N.B.*

Narcissus Santa Maria.—*Narcissus maximus*, which heretofore has been the most brilliant of our Daffodils, must now yield that position to Santa Maria, a new variety collected in Spain by Mr. Barr in the spring of 1887. The form of the flower is elegant and the colour very rich yellow, glistening like old gold. Although large, it may not at present be quite equal in size to *maximus*, neither is the trumpet so much expanded and divided as in that variety, but under cultivation it will, without doubt, get much bigger. It seems to have a good constitution and to grow and flower freely, which cannot be said of *maximus*. Mr. Barr may well be proud of having introduced such a fine Daffodil as Santa Maria.—JAY AYE.

Oxalis cernua.—This is the prettiest of all exotic Wood Sorrels, notwithstanding the merits of a great number of them, which, however, are unrecognised in English gardening. It has trifoliate leaves, green, with a few brownish spots, and numerous long hair-like flower-scapes bearing umbels of large yellow flowers quite as fine as those of *Linum arboreum*. For baskets or as a pot plant there are not many spring-flowering plants that equal this. It requires cool house treatment with plenty of sunshine. The rose-purple-flowered *O. floribunda* is similar in habit, and is a good companion for *O. cernua*. *O. speciosa* has large erect flowers on short scapes, each flower as large as a half-crown piece, and coloured reddish purple with a pale eye. *O. carnea*, with a fleshy stem, shining green leaves, and yellow flowers; *O. carnea* with lavender-coloured flowers, and several others equally attractive are all in flower now in the Cape house at Kew.

Plants wanted.—Can any reader of THE GARDEN tell me where I can obtain plants of *Boronia Drummondii* and *Daphne indica alba*?—E. H. B.

Shrubs for towns.—Will some readers of THE GARDEN who are town residents favour me with the names of some uncommon shrubs and trees that they have found to succeed in smoky localities?—A. D. W.

Choisya ternata not flowering.—Our plants of *Choisya ternata* in pots have proved a failure this spring. They flowered splendidly last year, and were cut hard back after flowering. When they had made

a fresh start they were partly shaken out and repotted in the same sized pots (7-inch). They have made strong growth, but not a flower-bud has set.—NOVICE.

Testing seeds.—Would any reader of THE GARDEN inform me what is the simplest and most effectual manner of testing the growth of seeds, principally agricultural? Is there any apparatus made for that purpose?—W. C. R.

Cleaning a pond.—Can any of your readers kindly tell me how to get rid of scum on the surface of a pond, and what causes it? A constant stream of water flows through the pond, Water Lilies grow in it, and gold fish thrive in it, but from March to October the surface is always covered with an unwholesome-looking scum. If skimmed off, it is as bad again in about an hour's time. I have tried ducks, but they disturb the fish and spoil the Water Lilies, and, moreover, render the water muddy. Will anything destroy the green scum without injuring fish or Lilies?—G. T. BLOMFIELD.

A PARIS FLOWER MARKET.

THE Marché au Madelaine is held on the broad stretch of pavement surrounding the Madelaine Church twice a week, viz., on Tuesday and Friday mornings. Two rows of sheds, with an avenue between, are erected during each previous night on either side of the church, and between 7 and 8 o'clock in the morning all is bustle and business, unloading the carts which bring the plants and flowers from the nurseries. This is the most interesting time to walk through the market, for the plants are put down anyhow in the middle of the avenue previous to being arranged in the sheds, and one often sees some fine effects in the haphazard grouping. For instance, I have seen great bushes of Paris Daisy pushed up against deep red Rhododendrons, backed with Lilac; in front of these masses of yellow Cytisuses and various coloured Azaleas; then pots of *Deutzia* against a mass of Palms, amongst which were great spikes of white *Arum*. Later on all is in order, and most of the pots have been "improved" by the resources of art in the shape of white paper funnels, allowing only the tops of the flowers to be seen outside. When we walk through we first come to the stalls of cut flowers, conspicuous at this time being heaps of wild Daffodils, Wallflowers, light and dark blue Violets, bunches of Hyacinths, Tulips, *Anemones* of all colours, *Camellias*, and *Carnations* in abundance. Then smaller bunches of the rarer Daffodils, the great netted Iris, Snake's-head Fritillaries and Tree Peonies. In large baskets and buckets by the side are Paul Neron Roses, masses of Lilac and Guelder Roses 4 feet high, various kinds of yellow *Acacia* and *Eucalyptus*. Going from the cut flowers, we come to a stall containing a collection of Palms in pots of all sizes, Cycads, *Imantophyllums* in flower, *Arums*, *Dracænas*, India-rubber Plants, variegated Irises, Grasses and other foliaged plants. A very desirable kind of India-rubber is one with smaller leaves than that usually seen in London, and forming a dwarf bushy pot plant. Another stall is devoted to Sedums, *Sempervivums*, Cactuses, *Echeverias*, and succulent-leaved plants; others to Azaleas, *Deutzias*, *Pelargoniums*, *Cytisuses*, *Coronillas*, dwarf Roses, and *Epacris* and *Heaths* of many kinds. Next we come to the hardy flowers, such as Hyacinths, Tulips, Lilies, &c., growing in flat shell-like baskets; then shallow boxes of bedding plants—Daisies, *Polyanthuses*, *Hepaticas*, *Arabis*, *Auriculas*, *Pansies*, all in full flower; also *Pelargoniums*, *Pyrethrums*, *Ageratums*, *Marguerites*, *Fuchsias*, and other summer flowers. Further on is the stock of evergreen and deciduous shrubs, fruit trees and ornamental trees for garden and street planting, and last, but not least important, large baskets of good peat, leaf mould, loam, and other requisites. This is only one of the flower markets in Paris, and yet I know of nothing equal to it in London for completeness and convenience. I have heard that wonderful things go on at Covent Garden between 4 and 5 o'clock in the morning, but I think it would be just as well if the day market were made a little more popular.

R. J. G. R.

STOVE AND GREENHOUSE.

DIPLADENIA AMABILIS.

THERE are few plants requiring artificial heat that are more deserving of general cultivation than *Dipladenias*, as when well managed they commence to flower at the end of April or beginning of May, and continue in bloom till the autumn. They are among the best plants that can be grown for decoration, furnishing as they do for a long time a daily supply of bloom of the most refined and distinct character. In gathering the flowers care should be taken that only the blooms with their foot-stalks are taken,

string 4 inches or 5 inches from the glass, the plant being syringed twice a day. The temperature at night is kept at 65°, and a few degrees warmer during the day. By March the shoots each measure from 20 feet to 25 feet long. The plant is then put into an 18-inch pot and the house shaded with a thick blind when the sun is hot, as *Eucharis* and other plants are grown under it. It grows fast from this time and soon begins to set bloom, and the strong shoots break back, the laterals showing flower when 18 inches or 2 feet long. These, as before mentioned, are trained on strings, which are much better than wires, as when taken down the string is simply untwisted.



Dipladenia amabilis. Grown in the gardens of Mr. T. F. Burnaby-Atkins, and engraved for THE GARDEN from a photograph by C. E. Corke, Sevenoaks.

as a single truss will produce flowers for three or four months, thirty or forty blooms being often picked from one spike.

The plant of *Dipladenia amabilis* shown in the engraving is twelve years old, and is still vigorous and healthy. It has always done well, and from the time it was struck it has never been rested, but cut back each year in October, when it has done flowering, to within about 18 inches of the pot, and at once encouraged to break. The plant is then shaken out and put into a pot two sizes smaller in peat and sand, and not watered till the soil is rather drier than would suit most plants. The young shoots are trained under the roof of the stove on thin

The specimen illustrated had only seven shoots when it started into growth in October, 1887, but when taken down and trained for exhibition on August 21, 1888, it had 86 shoots and 147 trusses of bloom, 587 single flowers having been picked from it since it commenced to bloom in the previous May. The only insect that troubles these plants here is red spider. Syringing with half a wineglassful of paraffin to 3 gallons of water is the best remedy for this pest, followed afterwards with soft soapy water. Although *Dipladenias* require to be kept drier than most plants of the same character during the winter, they like a good supply of water after they have filled their

pots with roots and are making good growth. There is one variety of *Dipladenia* (*D. boliviensis*) which should be treated somewhat differently. This species should not be cut back, but allowed to grow unchecked. We have one here that is only two years old and which covers a large space. It bloomed continuously from May till December, and commenced to flower again in March, and will in a very short time be again in full flower. Young plants of this kind are preferable to old ones which have been cut back.

Dipladenia amabilis, *D. Brearleyana*, *D. Regina*, and *D. boliviensis* are among the best *Dipladenias*. A. GIBSON.

The Gardens, Halstead Place, Kent.

Camellia Mathotiana alba.—The beautiful *C. Mathotiana alba* comes into bloom after *alba plena*, and possesses many desirable qualities. In the first place, it is a free, vigorous-growing variety, well furnished with handsome dark green foliage, while it is also very free-blooming. The flowers are large and full, and of a clear pure white. In several instances that have come under my observation, while the common white (*alba plena*) lost many of its buds through the fog, those of *Mathotiana alba* were uninjured.—H. P.

Lonicera sempervirens.—This North American species of Honeysuckle is a most desirable climber for a cool greenhouse, the flowers being remarkably showy, and a succession of them is kept up throughout the summer months. The flowers of *L. sempervirens* are very bright, being brilliant scarlet outside and yellow within, and they are borne in such profusion that the whole plant is at times quite laden with them. It is hardy in some favoured spots, but, generally speaking, is seen at its best when treated as a greenhouse plant. Its cultural requirements are by no means exacting, as cuttings are not difficult to root, and when potted off they will grow away freely in any good potting compost. It is said to have been introduced into this country a couple of centuries ago, but is now quite an uncommon species, probably owing to the fact that it is not hardy everywhere, and the merits of a Honeysuckle as a greenhouse climber are apt to be overlooked.—H. P.

White-flowered Cinerarias.—Those who grow extensively for sale are well aware that there is by far the greatest demand for white flowers, and at no time more so than at Easter. There are also a considerable number of private gardens where there is a great need for white-flowering plants. In either case any addition to the number of species or varieties of white-flowered plants is heartily welcomed, and for this reason I venture to call attention to the merits of white-flowered Cinerarias. As yet English raisers do not appear to have been successful in raising and fixing the strain of a really good white variety, or it may be they have not attempted to do so, and it has been left to a Paris firm of seedsmen, Messrs. Vilmorin-Andrieux and Co., to take the lead in this respect. Judging from what I have seen of their strain of white Cineraria, it is a thoroughly good one, and likely to become very popular. The plants are of good branching habit, the flowers medium-sized, well formed, the florets being pure white and the disc of a bluish tint. So much do I value the strain, that I intend to grow it extensively for next winter and spring decoration, a band of it fringing a mass of mixed colours being certain to attract admiration. Good white Cinerarias are to be met with among English strains, but they are comparatively scarce, and are apt to become finely edged with colour, all those we possess having quite recently changed in this manner. I am only too well acquainted with the fact that single Cinerarias are not serviceable in a cut state, but I have noticed that the white forms when used in wreaths last quite long enough, and are very "taking" in appearance. In this district pot plants of a white or nearly white variety sell readily at Easter for church decoration, and are

appreciated at any time. Double Cinerarias, though less beautiful, are more durable in a cut state, and I have good reasons for asserting that the time is not far distant when a good double white variety will be available for general cultivation, perhaps raised from seed, and most certainly by the method of propagation by suckers.—W. IGGLDEN.

Tree Pæonies under glass.—When grown in the open ground these Pæonies push forth their young leaves and flower-buds so early in the season, that in many districts at least they are usually injured by spring frosts, and much of the beauty of the plant is lost. This very circumstance eminently fits them for flowering under glass, as with but little forcing they may be had in flower at a time when they are most useful for the greenhouse or conservatory. They are so beautiful, that were they obtainable at a cheaper rate than is the case at present, no doubt they would be far more used for flowering in pots. Most probably the slow rate of growth will always prevent their becoming very cheap. Where the plants are required for flowering in pots, they should be lifted in a very careful manner the preceding autumn, and potted in soil principally composed of good turfy loam, lightened with a little sand, decayed manure, and leaf-mould. A cold frame is a good place for them till they are taken into a gentle heat, but over-forcing must be guarded against. A fine group of Tree Pæonies in the greenhouse at Kew well exemplifies their value for flowering under glass.—H. P.

Acacia armata.—This, the Kangaroo Thorn of Australia, is one of the most accommodating of the whole genus, for though under favourable conditions it will attain the dimensions of a large, rather upright-growing bush and in this state blooms profusely, it is just as free when restricted to a pot 5 inches in diameter. In this way it is grown in considerable numbers by some of those who supply the market with plants for decorations, and these little bushes when laden with blossoms are remarkably pretty. This Acacia may be readily forced, as by placing it in an intermediate structure it may be had in bloom much earlier than when kept entirely in a greenhouse. The flowers are rich bright yellow, while the foliage is of an unusually deep green hue. Another species now in bloom is *A. Drummondii*, with pinnate leaves and spikes of lemon-coloured flowers. It forms a remarkably handsome specimen, but is the most difficult of its class to maintain in perfect health. *A. lineata*, a neat, much-branched bush with narrow leaves and a profusion of orange-yellow blossoms, must be included among the best of the Acacias, as also must *A. leprosa*, a large free-growing kind, with long leaves and blossoms of a sulphur-yellow colour. *A. verticillata*, a vigorous, but dense-growing kind, with deep green, needle-shaped leaves, flowers so profusely that the whole plant is quite a mass of yellow. Besides all these, *Acacia Riceana*, a straggling grower, just at home trained to a pillar or along the roof of a greenhouse, is most beautiful when in bloom, the long string-like branches hanging down for a considerable distance, and are studded throughout their whole length with sulphur-coloured blossoms. A couple of very desirable kinds, *A. platyptera* and *A. dealbata*, have already finished their flowering season.—H. P.

Kæmpferia rotunda.—Several of the Ginger-worts are remarkable for the beauty of their blossoms, among others being the African *Cienkowskia* or *Kæmpferia Kirki*, of which a coloured plate was given in THE GARDEN, August 18, 1888. *K. rotunda* forms a stout, fleshy mass of roots, from which the flowers are pushed up before the expansion of the foliage. The flowers are borne, two or three together, at but 1 inch or 2 inches above the soil, and, being devoid of foliage, they present a singularly isolated appearance. They are very showy, being large, and while the upper petals are white, the lower ones are rich purple, veined with white. The pleasing fragrance of the blossoms is also another desirable feature. After the flowers are over the leaves make their appearance, and when fully developed the *Kæmpferia* is certainly an ornamental foliage plant. This is an old garden subject, having been introduced from India over a century ago, but it well deserves more attention than is bestowed

upon it at the present day. Another species (*Roscoea*) flowers later in the year, at which time it is very attractive, while the foliage is prettily variegated. In *K. Gilberti* the lanceolate leaves are of a very deep green ground colour, while the undulated margin is bordered by an irregular, but conspicuous band of white. These *Kæmpferias* are all of easy culture, needing a good supply of water during the growing season, but as the foliage shows signs of ripening, water must be gradually withheld, and in winter all that is necessary is to keep the soil from becoming dry. In the spring they should be shaken out of their old compost and repotted, when they will at once commence to grow.—H. P.

THE CITRUS.

THE different varieties of Orange and others of the Citrus tribe are proverbially long-lived plants, continuing to thrive and maintain a healthy appearance when grown in pot or tubs for many years, provided that they are fairly treated. To do full justice to most of the kinds they should have considerably more warmth than is usually given to them. An intermediate temperature suits them best, and where the fruit is required for use, the plants should have a little heat almost continuously. It is the want of heat, coupled with inattention to the soil and drainage, that brings about the loss of roots and the enfeebled state that Oranges are often seen in. But even when in poor condition, with scant foliage and the growth weak, the plants may usually be brought round if the right means are taken. When in the state described, the best course is to turn the plants out and get all the soil that has become exhausted away, cut back all decayed roots and repot in new material. Good yellow turfy loam, with a little rotten manure and sand, is the best soil for them; if a little peat is added it will do no harm. In most cases specimens that have got into bad condition will require putting into smaller pots or tubs for a time than those which they have hitherto occupied. If a gentle bottom-heat of about 70° can be given them through the summer, it will greatly assist the production of new roots, the presence of which is an absolute necessity before any appreciable improvement in the top-growth can be looked for. The plants should be carefully shaded from the sun and have a moderately moist atmosphere. If the night temperature is kept at about 60°, with a rise in the daytime proportionate to the state of the weather, it will answer. The syringe should be used once a day until the season's growth is completed. Where the treatment recommended is to be followed, no time should be lost in carrying it out. Oranges and Citrons that require more root-room should be at once put into larger pots or tubs, being careful in all cases to secure the drainage sufficiently so as to prevent soil getting down into it, and in the selection of the soil, nothing should be used that is not of a lasting nature. Where scale or other insects are present, the plants should be thoroughly cleaned. If this is omitted, the insects will increase during the warm weather to an extent that will give much trouble later on.

T. B.

Bouvardias.—I quite agree with "J. C. C." (see GARDEN, p. 347) that the history of the garden varieties of *Bouvardias* would be interesting. I cannot add much to what I have already written on the matter, except to say that I was intimately acquainted with Mr. Parsons, and that it was from him that I first received instructions in the propagation of *Bouvardias*. It was before my time, however, that Hogarth, Laura, and the other variety, which I believe was called *Rosalind*, were obtained, and although I cannot state positively, I believe they were obtained from seed. Had they been obtained from root cuttings, I think I should have heard something of that method of propagation, for up to within a few months of Mr. Parsons' death I was engaged in hybridising various classes of plants under his instructions. Among these I may mention *Begonias*, and I succeeded in raising hybrids between *B. insignis* and *B. boliviensis*. Although distinctly hybrids, they were not remark-

ably showy, but had the hybridising been carried on, no doubt good results might have eventually been obtained. Mr. Balchin, who succeeded Mr. Parsons, raised a batch of seedling *Bouvardias*, among which were *Dazzler*, which, I think, there can be little doubt about being a hybrid; also a very pretty pink variety, which did not prove vigorous enough to be perpetuated.—A. H. E.

CLIVIAS AT FOREST HILL.

THIS superb genus of greenhouse plants has during the last ten years received great attention from the hands of the hybridist both at home and abroad, but, judging from some flowers which I have seen recently from across the water as new and fine, the English growers have walked completely away from the others in the race, and certainly the display now on view in the nursery of Messrs. J. Laing and Sons is the finest I have ever yet seen, either at home or abroad. I have grown this plant somewhat largely for many years, and should be supposed to know a good form of this plant; and when I was told a few days since that they were wretched, glaring things, I was certainly surprised. I maintain that a good display of this plant in a greenhouse at the present time is one of the very richest and pleasing that can be produced, as the plants have an abundance of large, intense, deep green leaves as a foil to the large trusses of richly coloured flowers. *Clivias* can be had in bloom nearly all the year round by judiciously managing the plants, but at no season of the year do they appear so beautiful as in the early spring, which appears to be their natural time of flowering. The plants are of bold free growth, the leaves very dark green, and the flowers are borne upon a stout stem in a large umbel upon the top. These in the original type of the species seldom stood well above the foliage, but in the more recent garden varieties this is changed, and the large trusses of bloom are well raised, and display their charms in a bold and fearless manner. This plant produces seeds freely from which young plants may be obtained, but to the ordinary amateur division will be found the best means of propagating any well-known variety. It is useless to name here all the beautiful kinds in the Forest Hill Nursery, but just a few require special notice, and amongst the best is

JOHN LAING.—This plant has been in flower for six weeks, but it still retains its brilliancy; the trusses are large and the flowers slightly shorter than those of the type. The segments are round and full, the upper half of a very rich orange-scarlet, the base passing into orange-yellow.

MRS. LAING is a splendid companion plant, flowers slightly larger, more open, and about two shades paler.

LADY WOLVERTON is a very delicate flower, the segments broad and reflexed, the upper half creamy rose.

SULPHUREA is another distinct form; its colour is described by its name. It is a very pretty contrast to the others.

DELICATISSIMA appears to me wrongly named; the flower is large and very richly coloured, but certainly inferior, and not so bright as the two first named kinds.

W. H. G.

Magnolia fuscata.—This is a greenhouse kind, and may be grown to a useful size in a pot. We have a plant, which is 12 feet high and about 6 feet through, in a 10-inch pot. It has not been repotted for eight years, and is so luxuriant that I am of opinion it dislikes being disturbed at the root, neither has it been exposed to the sun during all that time, as it has a permanent place under a lead-roofed lobby at the end of a conservatory. It is always green and healthy, and invariably flowers about Whitsuntide. Its purple blooms, about the size of a shilling, are very fragrant. Their presence can be easily distinguished at the other end of the house, which is 80 feet long.—J. MUIR, *Margam, South Wales*.

Common Asparagus.—I have long appreciated the value of the Cape varieties of *Asparagus*, but at the present, neither *A. tenuissimus* nor *plumosus nanus* are so beautiful and serviceable as the common forced *Asparagus*. It has long been my

practice to preserve the old forced roots in a heated pit, in two or three lights, these being encouraged to push up a quantity of late growth, and which at the present time is of a beautiful soft green and sufficiently matured to last in a cut state. It is scarcely so durable as the more seasoned spray obtained from the Cape varieties, but it is far more elegant and effective, and, in addition, is very plentiful. There is quite a demand for it for Easter decorations, and the wonder is it is so little valued. —W. IGGULDEN.

WORK IN PLANT HOUSES.

GREENHOUSE CLIMBERS.—It often happens that roof-climbers that are planted out in greenhouses and conservatories do not succeed so well as the other occupants that go to fill the houses, and that are subject to the ordinary pot culture; nor is the reason far to seek. The pot plants in most cases are naturally smaller growers than the climbers; consequently they do with less root-room, and are also either repotted when necessary in fresh material, or kept in suitable condition by the aid of manure applied in some form or other. On the other hand, the beds or borders in which the climbers are planted are frequently left without anything to keep up their fertility. The result of this is that the plants become weak, and in some cases the best remedy is to take out the plants, make new borders, and begin afresh. Where this course is decided upon, no time should be lost in carrying out the work, so as to give the plants a chance of getting established before the end of the growing season. The borders where subjects of this character are grown are often unavoidably limited in size; consequently it is necessary to water freely. This points to the necessity for good drainage, which should not alone consist of enough hard material, such as clean shingle, broken bricks, or climbers under the bed, but also in an outlet for the water. For want of this latter the soil frequently gets sour. When climbers have to be planted, there is little chance of the requisite amount of light reaching their tops until they have attained a considerable size. In all cases the plants should be tall enough when turned out to meet this difficulty, otherwise there is not much hope of their succeeding. The soil should be made sufficiently rich by the help of manure to answer the requirements of the kinds of plants that are to be put in it. But this ought not to be overdone, or it will cause too great a luxuriance for a time. It is better to depend more on surface-dressings applied annually and on manure water given during the time that active growth is going on. Plants that are used for clothing pillars in greenhouses and conservatories are often an important feature, and nothing should be left undone to have them in good condition. Not unusually there has been no provision made for planting them out; where this happens pots alone have to be depended on. Where climbers are grown care should always be taken that they are quite free from the worst kinds of insects, such as the brown and white scale or mealy bug. Any climbers that require larger pots should now have attention. Those that are already in pots as large as are to be used and have fully occupied the soil should have manure water given once every ten days or a fortnight as soon as the growth is fairly in motion, as where the soil is too much exhausted to support the first efforts, the progress afterwards will not be satisfactory.

IVY-LEAVED PELARGONIUMS.—The varieties of this section of Pelargoniums have been greatly improved of late years, so that they now are amongst the best of all soft-wooded subjects for greenhouse decoration. Grown cone-shape and loosely trained on trellises, or round a few sticks inserted just within the rims of the pots, they associate well with other things of low bushy habit. Their distinct and handsome flowers are effective both on the plants and when cut. The size which the specimens may be grown to is an advantage when they have to be used in large houses. The best of the double as well as the single-flowered varieties should be grown, for though the former, in common with all double flowers, are wanting in the elegance

that single flowers possess, their lasting properties are worth taking into account, particularly when the bloom has to be cut. Young plants that were struck from cuttings during last summer or the preceding spring should now be moved into larger pots. Give them rich soil, such as the large-flowered kinds of Pelargonium delight in. Good turfy loam of a moderately holding nature, with a liberal addition of rotten manure and some sand, is the best material for them. Pot firmly, and keep the soil a little drier for a few weeks than it needs to be afterwards. Stop the shoots so far as necessary to cause the production of enough branches to furnish the future specimens. Older plants that require more room should have larger pots, and should be encouraged to make as much growth early in the season as possible. The time that these Ivy-leaved kinds come in the most useful is during the latter part of summer and in the autumn, when flowering plants are less plentiful. The Ivy-leaved Pelargoniums make excellent subjects for hanging baskets. Their continuous flowering disposition adds much to their merits for this purpose. Two or three varieties with distinct coloured flowers may be put in a basket; in this way they look better than if each is filled with one sort. Cuttings may now be put in; they will make useful plants for filling baskets a year hence.

DOUBLE PETUNIAS.—Young plants of the double varieties of Petunia that were struck and grown on last summer, and which are now in 6-inch or 7-inch pots, should be moved into others two sizes larger. These double kinds are slower growers than the single ones, and require more root room to get them into large specimens. Fresh turfy loam with plenty of rotten manure mixed with it and some sand answers for them. If some leaf-mould is also added it will help the growth. Stop the shoots so far as necessary to induce bushy plants. The pinching out of the ends of the shoots in this way will to some extent interfere with their blooming, but it is well to lay the foundation for properly furnished plants that will be in a condition to flower well here the latter part of summer.

SINGLE PETUNIAS.—Single varieties of Petunia may now be depended upon to come good enough from seed, provided the strain is carefully selected. Yet at times an exceptionally fine variety appears that is worth retaining. Young plants of such that were struck from cuttings last autumn should now be moved to the pots in which they are intended to flower; those 8 inches in diameter will in most cases be large enough. The single forms of Petunia are more straggling in habit than the double sorts; consequently, they require more stopping to keep them bushy. This must be attended to early, or the plants will be thin at the bottom. Small plants that have been raised from seed sown some time back must be pricked off into 3-inch pots as soon as they are large enough to handle. Stop the shoots when they are 3 inches high.

PETUNIAS IN BASKETS.—Both the double and the single varieties of Petunia are good plants for hanging baskets. To some extent the single sorts may be preferable for using in this way on account of their producing many more flowers than the double kinds. In the case of either there should be no time lost in putting them into the baskets, so that they may be able to get into good condition by the time they are wanted. Mixed colours of the single varieties will look the best. If the plants, after putting into the baskets, can be kept a few degrees warmer than in an ordinary greenhouse, it will benefit them and help on the growth. In all cases let them be hung up where they will have plenty of light.

CAMPANULA PYRAMIDALIS.—Strong plants raised from seed sown last spring and that have been well cared for since should now be moved into 10-inch or 11-inch pots. These will not be too big, provided the plants have attained sufficient size and the object is to have large examples. Give them good turfy loam with some rotten manure and sand mixed with it. After potting, a cold pit where they can stand near the glass will be a good place for them. See that they are quite free from aphides, for if these insects gain a footing they will

soon destroy the lower leaves, and the absence of these spoils the appearance of the plants. If not already sown, seed should at once be put in to raise stock for blooming another year. If the sowing is longer deferred, the chances are that they will not flower when wanted. This Campanula can be increased from root-cuttings. If plants that bloomed last summer, either in pots or in the open ground, are now taken up and the strong roots put separately in pots, just leaving the top of the root level with the surface of the soil, they will soon begin to grow. The shoots that will be formed should, as soon as they appear, be thinned out to one. The root-cuttings may be planted out in a bed if room under glass is limited, grown on through the summer, and then taken up and potted in autumn, and afterwards treated through the winter like cool greenhouse stock. They will be quite equal to any that are kept altogether in pots. Seedlings may in like manner be planted out; so managed, they generally get stronger than when in pots.

HUMEA ELEGANS.—This well-known biennial plant should not be forgotten. Its elegant feathery plumes are effective wherever used, either in a conservatory or elsewhere amongst plants of more formal habit. To get the plants strong before autumn the seed should be sown now. Plants that have been wintered in 7-inch or 8-inch pots should be removed into others 2 inches or 3 inches larger. Without sufficient pot-room it is difficult to keep the lower leaves in a healthy condition until the end of the season. A good look-out must be kept for aphides, which are partial to this Humea, and if allowed to infest the leaves quickly destroy them.

CINERARIAS.—Those who aim at having a good strain of these useful plants can only do so by each year, as the stock comes into bloom, selecting plants that possess the best marked flowers in their respective colours, and that are strong and robust in growth. The stock should be frequently looked over as the plants begin to open their first flowers, and any that are of exceptional merit should be moved away from the rest. Growers who are particular about their Cinerarias put each colour that they intend to save seed from in a separate garden frame, by which means a good strain can not only be kept up to the mark, but may be improved. Those who want Cinerarias in flower by the end of the year will soon have to sow a little seed. It is better to sow at two or three different times where a long season of bloom is desired. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Heliotrope and Daffodil Garlic (*Allium neapolitanum*) go well together. A group of them may be seen in the greenhouse at Kew, and it is surprising the pleasure such an arrangement of common flowers gives to visitors.

Acacia Riceana.—All the greenhouse Acacias are most useful plants at this season, but in my opinion *A. Riceana* is the best of all, as the foliage is exceedingly neat, the branches and sprays naturally graceful and drooping, and the pale lemon flowers most abundant and effective. It may be grown in pots, planted out as a bush, or trained as a pillar plant. —J. MUIR.

Zonal Pelargonium Henry Jacoby.—This popular variety fully merits all that Mr. Muir says in its praise, and as a summer bedder it is especially valuable. It also flowers well in pots during the winter, but we find semi-double-flowered varieties of much more service than the single-flowered, and one of our favourites is a double form of Henry Jacoby. This, as far as habit and colour are concerned, exactly resembles the single form, the only difference being in the doubleness of the flowers. Where this variety originated or how it came into my possession I cannot explain, but I believe it came with a number of cuttings of the single form. —I.

Solanum jasminoides.—This may be quite hardy in some districts, but grown in a cool house it is far more beautiful and serviceable. With ordinary good culture it produces a profusion of large trusses of pure white flowers, and with us is especially good at the present time. It succeeds admirably in large pots or with its roots restricted to a narrow border, and should have good room on the roof. We train two or three leading branches to wires taken up the roof

about 12 inches apart, and the lateral growth being duly shortened back, an abundance of flowering shoots results, these hanging down gracefully and not unduly shading the other occupants of the house. An occasional fumigation with tobacco paper will keep the plants clean.—W. I.

Tropæolum Comet.—This is a free-flowering variety, either for growing in pots or for planting in a border at the base of a south wall in the greenhouse or other cool house. The blooms are bright in colour, and being borne on stout, erect foot-stalks, are useful for cutting. This variety produces a full crop of flowers during the winter if a temperature of about 55° or a little more can be maintained. A small balloon-shaped trellis made of wire answers best for training the shoots on. Pots 8 inches in diameter will be large enough to accommodate good-sized plants. Greenhouse temperature during the summer, with abundance of water at the roots and occasional doses of liquid manure, will furnish free-flowering plants by the end of October, when the temperature noted above may be given them and the blooms allowed to develop.—H.

Rhododendron Countess of Haddington.—In the note on this *Rhododendron* on page 346 of *THE GARDEN*, April 13, mention is made of the difference to be observed in the flowers, some being much finer than others. This is said to be due to a number of seedlings having been raised, and on this point I am perfectly at accord with the writer of the article, as I have this season flowered several seedlings, the product of the same cross, *R. ciliatum* and *R. Dalhousiæ*. There is a considerable amount of variation to be found amongst them, some being a good deal deeper in colour than those of the form usually met with, while others are much paler—indeed, nearly approaching the primrose tint of *R. Dalhousiæ*. The habit also varies. Those which more nearly resemble *R. Dalhousiæ* in the colour of the flowers appear to have more of its straggling habit. The variety *Countess of Haddington* is certainly a grand *Rhododendron*, and quite distinct from the numerous other varieties in cultivation.—H. P.

Bouvardia sports.—Without being able to throw any light on the question asked by "J. C. C." (p. 347) as to the origin of many of the new varieties that have been obtained from sports, I may mention that my experience is exactly in accord with that detailed by your correspondent, viz., when plants have been raised from root-cuttings, many of them with red or pinkish blooms have reverted to the white-flowered forms. This fact was brought home very forcibly to me a few years ago, when the double pink-flowered *President Garfield* (obtained as a sport from the double white *Alfred Neuner*) was sent from America with a great reputation. Having obtained a few plants, I was anxious to increase them as fast as possible, and as they had suffered a good deal in their voyage across the Atlantic, I took off a number of roots and obtained a quantity of plants in this manner. So far so good; but when they flowered, at least three-fourths of them were pure white, while those that were propagated from the young growing shoots, taken after the plants had recovered from their journey, produced pink blossoms. After this I always take care to propagate as far as possible from cuttings of the shoots.—T.

Heuchera sanguinea is a beautiful hardy plant that may be used in the greenhouse in early spring with rich effect, and may be also enjoyed in the open border in summer. It is not an old plant, but its extreme brightness and elegance will soon bring it into popularity, especially as it is of very easy culture. Last year this *Heuchera* was very fine in gardens in the suburbs of London, and we are again reminded of its usefulness by a group of plants in the greenhouse at Kew. The growth is quick, and the lovely spikes of bell-like flowers, the colour brilliant coral-red, keep fresh for many weeks. These spikes are of unusual grace and elegance, and they may be used with the best effect in cut-flower arrangements, good specimens carrying upwards of one dozen of them. The foliage is abundant and deep green. It is to be hoped that such a charming plant, easily grown and exceedingly free-

blooming, will be seen in every large garden, as well as in the smaller plots attached to suburban villas. It deserves all the praise we can give it.

PROPAGATING.

DOUBLE CHINESE PRIMULAS.—The double forms of the Chinese Primrose are among the most free-blooming of all winter-flowering plants. From early in the autumn until late in the spring the same plants will keep up a succession of bloom, that is, provided the plants have been strong and in a clean healthy condition at the commencement of the winter. It is only the semi-double varieties that can be obtained from seed. All the best, perfectly full double varieties have to be propagated either from cuttings or by dividing the old plants. The latter method I consider preferable, but previous to cutting them up, the old plants should be prepared. By the time the plants have done flowering they will have made a good portion of stem above the ground. This should be carefully cleaned, removing all the old leaves and any old leaf-stalks. Take them off as closely as possible, and after this is done they should be earthed up with some light sandy soil. Where good leaf-soil is to be had, there is nothing better than this, if rubbed through a sieve and plenty of sand added. This should be pressed rather firmly round the stems, bringing it up close to the bottom leaves. After this surfacing, the plants should be stood in a close warm position, and the surface soil kept just moist enough to encourage roots. In about a fortnight or three weeks there will be plenty of young roots produced from the part of the stem that has been covered up. The plants may then be cut up, and all the old portion of stem and root removed; in fact, the divisions will be simply rooted cuttings, or young plants which will start off after being potted without loss of time, while those taken off as cuttings in the ordinary way will be much longer in making good plants, besides which they have to be kept close for a longer period, and are much more liable to damp off. This is especially the case with the stronger-growing sorts, such as those raised by Mr. Gilbert. The old double white is not so difficult to manage, and if the stock is in good condition, young plants may be obtained from cuttings with little difficulty. They should be taken off close to the older and firmer portion of the stem, and care should be taken that all portions of the old leaf-stalks are cleared off. Silver sand should be applied to dry up the moisture. The cuttings should be put in singly in small pots, and plunged in the close propagating pit where there is a moderate bottom-heat. Very little water should be given, but it is essential that the cuttings be kept fresh. If allowed to get withered they never do so well afterwards, or at least are much longer in making a start. When plants that have been earthed up are divided, they require great care, otherwise many of the young roots will be lost. It is important that they should be potted up before the roots have become matted together. They should be potted in small pots, and will require to be kept close and well shaded for a few days, after which they may be gradually exposed, and by the time they are fairly hardened off, they will be ready for potting on into larger pots.

A good compost for growing the double Primulas is in loam and leaf-mould in equal parts, a little well-rotted manure, and plenty of good sharp sand or a little old lime rubbish being added. The pots should be well drained and the plants potted moderately firm, keeping them sufficiently low that the bottom leaves come well on to the soil. It is sometimes supposed that potting low causes the plants to damp off at the base, but unless the crowns are actually buried no harm will result in keeping the plants well down in the soil. As roots are produced from the stems, the plants are benefited rather than otherwise, but previous to potting, all old leaf-stalks should be carefully removed. The best position for growing the plants on in through the summer will be a cool house where they can stand on a moist bottom. Plenty of top air may be given at all times, but the plants do not like too

much side air, as it causes a draught which will dry them too much; or a cold pit is a good position during the summer, and the lights may be taken off in favourable weather when the sun is not too powerful. The Primulas should be removed to a drier position early in the autumn; but it should be remembered that the plants are naturally of a moisture-loving character, and should not be allowed to suffer for want of water, or be exposed to a dry, draughty atmosphere. If the plants are kept regularly cleaned there will be no danger of their damping, provided they are in a healthy condition.

A.

KITCHEN GARDEN.

CARDOONS.

THE Cardoon (*Cynara Cardunculus*) was introduced into this country as early as the year 1658, or nearly a century later than its near relative the Globe Artichoke (*Cynara Scolymus*), but it does not appear to have ever attained to popularity, and in all probability is even less cultivated now than was the case twenty-five years ago. One of the principal causes of this decline may be attributed, I believe, to the in-



Prickly Tours Cardoon (one-fifteenth natural size).

ability of cooks to serve it properly as a vegetable or to utilise it in soups, and when there is no demand for a vegetable that requires so much room and time expended on its production, no gardener is to blame for ceasing to cultivate it. At the same time, cooks cannot be blamed for not being able to convert badly-grown stalks into a tempting dish, and before, therefore, condemning them too quickly, gardeners ought first to feel certain that some part of the blame does not attach to themselves. Those who are called upon to supply a great variety of vegetables will agree with me that they experience the greatest difficulty in maintaining the requisite supply during the dull winter months, and it is then that Cardoons, if they could be presented in an eatable condition, would prove most acceptable. Let the gardener first grow them well, and then persuade the cook to adopt the most approved methods of serving them. If a proof of unpopularity be needed, we have only to point to the various English seed catalogues, these being a sure index of what is most in demand. Many of them ignore Cardoons; others merely include them in the miscellaneous

list. Only the Spanish variety is offered, and this happens to be the least favoured in Cardoon-loving countries—notably France, where the more solid, if more spiny Large Tours is preferred. More than fifty years ago, Mr. McIntosh called attention to the (see illustration) "Cardoon of Tours," but his description may have had a deterrent effect; nor is this altogether



Smooth solid Cardoon (one-fifteenth natural size).

to be wondered at, as this is what he says of it: "There is a species of Cardoon cultivated in France under the name of Cardoon of Tours which is reckoned better than the sort cultivated in England. It is of so formidable a nature, in consequence of the spines with which it is thickly covered, that great caution is necessary in working amongst them to avoid personal injury. A strong leather dress and gloves are, therefore, worn in all operations with this species." It was then not introduced into the British gardens, but it has been since, as my first contact with a row of plants was anything but pleasant. There is, however, no necessity to wear a leather dress, but a good pair of leather gloves are of service when moulding-up time arrives. There are also included in French catalogues a smooth, large, solid variety and the Puvis or Artichoke-leaved (see illustrations). The Puvis is considered exceptionally good.

Cardoons are readily raised from seed, and can be as easily grown as Celery. Whether the plants should be raised under glass and transplanted to the open, or the seed sown where the plants are to grow, ought to depend upon circumstances. If placed in a cold, late district I should adopt the former plan; but in warm or fairly early localities, the plan of sowing in the open ground is the best. When raised early and kept for some time root-bound in pots, the greater portion of the plants are liable to run to seed prematurely, in which state they are worthless. Supposing, however, the requisite number of 4-inch, or rather larger pots were, late in April or early in May, filled with fairly good soil, three seeds sown in each, and all placed in gentle heat, the seedlings

would soon appear, and these being duly reduced to one in each pot, the plants would be strong enough to put out early in June and before they experience a check in growth. About fifty plants would perhaps be ample for the first attempt. Cardoons require plenty of moisture at the roots when growing, but a cold, wet subsoil proves fatal to keeping. A good open site ought to be selected for them, and a shallow trench prepared somewhat after the manner usually recommended for Celery. If it is intended to have more than one row, the trenches should be fully 4 feet apart, and the sooner they are got ready the better. Especially is it necessary to open the trenches early when the soil is of a heavy, bad working nature, as it is almost useless to sow seeds or to put out young plants on lumpy ground. Unless, therefore, there has been sufficient time for the soil to become well pulverised, the trenches should be dug at least 12 inches deep and the soil distributed on the ridges, about 9 inches of compost, consisting of fresh loam, partially decayed manure, and charred vegetable rubbish in equal parts, being substituted for it. The least that can be done is to cover the manure, after it has been forked into and well mixed with some of the soil in the trench, with 4 inches of fine light soil, this favouring either planting or seed sowing. Where a long succession of Cardoons is required, a batch of plants are raised under glass in April and duly hardened off before being put out in the open ground or trenches. More seed is sown about the present time and again a month later; in the two latter instances where the plants are to grow. As a rule, one sowing is



Artichoke-leaved Cardoon (one-fifteenth natural size).

sufficient, this being made at the present time. The trench being prepared as just advised, a single drill can be drawn through the centre from 1 inch to 2 inches in depth, and in these the seed should either be sown thinly or in patches of not less than 15 inches apart. We prefer the former plan, as should there be any failures these can be made good with the thinnings.

Opinions vary as to the exact distances at which Cardoons should be grown apart. Mawe in his book entitled "Every Man his own Gardener," published more than a century ago,

advises that the rows be a yard and a half apart, $3\frac{1}{2}$ feet dividing the plants in the row. Fifty years later Mr. McIntosh stated that the rows or trenches should be 4 feet apart and only 8 inches or 9 inches allowed from plant to plant. The rows should, however, be 4 feet apart and the plants from 15 inches to 18 inches apart, and this whether turned out from pots or sown where they are to be grown. When growing freely they ought to receive frequent heavy waterings and liquid manure occasionally, dryness at the roots being almost certain to induce premature bolting. It is advisable to pull off any small or partially decayed leaves in July or early in August and very lightly mould up the plants, the aim being to keep the more solid stalks from opening out too much, and thereby render final moulding up a difficult operation. Early in October the plants ought to be fully grown and ready for the blanching process. Well-made hay-bands should be rather tightly and closely twisted round the stalks of each plant separately, so as to bring them well up together and to effectually exclude the soil from the hearts, after which the soil should be banked up around them much as Celery is treated, only the tips of the leaves being uncovered. Some authorities state that Cardoons can be properly blanched in three weeks, but according to my experience three months is nearer the mark, and at least ten weeks ought to be allowed for the blanching process, or otherwise the stalks may be strongly flavoured and tough. In low-lying districts Cardoons keep best when lifted and stored in a dry place, and in most districts the exposed leaves ought to be lightly protected from frosts.

W. I.

LETTUCES DYING OFF.

CAN any reader of THE GARDEN explain the reason for nearly all my Lettuces rotting away? The soil is fairly rich and well drained, but whether in pots or a frame or in the open ground the bulk of the plants rot off just where they leave the ground. All the plants have good roots, and show no signs of ill-health previous to their rotting off, which takes place in a few hours. My gardener has consulted other gardeners and some neighbouring nurserymen without being able to find the cause.

C. W. B.

*** I have frequently lost a few Lettuces exactly in the same way as described by "C. W. B.," but never met with an instance where the disease has proved so very destructive. A considerable number of plants are annually destroyed in various gardens by grubs, these eating their way through the tap roots, but in this case flagging of the foliage is the first symptom, and the Lettuces do not rot off, but rather shrivel up. When the plants collapse suddenly and are a mass of pulp in a few hours, this rapid decay is caused not by grub or insect agency, but by a disease belonging, I believe, to the same class as the Potato disease (*Peronospora infestans*), the distinctive name being *P. gangliiformis*. In common with all diseases of fungoid growth, it is most difficult to contend with, no really effective remedy yet having been discovered. Last season was singularly favourable to the spread of various forms of these diseases. I never saw them so numerous and destructive; in fact, numerous flowering plants as well as vegetables have been much damaged by them. Already there are signs of their destructive presence under glass, Liliums, Carnations, and Tomatoes being most affected, and even the flowers on herbaceous Calceolarias are diseased. Unless, therefore, we soon experience clearer, warmer weather and a drier atmosphere, there is every likelihood of many apparently inexplicable losses of both foliage and plants. For those with hard foliage and stems I have found nothing so effective as Fir tree oil, used rather strong, and where it can safely be done at its full strength. Sulphur in a dry state is quite powerless against these diseases, but if mixed into a paint

and applied to well-heated hot-water pipes it acts beneficially. Neither of these remedies can well be advised in the case of the Lettuce disease, and I only mention them in order to demonstrate how great is the difficulty to be faced by all who are troubled with it. I can only advise "C. W. B." to destroy all that are left of his stock of plants, and, if possible, to procure more from an untainted source. These should be planted and more stock raised in another part of the garden, the preference being given to an open sunny spot, there being no better position than the raised ridges between newly-dug Celery trenches. Avoid crowding the plants at any time, use the flat hoe frequently among them, and with a sweet dry surface and more favourable weather, the chances are there will not be many more losses. A surfacing of burnt or charred earth and refuse also tends to check the spread of fungoid growths, more especially those that first affect plants close to the ground. This dressing ought to be freely used especially among plants in frames.—W. I.

KITCHEN GARDEN NOTES.

BROCCOLI.

THOSE plants raised under glass ought now to be quite large enough to prick out on a sheltered border; in fact, unless they are so treated before they become badly drawn, they will prove of little real service. Seeing that it will be necessary to transplant from the border to their final quarters with a good ball of soil about the roots, it is advisable to take extra pains in the preparation of the ground. If it is at all stiff or lumpy, it ought to be moistened if dry and well worked, and either leaf-mould or any fine light soil be freely stirred into the surface. Supposing the plants have been hardened off, rather more than the requisite number should be pricked out about 4 inches apart each way, and if the weather is at all dry be watered in. Some kind of temporary shelter ought to be given at first, especially if the nights are frosty, and slugs be either caught or kept off with soot and lime. Veitch's Autumn Protecting is the only variety we take this trouble with, and in addition to a good batch—in our case not less than 400 plants—more seed is sown at the end of April on an open border, and the requisite number of plants from each sowing having been put out, a good succession is obtained from October to February inclusive. Michaelmas White can also be had early and good from plants obtained from seed sown now, while Autumn White is of equally quick growth. Snow's Superb White, the Sandringham selection of which is well worthy of a trial, sown now, would be available in February and March, Spring White forming a good succession. Cooling's Matchless follows closely; then comes the valuable Leamington, and after this Model, Latest of All, and Late Queen, all of which sown now will, if properly grown, maintain a good supply till June. Sprouting Broccoli should also be sown now, and this is harder and frequently more profitable than ordinary Broccoli. Broccoli this season are rather later and smaller than usual, and the almost sure consequence will be a great glut in May. If a portion of the later varieties is lifted with good balls of soil about the roots, and replanted rather more closely in a well-manured border, a much longer succession will be maintained. This treatment will most probably result in a reduction in the size of the hearts, but these will be close, white and good when those formed by undisturbed plants are past their best.

BORECOLE.

Cold frosty winds, following upon a comparatively mild-growing autumn, cut up the old leaves of some of the Borecoles, but they only checked their growth and did not otherwise impair their usefulness. The hearting forms of the Scotch Curled are the most appreciated here. By cutting first the hearts, which, when cooked, are very tender and mild in flavour, a useful crop of side shoots will follow. The ordinary forms of Scotch Curled are also good, while the equally hardy Cottager's Kale is most productive of succulent greens. Any of these may be sown on an open border now, the plants thus raised being quite large enough to put out by the

time the ground is ready for their reception. The latest of all will be found in Asparagus or Buda Kale—this exceptionally hardy variety, if kept closely gathered from, yielding a great quantity of succulent greens till late in June. This may be sown now or a month hence, in the latter case, however, in rows where the plants are to grow. The drills may be drawn 2 feet apart and the plants eventually thinned out to about 12 inches apart.

BRUSSELS SPROUTS.

These require a long period of growth, and the principal portion of the plants ought therefore to be raised under glass, though not necessarily in heat. In ours and many other instances the early raised plants are now quite large enough to prick out on a sheltered border, as advised in the case of early Broccoli, and they will well repay for any little extra trouble taken with them. On light soils the earliest planted Brussels Sprouts are apt to fail soon after midwinter, and in this case it is advisable to sow more seed now on an open border, and the plants, being duly transferred to good ground, will yield a good crop of late sprouts. There is little or no necessity for adopting this plan when those first raised are planted on deep, fairly rich holding soil, as those thus grown usually remain productive very late in the season, or as long as the tops can be preserved. Ne Plus Ultra is very reliable with us, and produces abundance of close, mildly flavoured sprouts, but the Exhibition and Perfection strains are rather more robust, and give the finest heads. For marketing purposes there are none to excel the Aigburth, but this productive variety is much too coarse and strongly flavoured to please cultured tastes. It is a mistake to leave the old stumps on the ground unless greens are needed, and directly these begin to get hard the ground should be cleared and prepared for successional crops.

CHOU DE BURGHELY.

When this was first sent out, Mr. Gilbert, or his friends, erred greatly in advising that the plants be raised early or under glass. Those who followed this advice were rewarded with overgrown plants and large close heads, which were available much too early in the winter. This led to many complaints, and in some instances a discontinuance of the cultivation of what is really a most serviceable late winter vegetable. When the seed is sown on an open border about the end of April, or in warm districts early in May, and the plants put out as soon as fit, they grow rapidly, yet not too rankly, and do not heart in as a rule much before March and April. When the hearts are formed early they are liable to be spoilt by frost, but the late raised plants are perfectly hardy with us. It should be remembered that this Cabbage Broccoli is really of no great value as a Broccoli, and the tender Cabbage-like heads may well be used before the Broccoli hearts are formed. We treat ours much the same as Savoy, and they are not given more room, as we do not require large heads that must be cut up when cooked, but rather those of a size that may be served whole.

BEET.

The main crop ought now to be sown, and if the seed is good and the ground in the best working order, a quick germination and a healthy growth should result. Sown much earlier, the conditions, this season especially, were unfavourable to either the germination of the seeds or a quick growth of the plants, birds and slugs doing much as they please with them. Those seedlings that escape these enemies are liable to grow too strongly, coarse roots being the inevitable result. In any case, rather than have a patchy, uneven breadth, we would prefer to surface-hoe the bed and re-sow at once. Dell's Crimson, or one of its various synonyms, is yet the best Beet that can be grown, coarseness rarely happening with this variety, while the colour of both foliage and roots is usually perfect. Pragnell's Exhibition sown on rather poor ground forms clean, handsome roots, the colour and quality of which are good, and the true Nutting's Dwarf Red succeeds well. On hot, gravelly soils all the foregoing are liable to fail, and in this case the preference ought to be given to Crimson Ball, or the best selection of

Egyptian or Turnip-rooted. On strong ground the Turnip-rooted Beet is liable to grow to a great and useless size, and ought to be grown for the early supplies only. Ground that was well manured for a previous crop best suits Beet, contact with solid manure causing the roots to fork badly, while fresh manure also induces a rank growth. The ground ought to be well stirred to a good depth, a finely-divided soil favouring germination of the seed and a clean straight growth of the roots. The drills on rather strong ground should be drawn 18 inches apart, but on light or poor soil 15 inches are ample. Sow thinly and cover with some of the finest surface soil, or if this is lumpy, some finely sifted soil should be brought from the frame ground. A close watch should be kept for the seedlings, or the birds may steal a march on the cultivator. As soon as seen, the plants ought to be coated with soot and lime while yet the dew is on them, and this being repeated as often as necessary will usually keep off both birds and slugs. The Turnip-rooted succeeds well when transplanted from pans, and an early supply of roots is most surely obtained by sowing in gentle heat, the seedlings being duly hardened off and planted on a sunny border when large enough to stand all weathers.

SALSIFY AND SCORZONERA.

During the winter and early spring months a dish of either Salsify or Scorzonera is frequently of good service, an experienced cook being able, if willing, to convert either into a fairly tempting dish. The owners of small gardens may well be contented with one kind only, and the preference should be given to Salsify, 1 oz. of seed being sufficient. Both when sown early are liable to run to seed prematurely, Scorzonera being the worst offender in this respect, the roots being worthless in consequence. When the seed is sown at the present time fewer plants bolt, and the majority form clean, straight, and fairly thick roots, which keep well. The ground for them should be prepared much as advised for Beet, and if any raw manure is used it should be buried at least 9 inches deep, or where the tap-roots only will reach it. Quite shallow drills should be drawn 12 inches apart, the seed being sown thinly and covered with fine soil. Neither birds nor slugs much interfere with these.

CHICORY.

Strong Parsnip-like roots of Chicory will, during the dull winter and early spring months, produce a great quantity of leaves in any dark Mushroom house or shed, and these being well blanched and of an agreeably bitter taste, are good adjuncts to the salad bowl. There is no necessity to make more than one sowing, as the roots keep well in any cool place. We sow our seed at the same time as Beet and Salsify in, or not later than, the first week in May, one long row or short ones equal to a length of 18 yards being ample. The rows should be 12 inches apart, the seed sown thinly in shallow drills and lightly covered. The ordinary large-rooted or Witloof is the variety most generally grown.

W. I.

The germination of seeds.—Gardeners are found complaining that some seeds are germinating very indifferently. This is no more than might be expected, considering what a bad season that of 1888 proved for ripening seeds. It is only those who had to go through the ordeal of harvesting, drying, and threshing that can sum up inconveniences of seed-growing under such hostile circumstances. We are having a spring for seed-sowing that retards rather than assists seeds of weak power. There are two conditions of weather under which seeds germinate indifferently. One is during a time of extreme drought, the other is that of cold and wet. In a time of extreme drought the gardener can assist the seeds by drawing shallow drills, watering them well, then sowing the seeds and covering them up. Such assistance is always advantageous, and I have known it rendered with marked success during a dry spring. But it is when the ground is wet and cold, and the temperature low for the season of the year, like the

weather we are now experiencing, that the gardener's troubles and anxieties are multiplied. He can but sow in the warmest and driest positions, seeds that require most largely conditions favourable to their germination. He must thoroughly loosen and pulverise the soil as far as he can, and add to it composts favourable to germination and as aids to the seeds in starting into growth. If he can guard them from heavy rains in any way that suggests itself, let him do so. In the case of such a season as the present, it is best to raise as many plants as possible under glass, and transplant to the open later on. Many samples of Broad Beans and Peas were ill-matured and discoloured, and defective growth is the result. Onions and Carrots show a weak growth, and seed of that popular vegetable, the Scarlet Runner, is now so scarce as to have reached a price that is almost prohibitive. Some late-harvested seeds ripened so badly that it is useless to sow them. Let gardeners keep their seeds as dry as possible until they are sown, and so assist Nature as much as possible.—R. D.

TREES AND SHRUBS.

FLOWERING CURRANTS.

THOUGH there is more than one species of Currant that may be called "flowering," that most commonly met with in gardens is *Ribes sanguineum*, and which just now forms a remarkably bright and conspicuous feature in many a group or belt of shrubs. It possesses several desirable qualities besides the beauty of its blossoms, as it will thrive even in light sandy soils, although, of course, not so well as under more favourable conditions; then the roots are dense and vigorous, so that a specimen can be transplanted without danger. Added to this, it succeeds fairly well in shady spots, and though the flowers do not last very long in perfection, the foliage is handsome and retains its freshness throughout the summer months, being seldom or never disfigured by insects. Besides all this, the Flowering Currant, its numerous varieties, with the allied *Ribes aureum*, are thoroughly hardy, being never in the least injured by even our most severe winters. Where numbers of the Flowering Currant are raised from seeds there is a considerable amount of variety in the blossoms, some being much brighter, and consequently more showy than in others. Among the recognised varieties (one or two of which have been in cultivation since Loudon's time) are *atro-rubens*, in which both the flowers and racemes are smaller than those of the type; but the colour of the blossoms is much deeper, and consequently the plant is far more showy when in bloom than the ordinary form. As this last is the darkest, its direct contrast is supplied by *albida*, in which the blossoms are of a blush-white tint, but though not so showy as the brighter forms, it nevertheless supplies an agreeable variety, and possibly by seeding from this alone and carrying on a process of selection a pure white form might in time be obtained. Another variety is *glutinosum* which can be distinguished by the foliage alone, as the leaves are destitute of down. The flowers, too, are of a peculiar pinkish lilac shade, and very distinct from those of any of the others. The last to mention, and also the last to flower, of these Currants, is the double variety (*flore-pleno*), which is very curious and pretty on close inspection, but at a little distance it does not possess any strongly marked feature. The fact, however, that it is at its best after all the others are past is one great point in favour of this variety. Equally as beautiful as the Flowering Currant and its numerous forms is the golden-flowered Currant (*Ribes aureum*), which does not bloom quite so early in the season as

the other. It makes a free-growing bush, succeeding well under anything like favourable conditions, and flowering with great freedom. The blossoms are borne in many-flowered racemes, and are of a rich golden yellow colour, so that they afford a pleasing variety from those of any of the forms of *Ribes sanguineum*. The leaves of the golden-flowered Currant are deeply lobed and of a glossy green tint, so that irrespective of flowers it forms a very ornamental bush. There are a few varieties of this, but the different kinds are not so strongly marked as in the case of the preceding. A couple of them are *præcox*, rather earlier, and *serotinum*, which is somewhat later than the type. Individual plants, too, vary a little in the colour of the blossoms as well as in the hue of the fruit. A very distinct Flowering Currant, but one rarely met with is *Gordonianum*, which is regarded as a hybrid between *R. aureum* and *R. sanguineum*, and certainly its appearance would suggest that this was its origin. It is a vigorous growing form, with blossoms of an orange-red tint, a rather peculiar shade of colour. Both the species above described are natives of the north-western parts of America, while a third *Ribes* inhabits much the same regions, and is also found in California. This belongs not to the Currants, but to the Gooseberries, and forms a large, free-growing bush, which towards the end of May or early part of June is laden with myriads of bright crimson Fuchsia-like blossoms, very different from those of any other shrub then in flower. Besides this, its flowering season is spread over a considerable period, and even when not in bloom it forms a very handsome bush. It is surprising that this *Ribes* is not met with far oftener than at present, for it will thrive in any fairly good soil, if not too hot and dry. I have seen it in a very effective condition when treated as a wall shrub, and in this way it will often flower much earlier than when grown as an open bush. An ally of this last is another North American species, *R. Lobbi*, or *subvestitum*, a stout growing bush, the branches of which are so thickly beset with spines as to impart to it a very distinct character, especially noticeable in the winter when it is devoid of foliage. It is very free-blooming, the blossoms being somewhat like those of *R. speciosum*, but smaller. In this the greater part of the flower is of a chocolate hue, with whitish petals. Of course, from the colour of its blossoms, it is less showy than any of the preceding, but yet it is an ornamental shrub, and its distinctive winter features are a point in its favour. All of the above can be propagated to a limited extent by carefully detaching rooted suckers, and planting them under conditions favourable to growth. T.

The Blue Gum Tree (*Eucalyptus globulus*).—When Lord Dalrymple was here the other day, he assured me that at Loch Inch Castle, the seat of his father, the Earl of Stair, in Wigtownshire, they had large specimens of the Gum Tree. I cannot say the same of any trees in this district, as, although I knew of some good specimens in South Wales ten years ago, I do not know of one at the present time, and I think all are agreed that this tree gives no promise of becoming a permanent figure in British gardens.—J. MUIR, *Margam*.

Dimorphanthus mandschuricus.—A. D. Webster, in *THE GARDEN* (p. 308), hardly does justice to the above, for its hardiness is beyond dispute, being found thriving in bleak, exposed situations, even on very cold soils, and withstanding severe frosts uninjured. He also finds fault with its want of branching. I admit that in its very young state and when bare of leaves it is certainly unsightly, but in a few years it branches out freely, the stems resembling majestic stag's horns, thus making it a

conspicuous object even in winter when bereft of its grand leaves, which create a tropical aspect wherever the *Dimorphanthus* is planted. Its flowers are by far the least of its merits.—J. R. *Tan-y-Bwlch*.

THE RED-FLOWERED HORSE CHESTNUT.

(*ÆSCULUS RUBICUNDA*.)

IF only for its neat and moderate growth and attractive spikes of brightly-coloured flowers, the red Horse Chestnut ought to be planted. Being of moderate size, for we rarely meet with specimens more than 25 feet or 30 feet in height, and of compact habit, it can also be used where taller and more straggling subjects would be quite out of place. Last August, when almost daily viewing some well-grown and richly-flowered trees of this Chestnut, I could not help thinking how suitable a subject it was for planting around the margins of woods and plantations, for if these are ever of so small an acreage the tree never looks out of place, but adds a charm and beauty such as few others could.

At Holwood there are many pretty and good-sized specimens of the red-flowered Horse Chestnut, and as they have been suitably placed in front of taller growing trees, the effect produced during the blooming season is such as to please even the most fastidious in such matters. The long spikes of pinky red flowers are usually produced in great abundance, and as they stand well out from the light green foliage and are of firm, lasting substance, they have a most attractive appearance, and afford a striking contrast to the lighter blossoms of the common kind.

Being of a dense habit of growth and remarkably even of outline, the red-flowered Horse Chestnut is particularly well suited for planting as a lawn or specimen tree, and then the small stature to which it attains renders it a fitting subject for using where space is limited. That there are numerous forms of the red Horse Chestnut, differing much in the depth of the colour of the flowers, it may be well to warn intending planters, for some of these have but a faint tinge of pink over a dirty yellowish green groundwork, and such I am led to believe are grown from seeds.

Grafting is the only sure way to get the best coloured forms of this Chestnut, as I may say that it also is in the case of the copper-leaved Beech. Out of the many trees of the latter growing all over the Holwood property, and one of these is, I believe, of unique dimensions, by far the brightest and best are those that have been grafted.

There is a double-flowered variety of *Æsculus rubicunda*, a distinct and pretty low-growing tree when seen in good form, but this is rarely the case. Some of the largest trees of this Horse Chestnut that I have seen are growing on stiff, clayey loam, and where they are sheltered from cold and fierce winds, but I have seen others nearly as large where the soil was mainly composed of a clayey gravel and where plenty of moisture must at all times have been present. The tree bears seed in abundance, but not a few of the nuts are barren, although they are of similar size to those that are well filled and capable of producing young plants. When compared with the common Horse Chestnut the red-flowered variety is of a more intense and lustrous green, but smaller and more compact in all its parts, and at least equally valuable as an ornamental tree. A. D. WEBSTER.

The Myrobalan Plum. This, also known as the Cherry Plum, has had considerable attention directed towards it of late years as a hedge plant, and also for supplying covert for game. It is besides this extensively used as a stock on which to graft many of the Plums, but somehow or other its merits from an ornamental point of view seem to have been greatly overlooked. Nevertheless it forms a very beautiful flowering tree at this season, though the display of bloom is sometimes marred by spring frosts. When fully developed the Myrobalan Plum forms a low or medium-sized tree, with

a much-branched, spreading head. The flowers are white and borne in such profusion that the whole tree is quite a mass of blossom. Its merits from an ornamental point of view are also enhanced by the fact that it will thrive even in dry gravelly soils, and form a handsome specimen where many things would not flourish. Its Cherry-like fruits are as a rule but sparingly borne; indeed, on many a tree that has been a mass of bloom in the spring they may be sought for in vain. One of the finest purple-leaved shrubs or small trees that we possess is a variety of the Myrobalan Plum, though it is generally spoken of as a distinct species. I allude to *Prunus Pissardi*, that flowers early in the season, just as freely as the type, but whose beauty from a foliage point of view is most pronounced towards the latter half of the summer when the leaves become of a rich, bronzy purple hue. To be seen at its best it should be planted in a spot fully exposed to the sun, as where at all shaded the foliage is more of a rusty tint.—T.

TREES ON HAMPSTEAD HEATH.

THE following letters have been sent to us by one interested in the proper management of the trees on Hampstead Heath. We are sorry to see that not only on Hampstead Heath, but in the London parks the same mutilation of the trees is practised. Why this should be the case we are at a loss to say. Surely a naturally grown tree is far more beautiful than the lopped and mutilated specimens we frequently see in our public parks:—

"Speaking of the lopped Willows on the Heath, I should think a working man had hit the right nail on the head, when he says somebody had a tip to let the air into a certain garden; but, as a practical gardener myself, I can say it might have been done in a workmanlike manner and the trees not simply murdered as they are. But the treatment of the young plantations will show anyone who knows the A B C of tree treatment, that the trees are under a most incompetent hand—for instance, the young Scotch and Spruce Firs. No one who knew an atom of the right nature of these would take off all the branches to within a few of the top, as these trees bleed severely. This anyone can see by looking at the streams of turpentine which have flowed from every cut on the young trees in the different plantations. These should never be cut at all, as Nature simply drops the branches when not required.

"I would recommend the person who cut them to go to Kew Gardens, or Sion House, Brentford, where they understand trees, or, nearer still, to the Hampstead Cemetery, where the trees are treated properly. They will learn in five minutes how to cut Fir trees sensibly without murdering them.

"If the so-called gardeners want anything to do they can plant Ivy and other creepers over the bare walls which disfigure the Heath so much and hide the ugly houses with trees planted intelligently in groups of two or three close together, not like Cabbage plants all in a row. Instead of cutting down a dead tree let them train a Virginian Creeper round it, and see what that looks like when autumn has turned its leaves blood-red. Above all, let them leave the sand banks in the new part, where the martins have made holes, and not try and reduce everything to a dead level of flatness, as they tried to do in the sand holes by the Spaniard's Road, which, by-the-by, having done, and enticed the boys to play cricket by the nice flat state of the ground, they put up a big board to frighten them off, and shot a lot of heaps of dirt to make it unsuitable again—witness the heaps to this day.

"One other reason occurred to me for the lopping when I saw a cartload of the wood unloaded at a Heath-keeper's door. The thought also came that the new County Council might make the keepers an allowance for firewood, and not compel them to seek it on the Heath at the expense of the beauty of the same."—A WORKING GARDENER.

"It will be observed by many of those who signed the memorial drawn up by Mr. Foley and myself last spring, against the severe lopping of

the Willows upon the Heath, that in spite of this, and in direct antagonism to the expressed wishes of those who may fairly be said to represent the feelings of the residents of Hampstead in this matter, the destructive lopping is again going on in close proximity to the trees which were ruined last year. All that could be done to prevent its recurrence was done by our representative, Mr. Harben, whose valued services we still retain on the County Council. It is a matter of regret that further action should have been rendered necessary, but I hope shortly to be able to report a more satisfactory result by laying the matter before the newly-constituted Parks Committee of the County Council."—ROBERT MORLEY.

"Would you kindly allow me space to inform those, like myself, interested in the memorial lately presented to the Board of Works, concerning the mutilation of trees on the west Heath, that the said mutilation still continues and has culminated in the cutting down entirely of one or more perfectly sound trees, and, as the workmen were busily engaged this morning, probably more will follow. I make no comment, leaving others to suggest action."—ALFRED MAPPLE.

THE MOUNTAIN PINES.

THERE is a small group of Firs considered by some to be varieties of the Scotch Fir (*Pinus sylvestris*), and by others classed as distinct species under the names of *Pinus Pumilio*, *montana*, *Mughus*, and *uncinata*. The nomenclature of these Pines is in a very confused state, for the so-called species merge one into the other in such a manner that it is almost impossible to separate them, and seedlings, the product of a single plant, show this variation in a marked degree. While some plants are in general appearance very much alike, there is a wide difference in their cones, those of *Pumilio* or *montana* being ovoid in shape, while those of *Mughus* or *uncinata* have the scales on the exposed side lengthened and recurved, so as to give them a somewhat hedgehog appearance. As far, however, as their ornamental qualities are concerned, all of them may be classed together, for the individual differences are but slight, and the few accompanying remarks will apply with equal force to all of them. The Mountain Pine, which name is usually applied to *Pinus montana* or *Pumilio*, hardly merits the designation of a tree, though occasionally specimens are met with to which this title would almost apply. Its habit is usually that of a large, spreading, yet much branched bush, with short, stiff, dark green foliage, very thickly set on the branches. A large specimen, or a group of specimens on Grass form a very ornamental feature, equally attractive at all seasons, and totally indifferent to the most severe winters or to late spring frosts, the bane of many Coniferae. Perhaps, however, the most valuable feature possessed by the Mountain Pine is the fact that it will thrive in elevated and exposed regions, for it is found in a wild state, both on the Alps and the Carpathian Mountains, at high elevations, and consequently it may be planted where little else would thrive. Not only will it hold its own on bleak spots, but it will succeed where the ground is rocky and the soil shallow. It is well adapted for planting as a shelter to game, its somewhat dense, yet spreading habit eminently fitting it for the purpose. Though it does well in elevated spots, this Pine is a lover of moisture. In a dry situation it will, however, retain the rich colour of its foliage equally as well as when in a damper spot, and though the specimen grows more slowly, it is less wild and straggling in a moderately dry position than where the roots are liberally supplied with moisture. Where rockwork is carried out on a large and bold scale the smaller forms of the Mountain Pine are seen to advantage when suitably placed; or as a specimen for the lawn it is much superior to many of the choicer Coniferae, which are in the first place far more costly, and in the second need a good deal more care and attention than does the Mountain Pine. When planted singly, some individuals present a very uncommon appearance, by reason of

a few of the main branches that are produced from the lower part of the plant proceeding for a little distance in a horizontal manner, and then taking an upward direction.—Field.

GARDEN FLORA.

PLATE 698.

SINGLE CHRYSANTHEMUMS.*

THE single varieties of Chrysanthemums stand at the head of the Chrysanthemum family for general usefulness. This section is seen to the best advantage when the plants are grown without being disbudded. They flower profusely and are comparatively dwarf in habit; they are also the most easily grown of any section of the Chrysanthemum. The blooms last a long time in a cut state and the plants do not require either so much space or so much pot room as do the larger kinds. They are extremely useful when grown to flower later than the ordinary kinds, and are well adapted for growing in a dwarf state for room decoration. The single Chrysanthemums are becoming especially popular with those who are not bound by any of the rules strictly confining their tastes to the florist's flowers. As yet single Chrysanthemums have not been seen much at exhibitions, for the reason that encouragement, except in a few instances, has not been given to them in the shape of prizes. By far the best stands of cut blooms I have seen of this family were staged last November at the Portsmouth Chrysanthemum show, where they are annually encouraged and much appreciated. If other societies were to find a place for them in their schedules, they would, no doubt, be more generally cultivated, and when once their value is understood they will, no doubt, be found in every collection of Chrysanthemums. For mixing with other flowers and greenery the single varieties when cut are specially adapted, being so much lighter in appearance than the double kinds, which for vase or epergne decoration look much too lumpy and heavy. Two or three years since, at the Winchester Chrysanthemum show, prizes were offered for an epergne decoration consisting only of Chrysanthemums and Ferns. One lady competitor used single varieties only, while the others depended upon double varieties entirely. The result was, in the case of the single blooms, a light, graceful, and pleasing arrangement.

I once heard a gentleman, very deeply interested in the welfare of a Chrysanthemum Society, arguing against the introduction of a class for single varieties in the schedule, as these were not worthy of consideration, but he was compelled to say he had never seen one. It was simply prejudice against the name of single Chrysanthemums. This was a good instance of how these sorts are neglected, simply through ignorance of their qualities. More than this, some of the kinds are decidedly sweet-scented; particularly is this noticeable in *Mrs. Langtry*, a pale pink variety having smallish flowers. Two or three plants of this sort, if properly grown, are enough to perfume a whole house. This variety is useful for producing late flowers. As late as the middle of February of this year I saw very good blooms of this variety produced from lateral growths. If the flowers are cut from the points of the main stems, growths will start from the joints below and produce a succession of bloom.

* Drawn for THE GARDEN by H. G. Moon, in Messrs. Cannell's nursery, October 24, 1888. Lithographed and printed by Vincent Brooks, London.



During the last two or three years, thanks mainly to Mr. Cannell, the varieties have largely increased, and the colours are also much improved. The following list will suffice for the largest grower. The first fifteen named in the list are best suited for exhibition. I place them in this order to avoid a repetition of names; though all are suited for growth as bushes, yet the flowers of some are too small to be considered exhibition varieties:—

Jane (syn., Snowflake) I must place at the head of the list for its lovely form of flower; the colour is white, the petals twisted in a graceful manner. It grows strongly, carries good foliage, and is altogether a gem. As a comparison to this I name Admiral Sir T. Symonds. The florets, which droop slightly, are of a bright orange-yellow; most effective in a cut state. Those mentioned below are also good kinds. M. A. le Mout, amaranth-crimson, very showy;

was raised by Mr. Forbes, Buccleuch Nurseries, Hawick, and is named White Daisy.

E. M.

FRUIT GARDEN.

EVILS OF GRAFTING.

I was somewhat amused at the assurance with which "Scion" commences his last contribution (page 290) upon this subject, also at his affected disappointment at the lack of logic and reasoning which he says is forthcoming in defence of grafting. I must say I think some of "Scion's" statements are a trifle illogical; for instance, when he says "Blenheim Orange Apple does magnificently on the Crab or free stock," and a little further on says, "Those who uphold the grafting of fruit trees should read Mr. Barron's report on 'Some Experiments in Grafting.'"

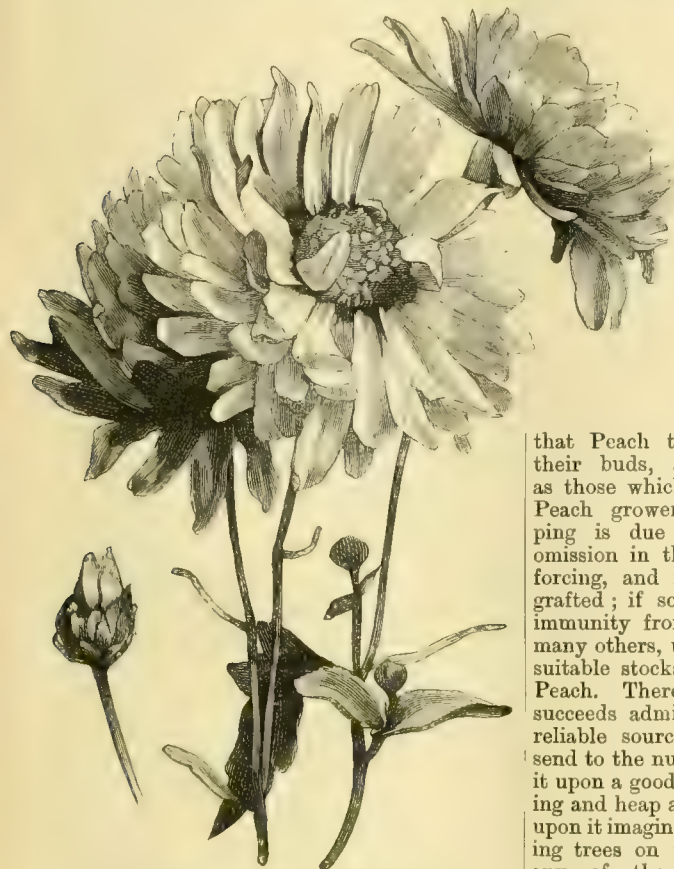
I have not seen the report referred to, but, from what I gather, the experiments with these eighteen stocks only go to prove what all fruit growers already know, namely, that Blenheim Orange is totally unsuitable for dwarf stocks or restrictive training. I should like to ask if a Crab formed one of the eighteen stocks, and if so, whether the scion grafted upon it was allowed unrestricted growth; if not, I see no value in the experiment at all, because it has not proved the stock upon which this Apple succeeds best. Again, when "Scion" would lay the blame for Peach buds dropping to grafting, does he forget

that Peach trees growing outside never cast their buds, although they are grafted just as those which drop their buds under glass? Peach growers are agreed that bud-dropping is due to faults of commission and omission in the treatment of the trees during forcing, and not to the fact of their being grafted; if so, how should outside trees enjoy immunity from it? I have, in common with many others, unfortunately found out that unsuitable stocks are frequently employed for the Peach. There are, however, stocks on which it succeeds admirably, and having found out a reliable source, when I want a Peach tree I send to the nursery where I know I shall obtain it upon a good stock. Do those who abuse grafting and heap all kinds of uncalled-for epithets upon it imagine for a moment that, by substituting trees on their own roots for grafted ones, any of the difficulties which at present beset fruit growers would disappear? that cankered, mildewed and stunted trees would be known no more? If so, I am of opinion they never made a greater mistake. There is no evidence forthcoming to show that one-fiftieth part of the Apples, Pears, Plums, Cherries, and other fruits which are at the present time so successfully cultivated as grafted trees would do as well when propagated from either cuttings, layers, or seed; in fact, as regards the two former modes, propagators of trees and shrubs know full well how obstinate many things are in forming roots when inserted as cuttings, and even after roots are formed there is a still further difficulty in inducing them to break away into free growth. Layering has no doubt some points to commend it, but for the majority of fruit trees it is too slow, and while free robust kinds, such as Blenheim Orange and Mère de Ménage Apples, Windsor Pear and Victoria Plum, would make good trees when increased

in this manner, most good kinds, for example, Golden Noble and Loddington Seedling Apples, Winter Nelis and Marie Louise Pears, choice Plums, Peaches, &c., require a good stock to push them a little. As regards seedlings, they are too uncertain, nor would they enjoy immunity from disease. I have in my recollection a seedling Peach tree which enjoyed a sunny position on a building when I came here, and which was one of the worst examples of gumming that had ever come under my notice amongst all the grafted trees I ever had anything to do with. Eight years ago I raised a batch of seedling Apricots, but although the trees received careful culture, some in pots under glass and some outside, their progress was so slow, that last year I threw all but four away. Needless to say, they have not yet shown a flower, and at the present time present the appearance of stunted Thorn bushes.

I am no "thick-and-thin advocate of grafting," but, as I have before said, I believe when the most suitable stock is employed and the operation is performed properly, it is the best means of growing fruit trees in this country, and is useful—although it is sometimes carried to excess—for many other plants besides. There are about fifty acres of orchard here, consisting of Apples, Pears, Plums, and Damsons. Few kinds are grown, and all except the Damsons are, of course, grafted. The fact, however, of the Damsons being on their own roots makes no difference in the certainty of the crop. They are influenced by adverse seasons, insect attacks, &c., the same as the grafted trees, all of which, with the exception of some kinds which have proved unsuitable for this heavy soil, and which are now being grafted with those kinds which are known to succeed satisfactorily, are healthy fruitful trees.—A. BARKER, *Hindlip, Worcester.*

As to the longevity of fruit trees on their own roots in comparison with those worked, what proof has "Scion" to bring forward that they are so? and if they are, what advantage, I would ask, is there? for trees when they become aged are not worth much, and are generally grubbed up and moved out of the way to make room for others that have the vigour of youth. This we did here some twenty-five years ago, when we destroyed numbers of Ribston Pippins that had stood more than half a century and had trunks a foot through. These trees had all been grafted, and, according to aged men employed in the gardens, they used to bear so freely that sacks of Apples were given away in the village. I tried to rejuvenate some of them by cutting out all the cankered branches and giving fresh soil and manure to encourage fresh growth, but the roots were too deep, and what fresh wood they made kept dying back, which showed that they had lived out their time and were only encumbering the ground. Now does "Scion" suppose these trees would have been one whit better or more lasting if they had been on their own roots, and can he point to any so grown that are superior to those worked? To cite Figs, Grapes, Currants, and Gooseberries as doing well on their own roots in support of his contention is weak, as they strike readily and are at fruiting size almost as soon as rooted, and if grafted would have to go on stocks raised in the same way, and time and labour would be wasted instead of being turned to profitable account. "Scion" goes on to remark that Quince stocks for Pears are propagated from cuttings or layers, but that is only so because they are more easily obtained than seed, and to state, as "Scion" does, that Pear stocks are better than Quince for the Pear, and that trees are more fertile on the Pear is against all experience, as in most soils they grow too vigorous to be prolific, as everyone knows. On the Quince this tendency is checked, and instead of wood we get crowds of fruit buds and plants that bear in half the time those on Pear stocks do. As to having them and Apples on their own roots, that has yet to be tried, but there can be little difference if they are so raised to those



Single Chrysanthemum White Daisy.

Effie, a curious mixture of chestnut and claret, the florets very long; David Windsor, bright chestnut-red; Lady Churchill, brick-red; America, bluish, large flower; Mrs. Wills, white, suffused with pink; Helianthus, bronze-yellow; Pure Gold, as its name implies; Crushed Strawberry, as its name implies; Patience, amaranth, tipped with white; White Perfection, pure white, of capital form; Oriflamme, reddish brown; Mrs. Duke, pale lilac; Mrs. Langtry, pale pink; Lady Brook, bright yellow, Buttercup form; Meteor, dark; Oscar Wilde, dull brick-red; Miss Gordon, light pink, with long drooping florets; Miss Lulu Martin, small pink; Elsie Maud, white, free flowering; Miss Rose, dwarf in habit, pink. The last three named are late-flowering kinds.

The annexed engraving represents a pure white variety with a yellow disc in centre. It

grafted on seedlings, which many Apples and Pears are, and if it were not for the grafting we should have to wait long for the distribution and fruiting of any new sort. To say that we cannot compete with the French for Pears, shows that climate is against us, as they graft quite as much or more than we do, and the same remark applies to America as regards Apples, but though the Apple grown in that country is handsome, ours beat it in flavour.

As to going in for raising either Pears or Apples from seed to stock gardens and orchards, this plan is of no use, for we have too many inferior sorts in cultivation already, and these would be vastly added to in a very few years. No; what we want are more Blenheims, Ribstons, and others of that class, and fewer of those that are inferior to them in appearance and flavour. To reduce the bad kinds, let us graft, and peg away at it regardless of what "Scion" says against stocks, and when he can show us that we can get better fruit on trees on their own roots, or that they are superior in any way, then we may abandon the old practice and take up with the new.—S. D.

— I do not feel very clear about this grafting business. I will take the Peach only at present. Does "Scion" know of any examples of Peach trees on the Peach stock? I never have had any to deal with, but the history of the Peach stock is not favourable in cool or temperate climates. The late Mr. Thompson, of Chiswick, relates how the trees on the Peach stock at Chiswick "invariably became affected" and were done away with as useless (see "Assistant"). In America, according to the late Mr. Downing, the Peaches are generally on the Peach stock, and the trees perish wholesale from the same disease that attacked them at Chiswick, viz., the yellows. No one has gone further than myself in advocating unrestricted freedom of growth, root and top, in the Peach, but always subject to the means of perfectly ripening the wood, and in this climate you have to resort to artificial means to do that. If I could be sure of a blazing sun and hot summers, I would use the very freest stock I could get, but I am told the Peach stock makes gross roots, which produce equally gross shoots that cannot always be ripened, even under glass, and seldom at all outdoors, and a foundation of ill-ripened wood is the beginning of all evils. As to the time required to fruit a grafted Peach, a well-budded "rider" will produce good shoots the first year, a large head of bearing wood the second year, and a heavy crop of fruit the third year. There is no doubt about that at all. How long a Plum-stocked Peach tree will live I could not say. I never knew a tree to die outright owing to the graft.—J. S. W.

HEADING BACK OF YOUNG TREES.

As to the merits of maiden and trained trees, the most experienced planters mostly prefer maiden trees for the reasons given by "A. D."; but there is a middle course which has many advantages, and which is often adopted, especially for the furnishing of Peach and orchard houses. Maiden trees are planted on vacant spaces on walls in the open, and trained into useful form and size, and these are so carefully and promptly removed indoors early in the autumn as hardly to look behind them, and frequently carry a crop the following year, and always the next. In this way much time is gained and vacant places are promptly filled up.

Similar tactics are often adopted for the furnishing of high walls. Maiden trees are planted on low walls or fences, or in warm sheltered spots in the open. In the latter case they are trained to stakes, iron hurdles, or temporary trellises. In this way an invaluable reserve of quarter or half-sized trees is kept in stock and on the spot to provide against sudden losses or other contingencies.

Everything depends on the trees being on the spot; this places them, roots as well as tops, under the perfect care and control of the cultivator. It is the rough transfer and transit of trained trees that render them often inferior to maiden trees, as

is shown by "E. H." Virtually it is impracticable, as trade orders are generally executed, to do justice to the roots of trained trees. The number, bulk, and weight of the roots throw insuperable difficulties in the way. The question of time as well as cost of transit furnish additional arguments against their use.

But none of these apply to trained trees on the spot, that may be transferred from where they are not wanted to where they are in a few hours. Under such abnormally favourable conditions almost every root may be saved, and the lifting and replanting may be very quickly done.

Trees on the spot may also be not only safely, but very advantageously transplanted several weeks earlier than would be safe for trees at a distance. Almost before the leaves begin to fall fruit trees may be transplanted when all the risks of perfunctory tearing up, close packing, and long journeys are avoided. By prompt removal, partial shading, a frequent syringing for a few days, fruit trees may be safely removed almost any time after the middle of October, and their roots be thoroughly re-established in their new root-runs before the end of November. Such trees will need little or no cutting back, but may be pruned and trained and fruited exactly as if they had not been transplanted. As to the cutting back of maiden and other trees in the open this season, unfortunately that work has already been done for us over very large districts of country in a very rough and ready and terribly radical manner through the frost. Thousands and tens of thousands of maiden and even trained trees are reported hopelessly crippled or wholly destroyed. These, of course, are mostly Peaches, Nectarines, and Apricots. Within these last few days I have received samples of both maiden and trained trees showing such an amount of injury among young trees as I have never witnessed even during the far more severe winter of 1859-60.

The trees grew late in the autumn of 1888, and hence their wreckage through the winter and spring of 1889. The only hope for such damaged trees lies in cutting them back to their base buds. Even then it seems doubtful if many of them will break, as in not a few cases even the stocks have the black mark of severe frost-bite on them. As to the time to cut back, the earlier after the middle or end of March the better. It must be borne in mind in this connection that the base buds to which we cut back are the basis of our future tree in embryo. Consequently, should we evolve this foundation too soon, that is early enough to get blighted by the late spring frosts, there is nothing else or more to fall back upon, and we lose a season, or it may be the tree, through our temerity in cutting back too soon. But, provided we steer clear of forcing the base buds into breaking prematurely, the earlier we head back young or prune trained trees after their roots are thoroughly re-established, the better for their health, strength and early fertility.—D. T. F.

— After all that has been said and written against the heading back of young fruit trees, one would think such a practice had been discontinued long ago, except in the case of maiden trees. With maiden trees the heading back is necessary to cause the one straight stem to break back and make three shoots or so from each side to form the future frame of the trees, but once these are obtained the rest is plain sailing, and to shorten or cut them back is worse than useless, for when it is done there is the same ground to go over again. In planting a young tree the object is, or ought to be, to fill the space allotted to it as quickly as possible, and if the branches are laid in full length there is plenty of leafage with a corresponding root action, and therefore the swelling of the plant's stem is rapid and there is no check to its growth. Some have an idea that young trees will not break back without having their branches shortened, but when planted at the proper time, I have never yet seen a tree that would not start every bud, and I always select the best situated on the upper sides and leave the requisite number, and all are encouraged to push out and grow as long as they will. Managed in this way, I always expect to fill at least 10 feet

square of wall space or trellis in less than three seasons with any kind of tree, as it is not an uncommon thing to see Peach and Nectarine shoots from 3 feet to 5 feet long, and not an inch of these is taken off. In the case of Apple, Pear, and other fruit trees, they are never headed in till they are as large as we want them. To take away any of the tops is to make the trees do the same work over again, and, more than that, it delays their becoming established. I would therefore advise those who still continue to behead their young trees not to do so, but to try the leaving-alone system. By all means mulch and keep freshly-planted trees steady, that they may root and get anchored, and, if planted late, it may be necessary to syringe to keep the bark plump and encourage the foliage.—S. D.

THE FRUIT PROSPECT.

So far as one is able to judge at present, the outlook for a good crop of fruit is very encouraging, and this is rendered more probable from the fact that 1889 will be ranked as one of the latest seasons we have had for many years; in fact, I never remember fruit buds more backward at this particular time (April 4) than they are at the present moment. A mild early winter following a wet summer led us to fear a very early development and expansion of the buds, but February was unusually cold, and effectually prevented what would doubtless have been a most unfortunate affair for the fruit garden. To particularise the principal fruits, I may say that in our case the only comparative failures seem to be Pears and Apricots, there being very little promise of bloom on either of these. Peaches, Nectarines, Plums, Cherries (both dessert and Morello), and Apples all look very promising, and, given a favourable time, are likely to furnish capital crops. We have managed to get along another stretch of Peach wall this winter and fill up the holes caused by years of nailing with a mixture of soot, lime, and a little sulphur, with sufficient Venetian red to bring the mixture nearly to the shade of colour of the old bricks. No one who has a very old wall to deal with can realise until they give it a trial what an immense amount of good is effected by this dressing. Our walls, to which trees have been nailed for nearly 200 years, harbour, where they have not received the above dressing, great colonies of insect life, necessitating during the summer months a lot of labour to keep the trees clean. Now that the Peach walls are finished, we shall another season turn our attention to the Cherry walls. Owing to the backward state of the trees, protection seems this year almost unnecessary. It is, however, best to be on the safe side, and cover lightly. We have given the walls a thorough wetting with the usual soft soap and paraffin mixture, and covered Peaches, Nectarines, dessert Cherries, and early Plums with a double thickness of 1-inch mesh fish netting. This is perhaps not so popular as a thicker covering of tiffany, but it seems quite as effective. Fastened to a projecting top brick, so that it will swing clear of the trees, it will keep out frost and break the force of any ordinary storm, while at the same time plenty of air and light can play on and about the trees. An additional point in its favour, especially where labour is scarce, is that it can be allowed to remain night and day until the fruit is safe. It is as well to keep always in hand from the present time a good supply of the home-made insecticide (soft soap and paraffin) referred to above, as many things besides wall trees are often benefited by a vigorous application. I remember, in the early part of the hot season of 1887, being nearly caught napping with wall Currants and some Gooseberries on a trellis. Whilst in a very early stage the trees were badly attacked by red spider, and in a very short time the foliage would have been completely destroyed by this pest. A good syringing, however, with the mixture answered the purpose at the first application, and we were safe for the season. It is as yet, of course, too early to speak with any certainty as to the chance of good crops of bush fruits, Strawberries, and Raspberries; but I think the outlook is promising. The foliage of Strawberries has suffered severely since the new year where the plantations are in

the open and thoroughly exposed, La Grosse Sucrée and the late Pines more particularly.—E. BURRELL, *Claremont, in Field.*

DESSERT AND KITCHEN FRUIT.

SOME years ago I planted a small orchard of eating and kitchen Apples, but if I had known then what I know now, I would not have planted a single kitchen Apple. All the eating varieties are quite as good, if not better for cooking, than the so-called regulation kitchen Apples. They are finer flavoured and require less sugar. Of course I am only referring to fruit for home use.

A professional gardener will grow what he finds pays best; but many a man would look upon it almost as sacrilege to cook a Jargonelle or a Ribston, though he would have no hesitation in cooking a Catillac or an Alfriston that could occupy the same ground; but there is no finer stewed fruit than a Jargonelle or a Ribston.

I select them as typical of our best Pears and Apples. It is the same with the Plums. An eatable Green Gage or a Golden Drop when cooked is far finer than an Orleans or a Czar; they would grow in the same ground. There is an idea that all fruits for cooking should have a certain acidity about them. Perhaps the sweetest and most luscious fruit we have, quite free from acidity, is the Apricot. Cooked Apricot is not bad eating.

I would not pull up a good cooking Apple in full bearing to replace it by an eating Apple, but when a kitchen Apple or Plum requires renewing, I always plant a dessert tree. The fruit of it will both eat and cook.

J. B. DUNBAR BRANDER.

. For some years we have advocated this view. The division of Apples into kitchen and eating kinds is worse than useless. It is confusing, and one of the reasons why we do not grow our own good fruit, but leave the country to be flooded by American fruit. It is a ridiculous practice when looked into. The best eating Apples are the best cooking Apples. The English gardener and nurseryman make so much of what they call kitchen Apples, of second, or third, or fourth, or even fifth-rate quality, that there is not sufficient room left for the really important fruit. Anyone who took the trouble to cook Apples without additions, which is the fairest test, would soon find out that the Blenheim and Ribston and Newtown are far before the so-called cooking Apples in every way. They also have the great advantage of furnishing their own natural sugar, thus preventing us from resorting to manufactured sugar, the use of which is to many people forbidden. The neglect of the Apples of really fine and strong acid flavour leads to the presence of a number of mawkish fruits, and then *en revanche* one very acid Apple is much sought by cooks in England, the Wellington. This excellent English fruit we cannot do without, because, although not an eating Apple of high class, its acid is so fine that cooks will have it, and it brings a very high price; but it would not be so important if the really best eating Apples were plentiful and well grown. So, again, using precious room in a garden to grow what are called stewing Pears is another piece of nonsense. Of course, people are not satisfied with a plain term like kitchen for this useless division, and hence we get the mouthful "culinary," which figures in the gardener's language and in the nurseryman's catalogue far too often.—EDITOR, *Field.*

Aids to setting Grapes.—In Mr. A. Barker's useful remarks on this important matter (p. 340) he omits one of the aids I have found most effectual—to wit, drawing the hand lightly over the bunches when in full bloom. This removes the glutinous cap or smaller deposit of sugary matter from the crown of the stigma, which frequently forms a great physical barrier to perfect impregnation. During this process the inside of the hand gets quite coated with pollen, which renders its touch soft and silky, so that the most tender and delicate stigmas can hardly be injured by its gentle passage over them. A double benefit is ensured by this simple mechanical operation—the removal of all physical obstacles to perfect setting, and the placing of the pollen in its proper place in direct contact with the stigma. By the use of a sensitive hand most of the dangers of over-pressure and the diffusion of the pollen throughout

too wide an area are also prevented. So far as my own practice is concerned, the hand has proved a far more effective aid to the setting of Grapes than midday tappings or the use of the brush at any period of the day. As to the syringe, it has always been my firm opinion that the Grapes set in spite of, and not through its use, as it tends to convert the living, buoyant pollen into a mere mass of semi-inert paste.—HORTUS.

WORK IN FRUIT HOUSES.

VINES.

WITH all the forcing houses in full work and the weather far from satisfactory, the daily operations must be well organised to prevent the most trifling details of which success is built up from falling into arrear. In the earliest houses Grapes now beginning to colour should be looked over, and if any of the bunches show signs of binding, a few of the smallest berries should be carefully removed. An adept at early thinning, especially if he knows the capabilities of his Vines, will thin to a berry, when the risk of disturbing the bloom is avoided; but in nine out of ten instances a few stoneless berries get overlooked, and these, although apparently just where they are wanted, should be taken, and the clusters will fill up long before they are fit for cutting. Gross laterals may still be pinched, but unless the premier leaves are likely to become crowded, those of moderate growth will do good service by being left intact. Copious feeding with warm diluted liquid at a temperature of 80°, damping down at night, and filling the evaporating pans with the same, whilst fostering good growth, will check the spread of spider, always provided it is used not too strong, and the houses from the banking to the breaking of the fires have a chink of night air. If heavily cropped and perfect finish is doubtful, these root and leaf stimulants may be supplemented by the maintenance of a low night temperature, say of 60° when the weather is cold, 65° when mild, and by free ventilation through the early part of the day. The full maximum of 80° under solar heat, if possible, must be touched from noon to 2 o'clock, when reducing at this catching season will be sharp and rapid, as 85° with sun-heat and confined vapour is not too high for swelling the berries.

Succession houses.—The principal work here will be the final thinning of the bunches, the tying down and stopping of the leading laterals, and the removal of a few more berries. If tying up the shoulders of the largest clusters has not been brought to a close, this work should precede the last thinning, otherwise it will be found that some berries have been taken where they might have been retained. If those long-season Grapes, Gros Colman and Gros Maroc, have a place and late keeping is the object, nice medium-sized bunches, and more of them, should have precedence of large, heavy-shouldered clusters, which take more finishing and do not keep so well when ripe. These Grapes, as a rule, are under-thinned, but this mistake is by no means surprising, as good Colmans should measure 4 inches round or a little more than 1 inch through the axis of each berry. When thinning is finished a little more fresh stable litter should be added to the inside border, and the latter, provided it is well drained, must be copiously supplied with warm, but weak clarified liquid and guano water alternately until the Grapes begin to colour, when pure soft water only must be used. Grapes should never be touched by water after they are set, but great assistance can be given to the Vines, and spider can be kept down by the introduction of a syringe of pure soft water here and there, and by damping the main stems about 6 o'clock on fine evenings, when there is least danger of condensation of moisture upon the berries. Ventilation here, as in the early house, should be liberal up to 1 o'clock, but, mindful of the fact that the close vapour bath helps the berries along, reducing should precede a decline and in time to secure a rise to 85°, if only for half an hour, on fine afternoons.

Sly-setting Grapes.—Muscats in the general house, Mrs. Pince, Lady Downe's, Black Morocco,

and others now coming into flower will require artificial fertilisation with foreign pollen, that obtained from the Black Hamburg being the best. It is not a good plan to commence too early, as serious mischief may result from the clumsy application of the brush before the bunches are in full flower. If fine bright weather prevails and air can be freely admitted, the roots being satisfactory, many of the clusters set themselves, but it is not well to trust to chance; therefore, when the natural pollen is plentiful and flies off in golden showers, that from the Hamburg should be very delicately applied. A high temperature from fire and solar heat combined, it is generally admitted, favours fertilisation, and the middle of the day, when the maximum is reached, is the best time to apply the pollen. Some Grape growers run their Muscats up to 90° by day and maintain fully 70° through the night, but beyond hastening the process, these strong heats are not absolutely necessary, as we frequently find perfect fertilisation in houses where the temperature descends to 60° on cold mornings and that by day rarely exceeds 80°. I do not, however, advocate a low temperature, neither do I approve of keeping the atmosphere too dry, as anything approaching aridity distresses the Vines and injures the delicate organs before they can perform their office. Some go to the extreme of syringing, lightly of course, when they are in full flower, but a safe compromise will be found in damping the floors, walls, and bare stems two or three times on fine days, in the maintenance of 65° to 70° by night and running up to 85° once in the twenty-four hours. Others draw the hand down the bunches when they are in full flower, a most risky proceeding, especially when the body is warm, as undue pressure or a tinge of perspiration result in a tiny brown spot at the points of the berries, which mars the appearance of the Grapes when they are ripe. These Grapes, although presumably set by the aid of the syringe, should never be syringed afterwards. Neither is it necessary where the roots are well fed, the house is well charged with ammonia from carefully prepared stable litter spread over the floors, the evaporating pans are replenished with weak liquid manure, and every part of the house save the Vines is copiously syringed immediately after the ventilators are closed. Where, as often happens, several of the late houses of Vines flower and set simultaneously, and the young Grapes rush on at a very busy time, thinning should be kept well under hand. Lady Downe's and Alicante are most tedious and troublesome; hence the advisability of setting would-be adepts to cleaning them as soon as the berries are the size of peppercorns. Once the small unfertilised berries are removed, the master hand, whose other duties are manifold, will soon run through a large house, and by this division of labour the great waste which attends thinning jammed bunches up to stoning time will be avoided. As these Grapes will hang upon the Vines until Christmas and in the store room until March or April, medium-sized taper bunches are preferable to large clumpy ones, and these should be well thinned to prevent the possibility of binding or dampgaining a hold when the leaves are falling in November. Muscats should not be taken in hand too soon, as stoneless berries and berries with one stone often attain a certain size and then fall behind, and these if they can be spared should be removed at the first thinning. When the irksome business of thinning is over and the berries are swelling freely, laterals which have been allowed a little freedom must be pinched, tied down and regulated to ensure an even spread of foliage over every part of the trellis, all pot plants (if any) must be removed, and, prevention of spider being better than cure, the walls should be made smart and clean by the final wash composed of quicklime and sulphur.

POT VINES.

If these, including Hamburgs, Madresfield Court Muscat, a most excellent early pot Grape, and a good white have gone on well, they will now be ripe or approaching that stage. Entirely dependent upon the hand for their daily supply of food, the roots must not feel the want of water even when the Grapes are quite ripe, but in order to prevent drying out, each pot may be well watered and com-

pletely covered with half rotten leaves or some other non-conducting material. The walls and floors, as a matter of course, must be regularly damped on fine days, and fire-heat must be equal to the maintenance of a free circulation of warm air throughout the colouring process. If heavily cropped and perfect colour is doubtful, extra air, more time, and a gradual lowering of the night temperature, supplemented by the use of soot water and weak clear liquid at a temperature of 85°, will most likely help them through to the finish. As summer weather comes on and the Grapes become fit for use, a lower range by night and day will be necessary, and pure water must be regularly used in lieu of liquid, that is, on fine days, when there is no fear of condensation upon the berries. White Grapes will require plenty of sunlight, not by the removal of leaves or laterals, but by tying or turning them aside, whilst black ones will colour best under a dense canopy of healthy foliage.

Pot Vines intended for next year's fruiting will now be growing very fast, and when the roots have penetrated through the balls of compost they must be well fed with warm liquid. The syringe, too, must be very freely used for damping the walls and surface of the bed when the morning temperature begins to rise, and for thoroughly bathing the young rods and foliage immediately after closing. The best mode of training the canes is immediately beneath the wires about 15 inches from the glass, and each lateral must be closely pinched to the first joint from the base to the point to which it is intended to prune in the winter. At or a few buds above this point the canes should be stopped, when the latter will increase in thickness, and the bunch-producing buds will fill up and become very prominent. All sub-laterals forced by stopping the leaders may be taken out, as the few laterals near the apex as well as the second leaders will carry off the superfluous sap, especially if allowed to run until the young canes show signs of colouring. As this process goes on and the rods assume a bright nut-brown colour, the laterals, commencing at the bottom, may be cut out close to the main buds, always provided the premier leaves have been preserved intact and free from spider. Very strong canes, especially if at any period they have received a check, sometimes throw their main leaves, when the buds lose their best support, but having a safety-valve in the leaf at the end of each lateral, these must be left intact until the Vines go to rest in September. If the pots are placed on pedestals, with declining fermenting material placed round them, this may be drawn away piecemeal when the canes are stopped, otherwise the roots will draw through the apertures and persist in growing when they should be ripening.

Eyes.—Vines from eyes of the current year and intended for cutting back or planting next spring should now receive their final shift into 7-inch pots, which should be clean, dry, and rather deeply crocked. Having been grown in bottom-heat, the compost, consisting of sound fibrous turf, lime rubble, and bone-dust, should be thoroughly warm and dry enough to bear ramming with the potting-stick. The balls of the young plants, on the other hand, should be made very moist a few hours before they are turned out, as no amount of after-watering, whilst souring the new compost, will restore them to a proper growing condition. When the Vines are potted they must be re-plunged in the bed, where gentle bottom-heat, slight dewing over with tepid water, and thin shading from bright sun in a close, warm pit will soon restore root action. When growing freely and the roots have taken to the new soil, they may receive their first watering with tepid water, the syringe may be more freely used, shade discontinued, and air given on all favourable occasions. The temperature by night may range 68° to 70°, and that by day about 80°, air being given at 76°, and shut off in time for the mercury to mark 85° in the afternoon. As growth proceeds, all the strongest and best may be drawn out of the beds, tied to light straight sticks, and placed on the surface, plenty of room, as a matter of course, being allowed for the full development of the foliage. When too tall for the pit, they may be

transferred to a light, warm vinery to complete their growth and ripen. As planting canes need not exceed 6 feet in length, they should be stopped accordingly, and all the laterals and sub-laterals, with the exception of two or three at the top, closely pinched to a single leaf. When the first batch has been removed, those left behind can be drawn to the surface, re-arranged, closely divested of laterals, staked, and in due course removed as they require more head room. When the pots are well filled with roots they will require plentiful supplies of warm diluted liquid two or three times a week, and good syringing to prevent spider from attacking the foliage. Like fruiting canes, they cannot have too much light and sun-heat; hence the advisability of training them to wires within a foot or so of the glass.

Spring planting.—If any of the above are intended for permanent planting, the middle of May, or whenever the young canes are about 2 feet in height, is a good time to put them out. We have planted as late as the second week in June when solar heat has been more favourable, and the canes have topped the rafters before autumn, but, provided they are well rooted and the soil is thoroughly warm, the end of May should not be exceeded. The secret of success lies in getting the compost, consisting of fresh turf, bones, and old lime rubble, made up and in a state of fermentation by the time the roots are sufficiently plentiful to hold the balls together when the Vines are turned out of the pots. If the house in which they are to remain is ready, this is the best laboratory for drying, mixing, and warming the compost; otherwise it may be prepared in a dry open shed, and covered up with hot stable litter to start fermentation. A border 4 feet in width and 2 feet 6 inches deep, clear on each side and resting on ample drainage, is quite large enough for the first year. When built up to the proper level, sods of fresh turf being used for the retaining walls, a good lining of hot manure or leaves on the inner side, aided, of course, by fire-heat and sun-heat, will soon raise the temperature to that of the bed upon which the Vines are standing, when they may be transferred without receiving the slightest check.

Planting may be performed in the following way: Having made the balls thoroughly moist overnight, place each Vine in position, turn them out of the pots, press the balls gently between the palms of the hands and disentangle the points of the roots, but do not allow the balls to fall to pieces. Plant shallow, packing a little of the warmest compost rather firmly about the roots with the hands, cover the surface of the ball with 1 inch of soil, and train to a straight stick previously inserted in the border. Keep the house close, moist, and lightly shaded from bright sun, but unless the compost has become very dry defer watering for a few days. When the Vines have started into fresh growth, a good watering with water at a temperature of 85° through a fine rose will settle the soil home. Shade will hardly be needed; still, it may be retained for use an hour before and after mid-day, that is, if any of the Vines show signs of flagging, and a peck of fresh Mushroom manure spread lightly round each will complete the operation. As growth proceeds the young canes must be well syringed and watered, each lateral must be pinched at the first joint until they have made 6 feet, when the canes themselves must be stopped, for reasons explained in my remarks upon intended fruiting pot Vines.

PINES.

April having been so cold, sunless, and ungenial, the fruiting plants have not made the progress they might have done under more favourable conditions. Airing [having been so difficult, too, crowns, where the plants are not pretty close to the glass, will be large and in advance of the fruit. This loss of time in some cases may cause inconvenience, but of two evils it is better to elect to await ripening than force the life out of plants without the aid of solar heat. The loss, moreover, under good generalship, may yet be got over, as there exists but little doubt that May is the best month in the whole year for swelling the fruit of the Pine. Fire-heat, as a

matter of course, is indispensable throughout the month, but it is not excessive, whilst solar heat, which gives the full maximum every day, is so moderate, that the house may be shut up very early in the afternoon, and, aided by an abundance of atmospheric moisture, a very high tropical temperature may be maintained. From this time until the fruit begins to change colour the plants may be lightly dewed over on fine afternoons, and the heat after closing may run up to 90° or 100°, but the spray should be very light, as better results invariably follow under-syringing, that is, damping the surface of the bed and charging the axils of the lower leaves with warm clarified liquid, and occasionally with weak soot water. The same, also guano water, may be given to the roots whenever they require moisture, but, considering the amount of moisture these slow perspiring plants obtain from the bed as well as the atmosphere and the length of time the house is kept almost, if not quite, close, it is always best to err on the side of moderation in watering Pines. Like all other succulents, they require water occasionally, and, provided it is not given hap-hazard, the supply, be it weekly or fortnightly, should be sufficiently plentiful to pass through the drainage. Night air may now be increased, and as this will lower the temperature some few degrees, the fires must be stirred in time to catch the intermediate heat, 75° to 80°, when the fall to a minimum of 70° will be steady throughout the hours of darkness. This, of course, must be shut off at 6 a.m., when the sudden rise will justify charging the atmosphere with moisture. Day ventilation may commence at 76° on promising mornings, and more air may be given as the temperature rises to 85° or 90°.

Succession plants.—With the experience of the past cold, sunless summer fresh in our memory, advantage should be taken of the early part of the growing season for getting these plants well forward, in order that they may have an abundance of time for ripening and resting. Dry fire heat being objectionable and dangerous, the fires should now be stopped pretty early on fine promising mornings. If air has been on all night this may be shut off first thing, for the rise as well as to give the plants the full benefit of atmospheric moisture from the newly charged evaporating pans and damping. The top ventilators may be opened at 76° and the air gradually increased up to 86°, the maximum on bright days, but they must be closed in time to run up to 90° with close sun-heat and moisture. As the afternoon temperature declines the fires must be stirred in time to catch 70° at 9 p.m. and 65° to 68° at daylight the following morning. As May creeps on growth will be rapid; consequently air through the early part of the day must be more liberal, atmospheric moisture more plentiful, and root watering with tepid liquid or guano more frequent.

Suckers potted in February and March must be kept in a moist growing condition, and as soon as the roots are sufficiently plentiful to prevent the balls from falling to pieces, preparations must be made for shifting into larger pots. It is not necessary to defer potting until all the young plants decay; indeed for keeping up a continuous supply of fruit it is a good plan to divide them into two batches, the first for transfer to another compartment, the second to be arranged in the same pit and repotted a fortnight or three weeks later.

W. C.

Keeping Apples.—Some time ago Mr. Crump gave his experience of keeping Apples by means of packing them in barrels. Were we as ready to throw our prejudices overboard and strike out into new ruts as Mr. Crump has, the question of fruit storing would assume a different aspect. Barrels are not always at command, but boxes, bins and similar contrivances can be called into service. I have seen in various parts of England methods adopted to keep fruit sound and late—such as pits formed like Potato ones, low sheds where the Apples were piled up carefully into heaps and covered with straw. An amateur friend of mine kept some Cellini Apples in first-rate condition till

May in boxes in his hay loft. As barrels are not at command, I pile the Apples on shelves in the ordinary fruit room, keeping the whole structure close and dark. This is certainly an inferior method to keeping the fruit in cases. In a box in my office where Grapes are also kept to the present time and a month or so later in fresh condition, Apples of a popular local kind, known as Seaton House, a September Apple, and much like Stirling Castle, but firmer, are kept in a box with a lid on it, and are now very serviceable, while the same kind in the fruit room had to be used up during March.

—M. TEMPLE, *Carron House, Stirlingshire.*

ORCHIDS.

W. H. COWER.

CYMBIDIUMS.

Forty years ago this genus was not held in high estimation. I suppose that as the genus once included many handsome plants, which were from time to time merged into other genera, the few true Cymbidiums remaining were poor, and thus the plants came to be looked down upon.

thriving and flowering well in a very low temperature, and I am under the impression that it is the cooler treatment they have received of late years which has caused them to flower more freely and brought them into the repute which they hold at the present time. Cymbidiums, for the most part, should be potted in a mixture of good turfy loam and fibrous peat, in the proportion of about two-thirds of the former and one of the latter. The large plants at Streatham occupy pots 3 feet 6 inches across, and these are exceptionally well drained. The potting mould and the gross-feeding properties of these plants would naturally lead one to infer that they would be just the very subjects to like manure, and knowing that the plan had been tried at Streatham, I asked how it succeeded. Mr. Measures told me that he formerly tried a sprinkling of fish manure, but was obliged to give it up, as the plants do not succeed so well with as without it. Now I have watched this material used in several places, and the result has been that all highly commend it at first, but after having used it for some time they appear to cease employing it. All this bears out my



Cymbidium eburneum.

Now-a-days, however, they have become special favourites, and in several places have a house set apart for them. The most notable instance of this that I have seen is in the garden of Mr. Measures, of The Woodlands, at Streatham, where one large span-roofed house is wholly devoted to this genus, and it well repays for the expense. The centre of the house is full of large specimens of *C. Lowianum* and *giganteum*, probably the largest in Europe, as they measure about 12 feet across at the top, and upwards of 3 feet across at the base. Upon some of these plants I have seen nineteen spikes, each bearing in some instances thirty-two of the large and brilliant flowers. Cymbidiums are, for the most part, strong-growing plants, having thick fleshy roots. The flowers of many of them are of great beauty, and in some species they yield a delicious and grateful perfume. They are plants which require potting in strong soil, and they do not require so much heat as was formerly given them. Even the favourite *Lowianum*, which comes from the land of Burmah, I find

previously expressed opinion that, after having grown Orchids fairly extensively for nearly forty years and studied their requirements too, I never advise any of my readers to adopt the practice of using artificial manures in their cultivation. The only thing I have found beneficial without ill-effects is weak cow manure water.

The following kinds are now in cultivation in this country, and all are well deserving the attention of every grower of orchidaceous plants. They are all evergreen, producing leaves more or less leathery, and from a foot to 4½ feet in length, the pseudo-bulbs varying from 1 inch to 10 inches in height:—

C. AFFINE.—This species, I believe, was introduced by Mr. Williams, of Holloway. In its habit of growth it somewhat resembles *C. eburneum*, but the leaves are much broader, the scape is stout, and the slightly curved raceme bears from three to nine flowers, which are sweetly scented and intermediate in size between those of *C. Mastersi* and *C. eburneum*. The sepals and petals are pure

ivory-white; ground colour of lip white, three-lobed, the side lobes profusely spotted with pale magenta. The anterior lobe is blotched with purplish crimson, the rich yellow crest being composed of two fleshy plates. It blooms during the autumn months, and is a native of Northern India.

C. DAYANUM.—This plant resembles the preceding in growth, but the leaves are longer, measuring in some instances 4 feet in length. They are narrow and somewhat thick in texture, and of a bright green. The spike is pendent, many-flowered, the blooms being white, tinged with yellow, and more or less streaked and flushed with vinous-red. It comes from Northern India.

C. DEVONTIANUM.—Although this species is said to have been introduced upwards of fifty years ago it still remains very scarce. I received a fine spike of this from a gentleman in Ireland last year to name, and a short time since I again saw it flowering in Sir Trevor Lawrence's collection. The pseudo-bulbs are small and concealed by the broad bases of the leaves; the latter are about a foot long, broadly lanceolate, keeled, leathery in texture, and deep rich green. The scape is pendent and many-flowered. This habit renders it necessary to grow the plant in a hanging basket. The flowers are 1½ inches across, the sepals and petals being about equal in size, pale yellowish green, spotted with lines of dark purple; lip deep reddish purple, recurved at the tip, and on either side near the base is a large circular spot of blackish purple. It blooms in the late winter and early spring months, and is a native of Northern India.

C. EBURNEUM.—This superb plant was, I believe, first discovered by Griffith in Northern India upwards of forty years ago. In my younger days it used to be kept in the hottest corner of the East India house. In this position it frequently became spotted and seldom flowered, so that I was taught that it was a very handsome plant, but a bad grower and a very shy bloomer. At the time I have mentioned, I believe the plant came to the Messrs. Loddiges, of Hackney, and about which time it was first described by Dr. Lindley. Since this I have no knowledge of its being re-introduced until about fifteen years ago when it was again imported by myself. My friend wrote me saying the leaves were broken down in the season, and that the plants grew again like Willows, also that they flowered like beds of great white Tulips. That same season I grew some imported plants under a north wall in the open air. After this, I think Mr. William Bull introduced large quantities of the plant through Mr. Freeman. Last week when I looked in at The Woodlands I saw nearly forty flowers open, very many more than ever I have seen before at any one time, and these flowers were some 6 inches across, the sepals and petals being broad, thick, fleshy in texture, and pure ivory white; lip large, frilled on the edge, stained along the centre with a narrow band of golden yellow, and bearing on the centre a rich yellow fleshy crest. In addition the blooms are very fragrant. I have seen the plant represented with three flowers on the same scape, but I think this must be wrong. I have imported it with two flowers, and this, I am told, is as many as it is seen bearing when growing naturally, and I have seen it with two blooms on a spike in our plant houses, but it more frequently bears but a single flower, which is by far the largest of any Cymbidium I know. Beside the above there is a variety named in honour of Mr. Day. This plant is less robust in growth, and the flowers in addition have the lip more or less spotted with rose. In the variety *Williamsianum* the apex of the side lobes of the lip and the sides of the central lobe are more or less suffused with light purple. In the form called *Philbrickianum*, I cannot see anything to induce one to separate it from the others; indeed I consider it a poor *eburneum*. The type blooms during the spring months and lasts long in beauty. Native of Northern India.

C. GIGANTEUM.—In the year 1850 I had several plants of this species under my charge, but I was instructed to keep them alive and not to encourage them. The fact was, that although my old master, who was an enthusiastic lover

of plants, could never bear the idea of throwing a plant away, he yet had an idea that a better plant might want the space this species was taking up. The truth is, however, that in those days we had a very poor variety compared with what I now see in collections; yet, moreover, when it did flower it was thought to be a fine thing. The leaves were between 2 feet and 3 feet in length and the scape nearly as long, the flowers being distant, with sepals and petals green, with a few streaks of deep blood colour; lip bright yellow, the side lobes streaked and the anterior lobe spotted with deep red. In the plants of the present time the flowers are about the same size, *i.e.*, some 4 inches across, and they are very fragrant; but the sepals and petals are yellowish, heavily streaked with purplish brown; lip rich golden yellow, profusely spotted with crimson, the incurved side lobes being heavily streaked with purplish brown. This plant was recently flowering in The Woodlands collection. Native of Nepal.

C. HOOKERIANUM.—This plant would appear to have been collected many years ago by Lobb when travelling in Northern India for the Messrs. Veitch. The plants flowered soon after their arrival in this country, but never again until the end of 1865, when it was named in honour of Dr. Hooker. In habit of growth it resembles *C. giganteum*, but the base of the leaf is conspicuously streaked with a pale yellowish green on a deep green ground. The scape is nodding in the upper part, and bears about a dozen very large flowers, the sepals and petals being apple-green, without any marks of other colours; lip large, broad, and recurved at the tip, middle lobe yellowish white, becoming deep yellow on the undulated margin, where it is spotted with reddish purple, the side lobes erect, sharp pointed in front, and dotted with reddish purple. It is a pretty plant, and thought to be more free flowering than its near relative *C. giganteum*. It blooms in autumn.

C. LOWIANUM.—This superb plant was, I think, first discovered by Boxall in Burmah about twelve years ago, when it was dedicated to Mr. Stuart Low by Prof. Reichenbach. It remained scarce for some time, the largest plants in Europe perhaps being in The Woodlands collection at Streatham, where there are six examples each measuring some 12 feet across. These, when they flower well, each bear nearly 500 flowers. It belongs to the same set as *giganteum* and *Hookerianum*, but it surpasses both for vigour of growth and size, and also for the beauty of its inflorescence. On these plants I think the greatest number of flowers on a single raceme has been thirty-two, but I think some two years ago I saw a plant bearing more than that number, but it was the most miserable form of the plant that has yet come under my notice. The sepals and petals are light apple-green, more or less streaked with sepia-brown; lip large, side lobes erect, yellow, anterior lobe cream colour, with a deep brownish maroon-purple band in front and all round it, the undulated edge being yellow. It is a charming plant and flowers at the present time. Native of Burmah.

C. MASTERSI.—This is a beautiful species which flowers in the autumn, and which in the season now passed was very fine at The Woodlands. It is nearly fifty years ago since it was sent home by Griffith, by whom it was named in honour of one of the assistants in the Botanic Gardens at Garden Reach, Calcutta. In habit of growth it is near *C. eburneum*, the flowers, however, being very different, being much smaller, and borne some ten or twelve together on a nodding raceme. These are pure white, saving a few spots on the interior of the lip; they yield a pleasing odour of Almonds. I am not sure if this species grows with *C. eburneum*, but if not, it occurs in the same districts.

C. PARISHI is another species which resembles *C. eburneum* in its growth, but the leaves are much broader when the plant is strong. The scape is from three to seven-flowered, the flowers being large, sepals and petals pure white, lip large, white, the centre stained with a blotch of rich orange colour, and spotted with purplish crimson, which renders it a pleasing subject and quite distinct

from any other kind. It blooms during the months of June, July, and August. Native of Burmah.

C. TIGRINUM.—This is a pretty plant introduced many years ago from Burmah, having been originally sent home by the Rev. Mr. Parish, I believe, to the Messrs. Low, of Clapton. The plant, however, has been almost lost to cultivation, and I was much pleased last year to again see it flowering with Mr. Shuttleworth in his nursery in Clapham Park Road. It is a dwarf plant as we know it, the flowers being large, the sepals and petals green, spotted with red, the lip creamy white, transversely striped with purplish crimson. It deserves to be grown by all lovers of Cymbidiums, and I do not fancy it has yet been seen in its fullest beauty. It flowers in the spring months, and comes from the Burmese mountains at some 6000 or 7000 feet elevation.

C. ELEGANS.—This is another of the set which has foliage somewhat resembling that of *C. eburneum*. The flowers are borne in many-flowered racemes, the blooms being of a soft creamy yellow hue, the inside of the lip being dotted with deep red, but they have the peculiar habit of remaining half closed. It blooms during the autumn months. Native of Northern India.

C. PENDULUM ATROPURPUREUM.—This is a superb plant, which I recently saw in great beauty flowering with Mr. Sander at St. Albans. Its foliage is erect, thick, and leathery in texture, and the plant produces numerous pendent many-flowered racemes of great richness and beauty. The sepals and petals are rich deep purple, the lip rosy crimson and purple with a yellow disc; its distinct colours render it especially charming. It usually flowers during the months of May and June, and is said to come from the Indian Archipelago.

Besides the above are a few others, such as *C. aloifolium*, *C. pendulum*, *C. chloranthum*, *C. sinensis*, &c., which are all deserving cultivation in a collection of the genus. The last-named plant is peculiarly valuable for its fragrance, which much resembles that of the Violet.

Odontoglossums at Studley House.—There were numerous *Odontoglossums* in flower recently in the rich collection of Orchids of Mr. F. G. Tautz, and amongst them the following species and varieties: *O. crispum* was, of course, in full bloom, and the plants carried large racemes of boldly shaped flowers, some beautifully spotted with brown, others almost a self hue. It is the commendable practice of Mr. Tautz not to name every flower that shows a difference from something else, and we heartily wish others would follow his example. Very beautiful in this collection is *Pescatorei*, one form of the purest white, and in another the lip was richly spotted with lake-crimson, the sepals and petals of great purity. This form, Mr. Cowley, who has charge of the Orchids, says, has always come quite true as yet. *O. cirrhosum* bore a magnificent raceme of its lovely flowers, and *O. triumphans* was in full beauty. A very delicate Orchid is *O. Cervantesi morada*, the whole bloom flushed with a delightful shade of pink; *O. Oerstedii majus* and *O. Wilckeanum pallens* had good spikes, also *O. Schillerianum*, which is thickly spotted with brown on a yellow ground, the lip dull crimson. The now popular *O. gloriosum* was in flower, one form named *superbum* having larger and richer blooms than those of the type. *O. Cervantesi decorum* and a large plant of *O. citrosimum*, carrying five of its pendent spikes, contributed to the display.

Aerides japonicum.—This plant appears to do well at Heaton House, Cheshunt, where Mr. Searing grows it in a house facing north, but which, nevertheless, gets a little sun at the side at one time in the day. Under similar conditions I was very successful with it at the establishment of the Messrs. Rollisson at Tooting. Two specimens of this species are now flowering with Mr. Searing, and, judging by the other plants which I have seen before, it is a very fine species. The raceme is some 6 inches or 8 inches long and many-flowered; sepals and petals thick, waxy in texture, and pure white, the lateral

ones being transversely streaked with brownish purple; the lip is more or less blotched and spotted with deep reddish violet. It comes from the extreme south of Japan, but although for more than a quarter of a century an inhabitant of our plant houses, it is a species one seldom meets with well grown.—W. H. G.

Dendrobium nobile var. Heathfieldianum (syn., *Cooksonianum*).—A large, well-flowered specimen of this fine variety is now in flower in the garden of Mr. T. Lange, Heathfield House, Gateshead. It had a number of stout flowering stems with seventy large well-coloured flowers open. Mr. Methven, the gardener at Heathfield House, told me that the name *Cooksonianum* was given in error, as the plant had been exhibited at Newcastle under the name of *Heathfieldianum* two years before it was named by Dr. Reichenbach. It is now so well known amongst Orchid fanciers under the varietal name of *Cooksonianum*, and is described and figured as such, that it would be unwise to change it; but the plant flowered first in Mr. Lange's garden, and he naturally wished to have the name of his place attached to such a fine variety. I advised Mr. Methven to exhibit this plant before the Orchid committee of the Royal Horticultural Society.—N. B.

Dendrobium Waltoni.—I send you a flower of the supposed natural hybrid between *D. Wardianum* and *D. crassinode*, although the colouring is very poor. According to my idea, the supposition of its being a hybrid between the two above-named species is feasible, because the flower is that of *crassinode* with the addition of the two small spots in the throat, and the bulb is that of *D. Wardianum*. In other words, it is simply (void of spots) a *crassinode* flower on a *Wardianum* bulb. The origin of the name *Waltoni*, the authority of which does not appear to be known, ought to be cleared up.—F. ASHTON, *Liverpool*.

** The flowers sent much resemble those previously received from the Rev. F. D. Horner, saving that his were fresh and these are shrivelled. It appears to be a bad variety of *Wardianum*, and you say it has the growth of that plant. We know nothing of the origin of the name *Waltoni*.—Ed.

Hardy Orchids.—I am very glad to hear that the cultivation of the beautiful hardy Orchids is being taken up in real earnest, and that already several very good collections are being gathered together in this country. They have, of course, been cultivated more or less since the times of Gerard and Parkinson, but in hardly a single instance that I am aware of have any particular pains been taken to establish them in quantity. The Duc de Paris, while staying at Orleans House, Twickenham, had probably the largest collection of the hardy Orchids ever brought together in this country, but it does not appear that he did much in trying to establish them in the open air, his experiments being chiefly confined to their culture in pots and cold frames. The varieties of *Ophrys* were his favourites, and he remarks that the only one he found that really increased under cultivation was *Ophrys bombylifera* (the Humble Bee Orchis), a charming little species from the neighbourhood of Mentone, and doubtless requiring the protection of a frame or handlight in this country. From the experience I have had with these hardy species of Orchids, it does not appear impossible that a dozen or so can be easily established with care in the open, and that the greater number may be very successfully grown in pots. Care, of course, will be required both previous to and after flowering, and the plants must not, as is too often the case with those that have flowered, be placed in any odd corner until nearly all the life has gone out of them. I have a very deep bed full of Cocoa fibre, in which I keep the plants plunged, unless when showing them in flower, and the success I have had during the last two years enables me to recommend this course. After the flowers are over I keep the plants well watered, as before, continuing until the leaves turn yellow, when water is gradually withheld, the moisture in the fibre being sufficient. The plants are then turned out of the pots, repotted, and placed back in their old quarters, and

as soon as the leaves appear above ground, water is again applied and plenty of air given on all suitable occasions.—K.

—Some pretty kinds of hardy Orchids were exhibited at a recent meeting of the Royal Horticultural Society. One of these (*Orchis pallens*) seemed to attract considerable attention, the curiously-formed sulphur-coloured flowers being produced thickly on a stout stem hardly a foot in height; then the foliage was broad and green, and of so healthy a hue that one could almost conclude that the plants had been lifted that morning from some of the gently undulating grounds along the coast of the Mediterranean. For many years I grew and flowered this pretty species satisfactorily, but it gradually dwindled away unless peculiarly situated. *O. longibracteata*, which had immense lower leaves, these being stiff, broad, and of great substance, and a rather poor spike of flowers—nothing like the Holland specimen described in *THE GARDEN* a week or two ago—was likewise shown, and alongside it a potful of that curious and interesting plant *Ophrys arachnites*. It had a spike about 12 inches long and carrying eight flowers. It is a native Orchid, and one of the showiest and most curious we have, the lip being large and of varied metallic hues. Hardly two specimens of this Orchid are to be found alike in the marking of the flowers, particularly when the plants are chosen from isolated patches. But in those in question the difference of floral colouring on the same plant was perfectly remarkable—at least to me, who had never noticed such a feature before. *Orchis Morio picta*, also exhibited, is certainly a departure from the normal plant, but it is far less ornamental. Evidently the plants were well grown, but the flowers are poor, and I do not think that such a form is worth growing.—A. D. W.

Odontoglossum Roezli.—This species will ever keep green the memory of the great plant collector and successful importer of Orchids from South America and Mexico, whilst those possessing the species in quantity will very seldom be without blooms, which, I think, eclipse those of its near ally, *veixillarium*. It usually blooms twice in a year; the flowers are delicately fragrant, and last in perfection a long time. Flowers of this species just to hand from Mr. Cypher, who has charge of Mrs. Studd's collection at Bath, are very fine, the flowers being very large, pure white, and the purple spot at the base of the petals clear and well defined, whilst the yellow markings on the disc of the lip are deeper than we usually see them. As I have before remarked, this is one of the few members of the genus which does not object to a fair amount of heat, but as some now contend that it is not an *Odontoglossum*, but a *Miltozia*, there is an allowance to be made for it. It enjoys heat, but it must always be kept in a moist condition, and the atmosphere also must be kept well charged with moisture. Neglect of this has been the cause of the rapid spread of black thrips upon the plant, which first disfigure it, causing it to look unhealthy, and ultimately kill it.—W. H. G.

Epidendrum radicans.—This beautiful scandent species, which is also known by the name of *E. rhizophorum*, is too seldom seen in collections, and I think it is too frequently denounced as a shy bloomer. This, I think, arises from a misconception of its native habitat, and thus it is too often placed in the cool house with the *Odontoglossums*. We are, however, told that it grows amongst Grass and at some considerable elevations in Mexico and in Guatemala. Therefore I fancy a house intermediate in temperature between an *Odontoglossum* house and a *Cattleya* house would suit it best. In such a temperature I used to grow it and flower it freely at Kew years ago, and under similar treatment I recently noted it flowering with Mr. Searing in the Heaton House collection, where he told me it had been in bloom since last November, and indeed where it appeared to be likely to be in flower for months to come, so that the credit of being a shy bloomer is certainly not deserved by this plant. The plant is scandent in habit, and the trusses of bloom are very large. The sepals and petals are large, often intense deep orange-vermilion; the

lip has very large side lobes, which are fringed and orange-red, with just a few spots of crimson on the disc. A coloured figure of this species was given in *THE GARDEN*, Vol. XXIV., p. 390.—W. H. G.

Dendrobium Dalhousianum.—This fine old species is now grand in the Heaton House collection. It is laden with its very large and delicately-coloured flowers. Although introduced upwards of fifty years ago, it still remains the largest-flowered species in cultivation. It is a tall-growing plant, and it often produces its pendent racemes of nankeen-yellow blooms, which are frequently suffused with rosy-pink upon the old leafless stems; the lip in addition has two large, velvety, blackish purple blotches and is hairy on the front.

FLOWER GARDEN.

DAFFODILS IN IRELAND.

IN Ireland the characteristic English Daffodil is unknown as a wild or naturalised plant, the kinds most common being the forms known as *N. princeps*, *N. spurius*, and *N. Countess of Annesley*, referred to in *THE GARDEN*, April 6 (p. 305), which seems intermediate between the two last named. I do not think any species of *Narcissi* are really indigenous to Ireland, but that all seemingly so found there are naturalised introductions which have not only held their own vegetatively, but have varied from self-sown seeds. The cool and moist summer climate of Ireland is peculiarly suited to the growth of the Daffodil as well as many other garden flowers, and I think self-sown seedling variations appear there more often than in English gardens. If this is not so, how are we to account for varieties being discovered in Ireland which are unknown either as wild plants in Europe or in gardens elsewhere?

The following is a list of most of the varieties of *Narcissi* which have been found in old Irish gardens during the past eight or ten years, and to these are added others which grow exceptionally well on Irish soil:—

ARD-RIGH (Irish King).—A strong and early variety of the *N. spurius* section.

DOLLY VARDEN.—A small and shapely variety of *N. spurius*.

GOLDEN PLOVER.

GOLDEN EAGLE.

PRINCEPS.

COUNTRESS OF ANNESLEY.—This is a strong growing and distinct variety, which originated, so far as is known, in the park at Castlewellan, Co. Down, although since found elsewhere.

ST. AUSTIN.—A rather small citron-coloured variety, found in an old garden in Co. Carlow. It has also been called *N. minor citrinus*, but is different in form and habit to the true *N. minor* of gardens to-day.

NANUS.—The common *N. nanus* of gardens is very often met with in old Irish gardens, but there is also a distinct taller plant somewhat intermediate between *nanus* and *lobularis*.

SPURIUS.—This and *princeps* may be set down as the common Daffodils in Irish parks and gardens, and both types vary within narrow limits, a fact which is no doubt due to their seeding spontaneously wherever the soil and climate suit them.

FILLED TRUNK (or Crom-a-Boo).—This is supposed to be a natural seedling from *N. spurius*, or from the common double *N. Telamonius*, both of which grow with it on a lawn in Co. Limerick.

RIP VAN WINKLE.—This is a small, narrow-pointed double yellow Daffodil, and is now pretty generally supposed to be a double phase of *N. minor*, which it resembles in habit, time of flowering, and general aspect. It is a curious fact that single *N. minor* is extremely rare in Irish gardens, and seems to have either turned double or died out,

as all the single *N. minor* known to or heard of by me seem to have been introduced from England or Holland during recent years. *N. minor* of gardens is such a true stock, that I surmise it was originally a selection (possibly a solitary bulb) from the small pseudos of the Maritime Alps, which Mr. Barr now calls the Grasse Daffodil.

It is when we come to the white Daffodils that we find Ireland so rich in varieties. About twelve are now known as distinct, and of these at least a half have not as yet been discovered in English gardens. These six are Minnie Warren, White Minor, Silver Bar, Little Nell, Gladys Hartland, and Robert Boyle. There are one or two others, such as Colleen Bawn, Countess of Desmond (lemon or citron), Bishop Mann, Helen Falconer and Leda, which may or may not occur in old English gardens, but they certainly do so in Irish ones, and now and then in quantity.

MINNIE WARREN.—This has been called white *nanus*, and is a distinct and handsome dwarf variety on warm moist soils.

WHITE MINOR.—Larger than the last and whiter, having less buff colour on the tube behind the flower. Three of its perianth segments are broader and more rounded and shapely than are the three inner and intermediate segments.

SILVER BAR.—Whitish sulphur, with a pale stripe down each segment.

ROBERT BOYLE.—White with citron trumpet.

COUNTRESS OF DESMOND.—A shapely and graceful variety of a clear bright citron or lemon colour.

The last three varieties, with one or two others at present undetermined and unnamed, were found by Miss F. W. Currey in an old garden, and were, I believe, quite unknown elsewhere until that lady generously distributed them to other amateurs a year or two ago.

LITTLE NELL.—A whiter and more shapely thing than Minnie Warren, which with it and Gladys Hartland probably originated from a common parent.

COLLEEN BAWN.—This is one of the best and most distinctly beautiful of all our Irish white Daffodils. It has broad glaucous leaves, high-shouldered perianth and a very drooping flower, and is the whitest of all white varieties except *N. moschatus* from the Pyrenees, from which it may possibly have originated years ago. Three of its perianth segments are very broad and three very narrow, a character by which it is easily recognised.

LEDA.—This is the same as the smaller *N. tortuosus* of the English growers. There is, however, another white Daffodil larger and having a more citron or lemon-coloured trumpet (*N. albicans* of gardens) with which Leda or white *tortuosus* must not be confounded. This last-named plant is not unfrequent in gardens, but is at present unnamed; its erroneous name of *N. moschatus* has been, as I think perhaps rightly, transferred to the true wild white of the Val d'Arras. In Ireland the plant has been known as Mrs. Donnelly's white, and I now propose that it bear the name of Helena.

BISHOP MANN.—This plant is a stronger and taller growing phase of common *cernuus*, both being met with in Ireland as well as in English gardens.

HELEN FALCONER is a very distinct and beautiful variety, finer than Leda, and when better known it is sure to be appreciated at its true value. It seems to have originated from seed in a Guernsey garden, since I received this and another kind very similar to Barr's Princess Ida from Messrs. Smith, of Guernsey, two or three years ago, together with the information that they were garden seedlings.

Other *Narcissi* which grow exceptionally well in Irish gardens are the double *N. eystettensis* (*N. capax plenus*, a bad name, which should be expunged) and two distinct phases of *N. odoratus plenus*, varying in height, breadth of foliage,

and size of flower. *N. maximus*, again, is often very luxuriant on Irish soil even without the cultural attention and constant transplantation so often necessary to ensure success in English gardens. It may interest some to know that this fine golden Daffodil is the *N. major* of Hawthorth, and not his *N. maximus*, as some have supposed. It is figured in "*Theatrum Floræ*" 1637) and in "*Campi Elysii*" (1701).

F. W. BURBIDGE.

SAXIFRAGA CAMPOSI.

THIS is also known in gardens as *S. Wallacei*, and is certainly by far the most beautiful of the mossy section, not even excepting *S. decipiens* and its near ally, *cæspitosa*. As an edging it is simply faultless, growing closely, and producing its large white flowers in the greatest profusion. As a pot plant liberally treated, I have rarely

nication in reference to this flower was sent to Mr. Burbidge, and will, we hope, prove interesting to readers of THE GARDEN: "In THE GARDEN of March 2 you mention, in the article on the Water Fairy Flower, among other varieties figured in Reeves' '*Plants of China*,' a double form very much like the double Roman *Narcissus*. This form comes not unfrequently mixed in with the single and usual sort. For the last year or two I have had about three out of every ten, say, giving these double flowers, but in much greater numbers than the double Roman. It seems to bear the same relation to the Grand Emperor that the double Roman bears to any good variety of *N. tazetta*. Although the water culture described for the Grand Emperor is usual and very interesting, and the plant succeeds admirably in a living room if it be kept cool, much better results can be obtained if the bulbs are planted in a good soil. Five bulbs planted in a 12-inch pot gave me thirty-seven heads of flower with eight to ten flowers in a head. The pot was kept in the cellar until growth began,

have pink stamens, but we have none by us to compare; also a variety of a very pale shade of pink, a distinctly beautiful pale mauve or pale blue, and a blue which is quite distinct from the usual kind, a small bunch of which, without leaves, we send for comparison. We think it probable we may yet flower other shades of colour. We also send you a single bloom of a dark blue and of a beautiful lilac. If these have any distinct names, will you kindly give them us, but we have never seen these forms before.—ROBERT VEITCH & SON, Exeter.

. Very pretty delicate colours. We hope you will be able to grow them freely. We have not observed how and where the *Hepatica* grows in American woods or hills, but hope some American reader of THE GARDEN will tell us.—ED.

CARNATIONS FOR BEDS AND BORDERS.

COLOURED PLATES of such brilliant varieties as of the two presented with THE GARDEN of April 13 cannot fail to increase and improve the cultivation of self Carnations. Fairly cultivated and skilfully grouped, scarcely any flower can prove more effective in beds or borders than Carnations; while none can exceed them in usefulness for cutting, or in popularity for bouquet and other purposes.

True, some winters try them very much, that about drawing to a close being no exception, unless in the unusual hardness with which it has hit Carnations, Cloves, and even the sturdier Pinks. But by holding reserve stocks of cuttings or layers under glass, and planting these young plants out in April, the Carnation becomes more or less independent of climatal severities, though it must be admitted that for profusion of bloom these baby plants are nowhere in comparison with plants established two or more years. In the raising of seedlings two points deserve especial notice—vigour and hardness of constitution and profusion of bloom. Unfortunately, not a few of the more miffy novelties prove the most beautiful, and hence get preserved and distributed, much to the mortification of future growers. On the whole, however, self-coloured Carnations and Cloves are among the most vigorous growers and possess the best constitutions.

I wish to most emphatically uphold the views of "A. H." in regard to the superior effect of uncoloured groups of Carnations rather than indiscriminate mixtures of different colours. Beds of seedlings or of mixed sorts are valuable enough for cutting from, but for effective grouping in the flower garden or pleasure grounds they are nowhere compared with beds of selfs or of two selfs of contrasting colours, such as red and white, or crimson and orange or yellow. The effect of two distinct colours in contrast either in separate lines or regularly dotted plants is rich and pleasing in the extreme.

One of the most effective combinations of this sort ever seen by the writer consisted of a three-fold line of Cloves on a narrow southern border at the foot of a Peach wall. The row next the trees was the tall crimson Clove, the next row white, and the one next the walk the old purple Clove. During the second and for several following years this rich harvest of Cloves was not only the brightest sight in a large garden, but supplied a goodly mansion and a large demesne with matchless fragrance.

HORTUS.

A freak of the common Primrose.—Major-General Dillon's sportive Primrose (p. 329) is not at all a novelty, because the throwing up of a stem with an umbel of flowers on it is not at all uncommon; in fact, it does but go to prove what is now an accepted fact that Primroses are but Polyanthus with an undeveloped main stem. I have constantly found in garden Primroses that hard propagation by division will drive up Polyanthus stems not found in the plant when untouched. Of course, the feature is less marked amongst wild Primroses, for the simple reason that these almost always are left to a state of nature. How closely the Polyanthus and the Primrose are allied is evidenced in the abundant production in both forms in gardens of



Saxifraga Camposi (syn., *Wallacei*).

seen its equal. I find it extremely useful for cold houses, corridors, or windows. Of course, like most of this section, the leaves become brown and dried up as the stem lengthens, but the shoots are as readily rooted as those of a *Geranium* or *Calceolaria*, and do not want even the protection of a handlight, but may be pricked out in a shady place in the open air and watered occasionally until rooted. By the latter end of autumn they will have made nice plants, and may be potted up for blooming in pots or planted out where required. It is perfectly hardy, and the engraving here given shows what a useful subject it is for the rockery. A native of Greece.

D. K.

The Water Fairy Flower (*Narcissus tazetta* var. *Grand Emperor*).—The following commu-

but most of the growth and all the flowers were formed in the parlour. Abundance of water was given, but no more than *Hyacinths* or *Tulips* would require. These plants also do well if planted in pure sand or *Sphagnum*. An interesting feature of the Grand Emperor is that almost all the offsets will bloom if kept on the main bulb; when broken off and planted by themselves, however, very few will flower. It seemed to me that these points in regard to a good plant not grown as commonly as it should be grown might interest you.—B. M. WATSON, JUNR.

American Hepaticas.—We send you by this post some blooms of *Hepaticas* which we think will interest you. The plants were sent us from America two years since, and they appear to be distinct from the European forms. The flowers are much smaller, but very numerous, and the foliage is more mottled and evergreen. We send you a pure white form, and think the flowers of the ordinary form

plants which first and early produce Primrose flowers, and which later are succeeded by Polyanthus stalks and flowers; varieties which retain the true character of each section are, however, preferable.—A. D.

DAFFODILS AT HAM.

THE Narcissus is the flower of the season. A few stray blooms of the early varieties linger still; but the bicolor, incomparabilis, Barri, and other midseason sections are in their fullest splendour, to be followed by the less gaudy, but possibly more beautiful Poet's varieties which prolong the season far into the month of May. It is at such a time as this that the Daffodil fancier should visit Mr. Walker's grounds at Whitton and Ham, where altogether there are upwards of fourteen acres of this bulbous flower. The largest portion is at Ham, where there are about 114 acres of ground devoted to hardy bulbs of the more popular kinds, fruit trees, and forcing houses. The nursery itself is picturesquely placed. It is in the midst of a charming bit of Surrey scenery, the famous Ham Common fringing it on the east side, and beyond this are the richly-wooded Richmond Park and Hill, a natural and welcome shelter, as to the south there is nothing to break the full force of the wind, the view stretching across to the old town of Kingston and surrounding country. It is at once evident that Mr. Walker has made his Ham Nursery a true home of the Daffodil. The soil is sandy loam of good depth, a solid foundation, so to say, to commence with, but we need scarcely mention that it is not this natural advantage nor the pure air that are alone responsible for the magnificent growth of the bulbs, but the skilful, experienced hand who manages them. The foliage is of immense vigour, and as it bends before the breeze, the peculiar glaucous tint glistens in the sunlight. It is such waving masses of bulbs that tell us how peculiarly adapted some kinds of Daffodils are to our English climate. We firmly believe that England can be made to supply its own Daffodil bulbs and more besides, if properly cultivated; the treatment may be summed up shortly. It consists in annual lifting, and it appears at first sight incredible to realise that 14 acres of bulbs are lifted every year in July when ripe, stored in a proper shed for the purpose until September, and then planted out again. All the best kinds are treated thus, and the common varieties would also receive this attention but for the additional labour it involves. That such a course of treatment is correct it needs no trained eye to see. The bulbs show it in the profusion and vigour of the leaves, the size, colour, and free display of the flowers. On some of the single bulbs of the beautiful trumpet variety Empress there are as many as seven blooms of the finest proportions. This is gaining a great result through liberal cultivation, and such flowers always bring excellent returns in the market. Mr. Walker knows that it does not pay to do things indifferently, and acts accordingly. Every morning he sends to market, or rather the flowers are cut and brought to London the same evening ready for the following day. Both at Whitton and Ham there is a large packing shed, the flowers, thousands of which are cut every day, being gathered before they are fully expanded.

Although there is a large collection of Narcissi at Ham, there are certain kinds that are more largely grown than others. During the past few years, since the Daffodil has received such unusual favour, to the extent even of having a committee especially formed in the interests of

the flower alone, there has been an enormous increase of kinds, a fair proportion, it is not too much to say, showing a difference in degree only, and that very slight. But here are standard kinds grown in large masses, and it is these that should be universally cultivated. The bulbs are planted in raised beds about 4 feet wide and 200 yards long, and last week many of the trumpet varieties were in perfection. This is not a good season for bulbs of any kind, but the Daffodils appear to have suffered least of all, although in particular districts they are poorer than in others. It is the Tulips that show a marked falling off. The weather has been just the reverse of what was wanted. If we could have comparatively dull weather now that the flowers are fully open, and could have had sunshine when the winds were cold and the skies overcast, the Narcissi would have been finer, but in the matter of weather we have no choice.

At the time of my visit it was the trumpet Daffodils, represented by such magnificent kinds as bicolor Horsfieldi, Empress and Emperor, that were at their best. At Whitton, where the land is heavier than at Ham, there is a superb display of each of the two great trumpet varieties Empress and Horsfieldi. Many regard these two as one and the same thing, but there is no doubt about their distinctness. There is a bed of each side by side, and from this it can be seen that Empress is a taller grower than Horsfieldi, the perianth is more massive, the golden-coloured trumpet straighter and more open, and the whole flower of greater substance. Another point of distinction is that the offsets of Empress flower freely, though this is not the case with those of Horsfieldi; of the two we prefer Empress. It is peculiar to note how the Daffodil loves a dry soil. The extreme ends of some of the beds at Whitton slope conspicuously, and here naturally the soil is moister than usual, with the unmistakable result that the growth is thin and the flowers few, especially in the case of the white Narcissi. The beautifully shaped Tenby Daffodil was almost over, and, singular to relate, this is the only one that refuses to grow well even with the treatment that brings out the whole vigour of the other kinds. Mr. Walker says it seems to be dying away, and in some other places a similar condition of things exists. It is the same with the common Daffodil of the woods. If brought from its native haunts, planted and cultivated as the varieties are, it frequently dies away entirely. Curiously, the Tenby Daffodil was not the first to bloom at Ham. The rich golden flowers of Ard-Righ appeared four days earlier, and this the first time for the same number of years. The large-flowered Golden Spur has proved to be one of the best of the trumpet Daffodils; the bloom is of very rich colour, large, handsome, and robust; but there are few Daffodils to eclipse the noble maximus. Nothing can approach it for colour, massive, and splendid proportions; the chalice is magnificent. Of this there is a large quantity. The cut stalks in the rows of princeps showed that many gatherings had been made from this beautiful trumpet variety, which is as valuable for its colour as for its earliness. Rugilobus was well represented, also bicolor grandis and Nelsoni, which belongs to the same division, and has a pretty clear yellow-coloured chalice and white perianth. It comes in after Horsfieldi, and is therefore doubly useful. Bicolor of Haworth may be grown if simply a collection is wanted, but it is not equal to well-named grandis. One of the last of the trumpet varieties to bloom is Edward Leeds; it is not so fine as some of the earlier types, but its yellow chalice and the green tinge in the

segments of the perianth make a happy colour effect.

The incomparabilis class offers a wide field for selection, and the greatest care is necessary to discriminate satisfactorily. There is an unusual grace in the varieties of this division, the growth is free, elegant and Grass-like, the flowers fragile, and stirred by the least breath of wind. One of the principal varieties grown is Stella; it is a beautiful flower, the segments almost white and the cup clear yellow, a contrast to the double blooms of incomparabilis plenus. Mary Anderson is a valuable kind, the rich orange colour of the cup and the paler segments making an excellent contrast, but it will not do in heavy land. Cynosure, C. J. Backhouse, which has a splendid reddish orange cup, and Princess Mary of Cambridge are indispensable. The last of the two is one of the finest of all the incomparabilis division; the perianth is bold, handsome, and delicately coloured, the cup rich yellow, broad, and comparatively deep; it is a noble kind and does well with Mr. Walker. Lady Watkin is a sport from Sir Watkin, a Daffodil that made considerable stir when first exhibited years ago. It has the segments more recurved and less flimsy, and the cup is rich orange, a beautiful set-off to the pale yellow segments; Semipartitus, self pale lemon; Queen Bess, which has a brilliant yellow cup, paler segments; Beauty, the trumpet margined with brilliant orange; and Magog, a bold handsome flower, are also worth mentioning, all showing great distinctness and beauty.

The Leeds section offers many beautiful kinds. A few of the finest types flowering last week at Ham were Acis, a delicately beautiful variety, the segments white, and the cup soft apricot; Catherine Stanwell, Beatrice, Madge Matthews, the cup pale primrose, the segments white; and last, but not least, Gem, which is one of the finest of all.

In the Barri class there were several handsome flowers. Maurice Vilmorin is a good variety, the short cup brightened by a rim of orange colour, in rich contrast to the pale coloured segments; Wm. Ingram has a conspicuously brilliant rim to the cup; and John Stephens is worth growing for the width, colour, and beauty of its chalice. General Murray and Beatrice Murray are two beautiful kinds; the latter is very free-flowering, and certainly amongst the best of its class.

White Daffodils are weak compared with those in which such brilliant colours as orange and yellow play an important part. They are not commercial plants, but many cultivate them for their distinctive and characteristic beauty, so we find at Whitton a selection of the finest types. Albicans was doing well; also Colleen Bawn, which has a vigorous constitution; cernuus pulcher, William Goldring, and Mrs. F. W. Burbidge, a variety with a beautiful primrose-tinted trumpet and pale, almost white, segments.

There are a few rarer kinds that I may especially note. Captain Nelson is a fine trumpet variety, more like a pale-coloured maximus than any other type, and especially richly coloured, as far as the cup is concerned, is W. Wilks. Michael Foster is a good bicolor, and Mr. Walker had excellent flowers of the Vicar of Lulworth, a sturdy handsome flower described in THE GARDEN (p. 306); it is a bad grower. J. G. Baker has a famous name, but the flower is not so good as one might expect; it is in the way of Captain Nelson, the trumpet large and the colour self yellow. N. Burbidgei was blooming freely. The variety

Constance, belonging to this section, is a pretty flower; the segments are almost white, and the cup is brilliantly tipped with orange. Nelsoni W. Backhouse, segments white, trumpet bright yellow, and N. pulchellus, which has a beautifully shaped tubular chalice, the segments white, are two handsome varieties of their particular class.

It goes without saying that there are immense breadths of the late-flowering N. recurvus, the sweetly-scented Campervelle, odor plenus, the double Sulphur Crown, the double white, Orange Phoenix, and ornatus, the most useful of the poetic varieties. A row of the dwarf N. Macleai was exceptionally beautiful; it is a gem in its way. To those who want to see a veritable Daffodil farm, where thousands of the finest flowers are sent to the market every week, they cannot do better than spend a short time with Mr. Walker.

The Tulip also receives special culture, as everyone knows who has seen the magnificent displays from the Whifton and Ham grounds at the London shows in late spring. Already there is a brilliant promise, although this is not a Tulip year, as the bulbs almost invariably have proved a partial failure. C.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

APRIL 23.

THE meeting in the Drill Hall, Victoria Street, on Tuesday last was quite equal to any of those held this year, and there was an additional attraction in the annual exhibition of the southern section of the National Auricula Society. A large number were present to hear the remarks of the Rev. F. D. Horner on the Auricula. There were numerous certificates, as the following list will show.

FIRST-CLASS CERTIFICATES went to—

CATTLEYA BLUNTI.—A moderately good form of this beautiful variety of C. Mendeli was shown by Mr. Fraser, gardener to Mr. R. B. White, Arddarroch. This Cattleya was first flowered by the late Mr. Day, of Tottenham, and named in honour of the collector, Mr. Blunt. The sepals are narrow, white, and almost hidden by the broad, wavy petals, which are also of the purest white, as is the large, beautifully frilled lip, the only colour being a suffusion of yellow at the entrance to the throat. It is a choice and beautiful variety, resembling the type considerably in habit and character of the flowers.

CYPRIPEDIUM NITIDISSIMUM.—This is not a very beautiful Lady's Slipper, the flower lacking brightness. It is the result of a cross between C. caudatum and C. conchiferum, and shows its parentage plainly in the colour of the flowers and the long tail-like petals, which measure nearly 11 inches in length. The leafage is remarkably robust. Why is it called nitidissimum? From Mr. Norman C. Cookson, Oakwood, Wylam-on-Tyne.

ODONTOGLOSSUM PESCATOREI THOMSONIANUM.—This is a gem of its kind; the flowers of exquisite shape, larger than those of a typical Pescatorei, and beautifully spotted. The broad sepals are just flushed with lake, overlaid by a few spots and deeper coloured blotches; the lip is white, except a blotch of lake near the rich yellow crest. From Mr. H. M. Pollett, Fernside, Bickley.

EPIPHYLLUM MAKOYANUM.—This is a Continental variety, and resembles a kind sent out some time ago as E. Gaertneri. The plant shown by Messrs. J. Veitch and Sons was exceptionally free-blooming; the narrow segments are rich orange-red, and form a star-shaped flower. It is not so brilliant and striking as the old E. truncatum.

RHODODENDRON HER MAJESTY.—This was one of the finest things of the meeting. It is a hybrid between R. Fosterianum and R. arboreum, although there is very little of the arboreum character in the

massive flowers. A very small plant was shown, but quite sufficient to tell us we have a noble acquisition. The flower, like that of R. Veitchi, of which Fosterianum is a variety, is $4\frac{1}{2}$ inches across, and just touched with a soft crimson shade, a richer and more profuse colouring appearing on the back of the petals. It is in the style of fragrantissimum and Aucklandi. From Messrs. J. Veitch and Sons, Chelsea.

TULIPA LEICHTLINI.—A beautiful slender flower with much the character of T. stellata. It has narrow, glaucous, and abundant foliage, the stem rising about 1 foot high and bearing a rather small flower of a cream-yellow colour, except the outer surface of the segments, where there is a distinctive flush of scarlet. From Messrs. Paul and Son, Cheshunt.

NARCISSUS WALTER KENDAL.—There is no harm in naming new Daffodils when they are so distinct and beautiful as this incomparabilis variety. The broad, finely-shaped segments are as white as in the Poet's Narcissus, and the cup is yellow, brightened by a deep rim of rich orange. It is sure to become a favourite. From Messrs. Barr and Son, Covent Garden.

AWARDS OF MERIT went to—

AUBRIETIA LEICHTLINI.—A charming hardy Aubrietia, being very dwarf and smothered with bright rose-coloured flowers. It is a noteworthy addition to its class. From Messrs. Paul and Son, Cheshunt.

COLEUS EUREKA.—This variety has broad handsome leaves of a rich maroon-crimson, shaded with bright magenta and margined with an irregular band of pale green. From Mr. Samuel Hill, florist, Latimer Road, Forest Gate.

To the following varieties of Primula Sieboldi from Messrs. Ryder and Son: Queen of Whites, a charming flower of the purest white; Miss Nellie Barnard, brilliant rose, the petals deeply cut; Mrs. Ryder, white, shaded with delicate pink, very free; and General Gordon, rose, shaded white in the centre.

PRIMULA VISCOSA SPLENDENS.—This is a beautiful variety of a delightful shade of rose-pink. A panful of it from Messrs. Ryder and Son was charming.

AMARYLLIS SEA NYMPH.—A variety with a strong straight stem, carrying three flowers of excellent form; the colour is white and scarlet—a brilliant mixture. From Messrs. Paul and Son, Cheshunt.

MIGNONETTE GARAWAY'S DOUBLE WHITE.—The individual flowers of this variety are large, white, or almost so, and the spikes slender, but not too thin. We hope hybridists will not spoil a beautiful flower by forcing it to an unnatural size. The blooms of this variety are quite large enough. From Messrs. Garaway and Co., The Nurseries, Clifton.

PRIMROSE QUAKERESS.—This will please those who like flowers of an almost blue tint; the small yellow eye in the centre, margined with rich crimson, gives it considerable beauty. From Mr. G. F. Wilson, Weybridge.

PRIMROSE G. F. WILSON.—An unusually deep violet-blue variety, the eye yellow. Its rich self shade will commend it to Primrose lovers. From Mr. G. F. Wilson.

CLIMBING POLYANTHA ROSE CLAIRE JACQUIER.—A distinct break away from the ordinary type, and a beautiful addition to its charming section. The growth is strong, leaves abundant, and the flowers very freely produced. In the bud the flowers are rich apricot-yellow, but as they expand this disappears, and a clear white takes its place. From Messrs. William Paul and Son, Waltham Cross.

Hardy flowers comprised the principal display, and there were many choice exhibits. Several pans of Primula Sieboldi (cortusoides amona) came from Messrs. Ryder and Son, Sale, Manchester, the whole tastefully arranged with Maiden-hair, a charming foil to the delicate and graceful flowers. In such a selection as seen here the beauty of this

Primula appears to advantage. The plants were a mass of bloom, and when it is known that such perfection can be arrived at with simply the aid of a greenhouse, some idea can be formed of the value of this hardy Primrose. Amongst the best varieties in addition to those described in the list of certificated plants were Victor, bright magenta; Brilliant, an unusually bright shade of the same tint; alba magnifica, white, the edges of the petals distinctly cut; and Gem, purplish magenta. Messrs. Ryder also had Auricula Golden Queen, a golden yellow variety, and Primula obconica superba. It should be remembered that there are many beautiful forms of this Primula; the variety shown scarcely justifies its name. Silver medal. Ten magnificent boxes of hardy Primroses came from Mr. A. Waterer, Woking, and we have seldom seen a richer and more beautiful collection of colours. The whites were exceptionally delicate, the crimsons of various shades, and the maroon, lilac and orange-coloured kinds strikingly showy. Some of them were prettily margined with white, but the spotted kinds should be avoided. A silver medal was given. Messrs. Alexander Bailey and Son, Southwick, exhibited a charming series of Pansies, in which George Rudd, a rich yellow variety with a deep central blotch, and Cloth of Gold, a very richly coloured variety, were conspicuously beautiful. Mr. G. F. Wilson, Weybridge, brought a basket of his hardy Primulas, all the flowers having a blue shade. Six varieties were shown, and all have different shades of plum and blue colour, being selected from many seedlings of the variety Scott Wilson. Two were certificated and are described above. One named Miss North was the clearest blue; while E. Dickson, Mrs. Dickson, and Mrs. Harrison were of various tints of this colour; it was an interesting exhibit. Mr. Dean, Bedford, showed a hybrid Primula, a cross between ciliata purpurea and alpine Auricula Beatrice, the flowers rich purple-blue and the paste white. Gentiana angulosa, a rich blue-coloured kind, was sent by Mr. Burrell, gardener to Mr. O. T. Hodges, Lachine, Chislehurst.

DAFFODILS, of course, were exhibited in quantity. The flowers from Mr. Walker, of Whifton, were magnificent. Further details are unnecessary here, as a full description of his Daffodil grounds at Ham and Whifton will be found on p. 393 of the present issue. A silver-gilt medal was awarded for this superb array of Daffodils, in which the finest varieties in the various sections were shown. Messrs. Barr and Son, Covent Garden, also had a representative group of Daffodils, the varieties of which have been often described. A well-grown panful of Sanguinaria canadensis major was also exhibited (silver-gilt medal). Mr. T. S. Ware had an interesting miscellaneous display in which hardy coloured Primroses were the chief feature. The colours were rich and varied, and represented a choice strain. There were excellent panfuls of Cypripedium pubescens and C. Calceolus, besides a number of hardy Primulas, plants of the pale lilac Lilium Thomsonianum, and the scarlet Habranthus pratensis fulgens (bronze medal). Messrs. Paul and Son, The Nurseries, Cheshunt, showed several varieties of Amaryllis, one of which was certificated and is described above, and also a choice selection of hardy flowers (bronze medal).

From the Royal Gardens, Kew, came a unique collection of hardy Primulas, many notes on which have appeared in THE GARDEN recently. There were plants of Primula rosea, P. pubescens alba (nivalis), discolor, viscosa, seedlings of pubescens, Peyritschii, similis, Göbli, pseudo-Forsteri, a very soft and lovely shade of pink; and Plantae, besides hardy Orchids, as O. undulatifolia, longicornu, and papilionacea. In the collection were Cineraria cruenta, the parent of our florists' varieties, a charmingly graceful flower; Mackaya bella and Rhododendron kewensis, a hybrid between Aucklandi and Hookeri, the trusses of medium size, but freely produced, the colour of the flowers being delicate pink. It is a lovely flower. A very singular plant was Lathraea squamaria, a native parasitical herb of the Orobanchaceae Order, and having the habit of an Orobanche. There was a good clump of the parasite Lathraea clandestina, the subject of several

recent notes in THE GARDEN, and some specimens of the showy *Heuchera sanguinea*.

ROSES were delightful for the season, especially the group from Mr. William Rumsey, Waltham Cross, and which well merited the silver-gilt medal awarded. There were splendid bush plants of Marquise de Castellane, Mme. Hippolyte Jamain, Perle d'Or, and The Bride, the whole arrangement finished off by an edging of *Adiantum farleyense*. Messrs. Wm. Paul and Son, Waltham Cross, showed two new Tea Roses, one of which, climbing *Polyantha Claire Jacquier*, received an award of merit. The other was a sport from *Perle des Jardins*, and named *White Perle*. The flowers were almost white, but just tinted with delicate primrose colour. It is beautiful in the bud, but somewhat thin. Mr. J. Walker, Thame, Oxon, always shows Roses well, especially *Maréchal Niel*, and he had superb blooms of this popular Noisette. They were fresh, finely coloured, and beautifully shaped. Also of great beauty were the blooms of *Niphetos*; and besides these standard kinds was a choice miscellaneous collection.

ORCHIDS were few in number compared to the last meeting. Sir Trevor Lawrence, Bt., Burford Lodge, Dorking, showed *Leptotes bicolor* and a variety named *serrulata*. There was also a plant of the lovely hybrid *Dendrobium melanodiscus* and *Ophrys Bertoloni*, a little gem, the flower not unlike that of the Bee Orchis, but much larger; there is a conspicuous shining blotch in the centre of the deep velvety-brown, almost black labellum. It was awarded a botanical certificate. Two spikes of *Odontoglossum cirrhosum*, the flowers splendidly spotted, came from Mr. J. P. Leadbetter, gardener to Sir Arthur Wilson, Tranby Croft, Hull. Flowers of a good form of *Cattleya Mendeli* were received from Mr. T. Lange, Heathfield Lodge, Gateshead, and also a fine specimen of *Dendrobium Cooksonianum*, which is the subject of an interesting note on p. 390.

A group of miscellaneous plants was put up by Messrs. J. Veitch & Sons, Chelsea. There were standard plants of *Staphylea colchica* smothered in bloom, Moutan Paeonies, bushes of *Spirea confusa*, *Chionanthus virginicus*, and a splendidly grown mass of *Narcissus Bulbocodium*. Two *Amaryllises* were a feature of interest, as representing a new break. One was named *A. solandraeflora* conspicua; two spikes were produced by the same bulb, and carried several comparatively small rose and white flowers. In the variety *Janet* (the result of a cross between *solandraeflora* and a variety of the *Leopoldi* type) the flowers are large, four and five borne on a single spike, and white, veined and suffused with red (silver medal). Messrs. J. Laing & Sons, Forest Hill, showed *Gloxinia Model*, a rich maroon-coloured flower, edged with purple and margined with white. A spike of the handsome *Crinum asiaticum*, the orange-scarlet *Saraca indica* and *Alpinia nutans* came from Mr. F. Ross, gardener to Sir G. Macleay, Pendell Court, Bletchingley. Mr. W. H. Divers, Stamford, showed sprays of *Mackaya bella*.

Fruit consisted of a small collection of Apples, in excellent condition for the season, from Messrs. J. Veitch & Sons. Such varieties as *Lady Henniker*, *Striped Beaufin*, *King of Tompkins County*, *Alfriston*, *Blenheim*, *Sandringham*, *Stone's*, *Schoolmaster*, *Bismarck*, and *Ribston* were excellent (silver medal). *Hawke's Champagne Rhubarb*, one of the juiciest, richest and best flavoured of all Rhubarbs, was exhibited by Mr. R. Gilbert, Burghley, who also had *Salt's* *Crimson variety*, another good kind.

At a meeting of the *Narcissus* committee held in the Drill Hall on Tuesday, a very deep yellow *Ajax* named *Distinction* was registered, and a first-class certificate was recommended for the late Mr. Kendall's seedling *Lulworth*. Some collected varieties and seedlings from different sources were shown. Mr. Barr drew attention to the variation in colour of *Johnstoni*, and to the fact that he found it growing between *Calvas Yellow* and *trianrus*, which led him to consider it to be a hybrid.—C. R. SCRASE-DICKINS, *Hon. Sec.*

NATIONAL AURICULA SOCIETY'S EXHIBITION.

(SOUTHERN SECTION.)

AURICULAS and their allies, the *Polyanthus* in its giant and gold-laced forms, and the many hued *Primrose*, were in strong force at the Drill Hall on Tuesday. It was indeed surprising to see so many Auriculas in such good form, considering what a very cold and generally uncongenial spring we are passing through. The green-edged varieties and the selfs were generally good. Some of the former, especially *Simonite's* Rev. F. D. Horner, one of the most useful and reliable green edges in cultivation, were superb, while the selfs were also of gratifying character. The massive grey edges and the heavily mealed white edges were but sparingly represented. It is not their year, they being late and a little fickle in character, and growers had to assist Nature in every possible way; artificial heat had to be applied to quicken development, and houses kept close to secure the same end. The robust-growing and more rapid alpine varieties were in fine form in a few instances, but the new varieties show pips of great size and some indications of coarseness. Gold-laced *Polyanthuses* were decidedly poor, but the giant type and the *Primroses* were very fine, varied, and striking. One can but regret that so much money is wasted upon the gold-laced class, for they have little attraction for the general public. Species were well represented, but one or two collections went perilously near disqualification through containing forms that could scarcely be termed true species.

In the Auricula classes the leading one was for twelve varieties of the edged and self types, and here the Rev. F. D. Horner, Lowfields, Kirby Lonsdale, was first, with flowers that while possessing much merit, yet fell behind his usual high standard of quality. He had three green edges, viz., *Monarch*, *Green Plover*, and the Rev. F. D. Horner; two grey edges—*George Lightbody* and *Nigella*; two white edges—*Magpie* and *Reliance*; and five selfs—*Melanie*, *Dimple*, *Ebony*, *Heroine*, and *Daisy*; ten out of the foregoing twelve varieties being of his own raising. Mr. T. E. Henwood, Hamilton Road, Reading, a young grower who is steadily coming to the front as a successful cultivator, was second with some good flowers, the old *Lancashire Hero* being conspicuous in its green form; and Mr. J. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, third. The last-named had a plant of the Rev. F. D. Horner with eleven pips, and it was selected as the premier Auricula in the show. Mr. T. E. Henwood had the best six varieties, having of green edges the Rev. F. D. Horner and *Lancashire Hero*; grey edge—*George Lightbody*; white edge—*Smiling Beauty*, probably the only representative of this variety seen in the show; and selfs—*Heroine* and *Mrs. Potts*, the last-named a deep violet-coloured variety raised by Mr. Samuel Barlow, of Manchester; Mr. J. Douglas was second, having the Rev. F. D. Horner with eleven pips; and the Rev. F. D. Horner was third; his fine self *Heroine* was in good character in this stand with eleven pips. The best four plants were staged by Mr. W. L. Walker, Erleigh, Reading, who had a very fine grey edge Dr. Horner with twelve pips; the Rev. F. D. Horner, green edge; *Acme*, white edge; and *Heroine*, self. Mr. C. Phillips, Erleigh, Reading, was second, and Mr. R. Patterson, Ashbourn Gardens, Sunderland, third. Mr. C. Phillips had the best two plants, having grey edge Dr. Kidd, and *Black Bess*, self; Mr. E. Adams, Queen's Head, Swallow, being second. He had *Mrs. Potts*, blue self, very fine, with nine pips.

In the classes for single plants, the Rev. F. D. Horner had by far the best green edge; the best grey edges were *Marmion*, *George Lightbody*, and *Atalanta*; the best white edges, *Acme*, *Conservative*, and *John Simonite*; the best selfs, *Heroine* and *Sir W. Hewett*.

The best collection of fifty plants came from Mr. J. Douglas, Mr. C. Turner being second. It is a useless class, open to competition only by the two large growers above-named, and the varieties are invariably of inferior development, the best flowers competing in the other classes. Mr. J. Douglas had

the best twelve fancy Auriculas, mainly composed of yellow and buff-coloured flowers, which attracted a good deal of attention, because of their novel colours. Mr. R. Dean, Ealing, was second. The varieties included some double and laced varieties, and a large blue fancy variety which attracted attention because of its great size.

The alpine Auriculas are always bright and effective, but the prison-like Drill Hall is ill-adapted to set off the colours to the best advantage. In the class for twelve varieties, Slough had to lower its colours to Reading, for the treasurer of the National Auricula Society, Mr. T. E. Henwood, came in first with a very fine lot indeed, consisting of *Sunrise*, *Charles Turner*, *Defiance*, *Albion*, *Edith*, *Miss Blackburn*, *Mungo McGeorge*, *Rosalind*, *Pallas* and seedlings. The plants were even in size, fresh, and grandly bloomed. Second, Mr. C. Turner, with *John Bright*, a massive new variety; *Alarm*, *Sceptre*, *Miss Blackburn*, *Caractacus*, *Harry Turner*, *Roland*, *Countess*, *T. E. Henwood*, *Lord H. Grosvenor*, *Exquisite* and *Eclipse*. Third, Mr. J. Douglas. Mr. Turner had the best six varieties, staging *Roland*, *T. E. Henwood*, *Surprise*, very fine; *Sunrise*, *Flambeau* and *Emblem*. Second, Mr. T. E. Henwood. Mr. W. L. Walker had the best four plants in *Mrs. Llewellyn*, *Miss Blackburn*, *Mrs. Meiklejohn*, and *Mungo McGeorge*. Messrs. Paul and Son, Old Nurseries, Cheshunt, were second. The best gold-centred varieties, one plant of each being shown, were *Hotspur*, a seedling from Mr. J. Douglas, and *Hebe*. The best white-centred varieties, a seedling from Mr. C. Turner and *Countess*.

The gold-laced *Polyanthuses* were generally coarse and lacking in refinement. Mr. E. Adams had the best six, staging such well-known varieties as *Formosa*, *Prince Regent*, *King*, *George IV.*, *Cheshire Favourite*, and *Napoleon*—Mr. J. Douglas being second with much the same varieties. The latter also had the three best, staging *Lancer*, *George IV.*, and a seedling, Mr. R. Dean coming in second. Prizes were also offered for single plants.

The fancy or giant varieties made up striking masses of colour. Mr. J. Douglas had the best twelve, Mr. R. Dean being second.

The twelve single *Primroses* from Mr. R. Dean, to which the first prize was awarded, were remarkably fine, of high-class quality, and varied colours. Mr. J. Douglas was placed second. Messrs. Paul and Son had the best six double *Primroses*, staging large pans of *Platypetal*, *Crousse*, *Harlequin*, *Brilliant*, bright wine purple, and *Sulphur*. Second, Mr. R. Dean, who had the crimson and white as distinct from the above.

The groups of species of *Primulas* were very interesting. Mr. J. Douglas was first with *obconica*, *cashmeriana*, *nivea*, *japonica*, *Auricula*, *Reidi*, with its curious white flowers; *obtusifolia*, a glorious purple form; *pubescens*, *rosea*, *Nelsoni*, very fine; *viscosa*, and *intermedia*. Second, Messrs. Paul and Son, who had, distinct from the foregoing, *denticulata*, *ciliata purpurea*, and *ciliata coccinea*. Mr. R. Dean was the only exhibitor of six plants, having *verticillata* and *Sieboldi*, distinct from the foregoing.

Two baskets of *Primroses* arranged for effect were shown. Messrs. Paul and Son were first, having a mixture of double and single varieties; Mr. R. Dean being second with finely coloured forms of the single type.

The premier Auricula was Mr. Douglas's Rev. F. D. Horner, to which allusion has already been made.

The only exhibitor of seedling show Auriculas was the Rev. F. D. Horner, who had first prize for green edge *Dragon Fly*, grey edge *Calliope*, and dark self *Fanny Glass*; and second prizes for green edge *Neptune* and violet self *Laura*. Firefly, a red self of fine quality, and *Buttercup*, a pure yellow self, are both quite novel and distinct. A first-class certificate was awarded to *Polyanthus Brilliant*, one of Mr. R. Dean's fancy types, shaded bright crimson, with a white blotch on each segment.

Collections of Auriculas in addition were shown by Messrs. Douglas and Turner, a large quantity of *Polyanthuses* by Mr. Anthony Waterer, Knap Hill, Woking, a group of hardy *Primulas* from Mr. R. Dean, and one of hybrid *Primroses* from Mr. F. S. Ware, of Tottenham.

WOODS & FORESTS.

RESULTS OF NEGLECTED THINNING.

PERHAPS there is nothing more conducive to the health and growth of young trees than shelter in the early stages of their career, and in order to attain that end the planter generally inserts his trees at first by far too thickly for a profitable timber crop. As thick planting is found to be beneficial in promoting the growth of the trees on bare exposed situations, the practice, as a general rule, is carried out by all planters. It is evident to all that when trees are planted too thickly for their full and healthy development, thinning must be attended to as soon as it becomes necessary, otherwise the trees will soon suffer for want of space and gradually become enfeebled in branch, root, and stem. When there is a probability of thinning being neglected in this way, it would be far better economy for the planter to insert his trees at once at such a distance apart as would meet their requirements at all stages of their growth until they reached maturity. Trees, however, that are raised from seed on the spot by natural reproduction never appear upon the surface in a regular manner, some plants having an abundance of space, while others again are far too much crowded. If early thinning is neglected in this case we may have a good tree here and there; while many others will get drawn up by confinement, and never attain the size and dimensions of profitable timber trees. In order, therefore, to obviate this state of things, the plants should be thinned and regulated according to their requirements at an early stage of their growth. In the course of thinning and renovating a natural plantation of Scotch Fir and Birch that had been neglected in the Lough Neagh district of Ireland, I found groups of both species of trees mixed together in dense thickets and drawn up for want of space into small poles some 8 feet or 10 feet high and about as thick as the handle of a common hoe. As many of them, especially the Scotch Fir, were perfectly straight, smooth, and free from knots, and almost cylindrical in shape, they could be made use of for handles, &c. As none of this class of Fir poles would ever have attained the size of useful timber trees, they had all to be cut and removed from the plantation, and had it not been that I had an order for this class of material for rustic work, the proprietor would never have realised a single penny for the trees. They were, however, sold at 6d. per dozen, and, I believe, found their way to Scotland, where they were used for ornamental rustic work. On the other hand, trees of the same species that had to be removed from places where they were less confined, and had brought up their thickness in better proportion to their height, realised prices ranging from 9d. to 1s. per dozen, thus showing clearly the utility of early and judicious thinning. I have sometimes heard it suggested that Nature should be allowed to thin and prune trees in her own way, and there can be no doubt that she is capable of doing so, but in the majority of cases at a ruinous cost to the proprietor.

The Birch thinnings here, although of small size, could be used by the turner, and were sold at 10s. per ton, and although the price was small, the proprietor told me it was the first money in the shape of rent he had ever received for the ground occupied by the trees, and as the value of the plantation is increasing year by year, it shows the utility of owners of such lands either having them planted or sown with tree seeds in order to turn them to account. The site of this plantation consisted of mossy ground clothed principally with different species

of aquatic plants, such as Sphagnum, Bog Myrtle, Sundew, and tufts of Heather here and there on the dry spots of the surface, so that it was utterly useless as pasture for sheep or cattle. The greater number of the trees here were self-sown, the seeds having been wafted by the wind from old-established plantations in the immediate vicinity. In order to reclaim and utilise such ground to the best advantage, the stagnant surface water should be drained off, and the material excavated from the drains spread over the surface in a regular manner so as to form a fertile bed for hardy tree seeds. After the ground has been fairly stocked with young trees, the next important step is to see that they are properly thinned and sorted where they are too thick upon the ground. At this stage of the tree's growth, pruning also claims the attention of the forester. All trees that are producing a plurality of leaders should be pruned either by cutting off all superfluous shoots close to the stem or by cutting them back in order to direct the sap into the strongest and most central shoot, which should be left as a leader. These remarks apply to hard-wooded as well as coniferous trees, and when well attended to in the early stages of the tree's growth, the nucleus of a profitable timber tree with one stem is formed and the tree prevented from wasting its substance in support of a number of tops and branches, and thus forming a mere bush of no value except for covert and shelter. Trees, whether planted or raised from seed on the spot, should always be handled in this way in early life. Even the common Birch, which is one of our hardiest trees, is not proof against damage by sudden exposure, and this I have found over and over again when thinning and renovating neglected natural jungles of this tree in both marsh and mountain.

J. B. WEBSTER.

FOOTWAYS IN PRIVATE PLACES.

WE notice that Mr. Shaw Lefevre is again to the front with his Footpath Bill, which will probably be a mischievous measure for owners of land if they do not see to it in time. It would be worth their while to call the attention of the Members who represent them in Parliament to it. New and good roads (which did not exist in the old days when pathways were far more used) and railways have made great changes in the public need as to footways. A few generations ago there were no good roads in many districts that are now well supplied. In many places there are supposed rights of way in every field. If these were used or allowed, no use of the ground could be made for choice stock or crops. Frivolous claims of this sort may be the cause of great wrong and annoyance. Ways or avenues made for the private use of an estate should not become public paths through lapse of time merely because they have been trespassed upon. Save the commons and the grassy roadsides by all means; also every way really necessary for public convenience, or even for seeing the charm of picturesque or beautiful districts; but to interfere with private rights, with stock, with delicate animals in young, and game, is not fair to those who have to bear the burthens of the land, and whose labours have created its charms. In this Bill we hear that even "reputed rights of way" are to be in the care of the local authority—a fine increase of work for the authority, and of officialism for the ratepayer! As almost every break in a hedgerow through which a labourer passes, to save a few yards on his way to his work, is a reputed right of way, or may soon become so, this is a mischievous proposal. Its adoption could only harm the country, as cultivators of land will

cease to spend money readily for its improvement if they are to be deprived of the quiet of their fields because they have occasionally allowed strangers to pass through them. What will the farmers of England say to these proposals? Their last hope is in their good races of animals which are known and sought throughout the United States and our own vast colonies, and also in many parts of Europe. The life of these animals is, for the most part, passed free in the fields, unlike the tying-up system so much in vogue abroad. Can the farmer do these justice when the poacher and idler and their dogs, have the right to be in every footpath at any hour of the day or night? There are innumerable paths in this country traversed mainly by tramps and poachers, and there is no class of men who have their goods so exposed and scattered as the farmer. People who walk through the fields do not keep to the footpaths, and if no one is on the look-out the opportunity is taken both by night and day to make a sally on either side of the paths into the adjoining fields and woods. Often gates are left open, so that stock pass into crops which are perhaps nearly ripe for harvest, and not only is great damage done to these, but frequently the animals themselves suffer severely from gorging themselves with improper food. The dog gets a free run on these by-paths, and often does cruel work among pregnant ewes and in-calf cows. Many of the country papers tell many a sad tale of worried sheep—sometimes fifty of a night on a single farm, and if the footway is not always the cause of the presence of the dog, it must be borne in mind that a farm traversed by rights-of-way may be visited by tramps and others with the right to bring dogs there at any hour of the day and night. We do not for a moment oppose all paths. We say that a public authority which may have a right to keep necessary paths open should have the right to stop frivolous claims of rights-of-way, and to see that justice is done all round. We know a case in which the formation of a railway through a district, making the communication between two villages perfectly easy, has entirely stopped the use of several miles of paths. Now, if the place through which these paths went were made less valuable to the owner, and therefore to all, by the presence of these paths, we say that, being of no further use to the public, there should be power to close them. The age of paths should be no proof of their necessity, as changes in manufactures and commerce make paths and even roads once essential now useless. Proof of this may be seen in the woods of every estate. To prevent the closure of a road or footpath, claimed as a public right of way, it should be necessary not only to prove that it had existed, but also that it was required by the inhabitants of the neighbourhood. In such instances as where a good road exists on two sides of a field, a short cut across the field should not be allowed as a right of way. The responsibilities of the ownership of land are at present so heavy, and the return so slight, that any needless interference with the use of land is unjust.

It is not a question for the farmer only, but interference with the garden and the ground under the very windows of a country house is not unusual. So that suburban gardeners and dwellers in towns enjoy the most perfect privacy compared with the fate of some with houses in the country. The very drive to the house becomes a right of way if not looked after. Then, in case of a railway or better main road coming near, and a new drive to the house is needed, the owner finds that some busybody in the parish will seek to prevent his closing his road!

No. 911. SATURDAY, May 4, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

OLD NARCISSI.

SOME of the varieties of the cluster Narcissi have always been favourites with the flower painters of the Dutch or Van Huysum school. The artist named seems to have been especially fond of N. Bazelman major and N. Tazetta Soleil d'Or, both often met with in his pictures, and both, also, well-known kinds to-day. In the Louvre the other day a friend and I came across a very striking flower-picture by Séghers, the "Jesuit of Anvers," and Zampiero. It is entitled "Triomphe de l'Amour," and represents two or three little rosy cupids in a chariot drawn by doves. The picture is, however, mainly interesting for the very remarkable floral portraiture it contains, and one may fairly assume that the hardy flowers represented were those most popular in the gardens of the early part of the 16th century, when the picture itself was made. Personally I was most interested in the fifteen or sixteen kinds of Narcissi represented therein, although in truth these formed but a part of the floral wreath which encircles the little group above-named. Several Irises, such as English and Spanish bulbous kinds, are also well shown in the picture, the great speckled Iris of Susa, and the lovely soft bluish lilac kind now known as *I. pallida dalmatica*. Crown Imperial and several other sorts of Fritillaries as also *Allium triquetrum*, *Ornithogalum nutans*, *Dictamnus Fraxinella*, purple and white, Poppies and Pæonies, Larkspurs, Aquilegias, Hyacinths, Tulips, and last, but not least, the Narcissi of various kinds were also portrayed. Two of the latter are now considered as modern re-introductions, but were here faithfully depicted centuries ago. The one is the small Pyrenean *Ajax moschatus* and the other *Corbularia citrina*, both truthfully and exactly shown; as also are *N. triandrus pulchellus*, with a four-flowered scape; *N. poeticus*, with eight petals instead of the normal six; *N. papyraceus* and other forms of *N. Tazetta*, including *N. canaliculatus*, or a form very near the *N. patulus* of Hyères. *N. gracilis* is also well shown, as also *N. triandrus*, with pale sulphur-white flowers. An *Ajax* with whitish perianth and yellow trumpet may be a form of *N. variiformis*, and there is a sulphur *Ajax* in the way of what we now-a-days know as *Exquisite*, but a little larger. Two flowers of a very pale coloured *N. incomparabilis* are a little puzzling, since we have none like them, except some of the Leeds' seedlings. The one has a white flower with a pale sulphur chalice, and the other is nearly a self-coloured sulphur form with a shapely cup; both somewhat resemble *Haworth's* great white *Peerless*, but yet are distinct. Just beneath them is the true bell-cupped *N. odoratus*, with two flowers to the scape, and a good flower of the double *N. poeticus* nestles below. As a flower-picture of historical interest this is well worthy of notice, and it is one which all floral visitors to the Louvre should see for themselves. It is No. 477, and is well hung on the line and in a good light.

In the "Musée des Arts Decoratifs" there are also three or four fine old flower-pictures painted about the same time (1612—1640) that will well repay the attention of those interested, containing, as they do, named portraits of the choicest hardy flowers of the time. It would be

very interesting to hear of any other old pictures of Narcissi or other garden flowers.

Returning to the picture (477) in the Louvre, it contains, so far as I know, the first really authentic portraits in colour of the following Narcissi, viz., *N. triandrus pulchellus*, *N. triandrus*, *N. Bulbocodium citrinus*, *N. gracilis*, *N. moschatus* (or small, pure white *Ajax* of the Pyrenees), and *N. odoratus*. The illustrations of all the flowers are so exact and definite, that I more than suspect that the two Peerless varieties above referred to were seedlings of the same parentage as some since raised by the late Mr. Leeds.

F. W. B.

PLANTS FOR OUTDOOR VASES.

VASES are not, as a rule, well filled or tastefully planted. They are naturally, from their position, the most prominent features in the flower garden, and ought to be the first consideration, instead of which I am afraid we are too apt to leave them until all other portions of the flower garden are planted, and then the vases have to be filled with odds and ends, and are practically failures all through the summer. To do them justice, the planter should make a round of inspection about the present time, determine what is to be done, and straightway set about working up a stock of plants for this special purpose. There is, necessarily, in all stonework an element of stiffness and formality that is at variance with our ideas as to what is best and most natural in a garden, and it is therefore obvious that the earliest consideration should be the provision of such plants as may best tend to relieve this stiffness. This is rather difficult during the winter months, the choice being almost limited to the various forms of *Vincas* and the small-leaved *Ivies*, but for summer work the task is comparatively easy, and good batches of the small Musk, the green trailing *Tradescant*, *Mesembryanthemum cordifolium variegatum*, and the trailing *Sedum* should be inserted. Four or five cuttings in a small pot is the best way to deal with these, as the plants can then be turned out and planted in the vase without breaking them up, and so receive no serious check. There are other things perhaps equally good for the outer edge of the vase, but the four above named with the old Creeping *Jenny* are thoroughly to be relied on for making a mass of foliage quickly—the principal consideration. One old-fashioned trailing plant that I might perhaps have added to the list is *Maurandya Barclayana*, not often seen now, but very effective as a vase plant, with its dense mass of foliage thickly studded with pretty blue flowers. Where large surfaces have to be covered and plants from boxes are supposed to travel over balconies, balustrades, railings, &c., there are few better summer climbers than the old Canary Creeper and *Cobæa scandens*. It is advisable to sow the first-named singly in small pots, as if shaken out from seed-pans or boxes it invariably suffers considerably, and is a long time in furnishing the required space. The *Cobæa* is not an easy plant to get from seed, but strikes readily from cuttings, and if some little time is allowed for the hardening-off process in the spring it will when planted grow away quickly and rival the Canary Creeper in rapidity of growth. Of the several things to be employed in the general planting *Fuchsias* rank among the best. Cuttings of free-flowering varieties should be struck early in the year, shifted into single pots and staked to give them a straight lead for the required height. As an instance of what may be done with *Fuchsias*, I can recommend the following for a large vase: A centre plant of *Rose of Castile Fuchsia*, then alternate plants of *Heliotrope* and *Lady Plymouth Geranium*, and the outer edge filled in with *Gnaphalium lanatum* and the green *Tradescant*. *Pelargoniums* of the zonal section are not, as a rule, a success in vases; they are apt to grow much too strong, and although disposed to intermingle with their neighbours, the said intermingling has by no means a pleasing effect. Where they are used, short stocky varieties, as *West Brighton Gem* and *Model*, are about the best, and a large vase can be filled with either of these sorts

with some foliage plant as a centre, and an edging of one or more of trailing plants. The many varieties of scented *Geraniums* are effective when a dense mass of foliage is required, three of the best being *Lady Plymouth*, *Unique*, and the old *Pheasant's Foot*. There are many foliage plants that come in very well for the centres of large vases, *Grevillea robusta*, *Humea elegans*, and some of the varieties of *Solanum* used in subtropical bedding being among the number. Tuberous *Begonias* are good vase plants, and the drooping flowers show off under these circumstances to the best advantage. Free-flowering varieties of pendulous habit should be selected and started in a gentle warmth, so as to ensure good plants by the end of May. They may be planted to fill the vase with a fringe of green *Tradescant* or the variegated *Sedum*. *Petunias* and *Tropæolums* are also recommended for the purpose, but I have not found them satisfactory, the first-named often dying off at a critical moment; whilst in the matter of *Tropæolums*, it is very difficult to strike such a happy medium in the soil as shall give a due proportion of flower and foliage. There are, of course, many other plants suitable for vase-work, but some of them can only be used under certain conditions. *Yucca filamentosa* is one of these; it should only be used in association with some naturally formal place, such, for instance, as the old Queen Anne's or pond garden at Hampton Court. *Francoa ramosa* is another plant which should be used where there is a dark background or pillar in immediate proximity to the vase, as then its light feathery spikes will be shown off to the best advantage.

E. BURRELL.

Claremont.

ROSE GARDEN.

JUDGING ROSES.

At the Crystal Palace Rose Show last year one of our most experienced exhibitors said to me, "Really, now-a-days, one never knows what blooms to set up to satisfy the judges." I could not help thinking at the time how much truth there was in that remark, having frequently, in recent years, heard other exhibitors express similar feelings of perplexity; and having myself, although now a Rose exhibitor of nearly twenty years' standing, often experienced much difficulty the last few occasions in deciding as to what type of flower it would be most expedient to set up when preparing a stand for exhibition.

It is sincerely to be hoped that some definite decision may be come to as to what are the relative values to be given in future to the different good points in a Rose bloom. There are, no doubt, other matters as regards judging well worthy of consideration, but these are, in my opinion, by comparison of but little importance. In the absence of any recognised scale of this kind, is it to be wondered at that different judges occasionally give such very different awards? Awards which it is impossible to reconcile as in any way consistent with each other.

About seven years ago the committee of the National Rose Society, appreciating the necessity of greater uniformity in the matter of judging, issued a handy little card entitled "Suggestions for Judging at Rose Shows." In these suggestions a good Rose is thus concisely defined: "It must have form, size, brightness, substance, foliage, and be at the time of judging in the most perfect phase of its possible beauty." This is an excellent description of what a show Rose should be, and it is very necessary that judges and exhibitors alike should keep always before them this rare combination of excellences. Then we are told what ought to be looked upon as a bad Rose. "A bloom or truss shall be considered bad which has faulty shape, confused centre, or faded colour, and which is either undersized or oversized to the extent of

coarseness or overblooming." This, too, is a very useful definition, and quite as valuable, if not more so than that describing a perfect Rose.

Now, if these instructions be followed we know what to do with a perfect Rose, and we know also what to do with a bad one. But what is to be done with those blooms which are neither too utterly good nor too utterly bad, and which constitute nine-tenths of the flowers with which a judge at a Rose show has to deal? Here it is that judges, for want of some more definite guidance, are left more or less to their own particular tastes and predilections. One man, for instance, gives undue importance to big flowers, another to shapely ones, while the eye of a third is overpowered by clear, glowing tints. In the mixed classes, again, some are apt to lose their heads at the sight of a Tea or Noisette Rose, regardless of what is said on this point in the "Suggestions" above referred to.

In practical judging only three qualities need, as a rule, be taken into consideration, and these I should place in the following order—1st, size; 2nd, form; and 3rd, colour. I designedly put size first because it is the only one of the three over which the cultivator has any complete control. Moreover, it is that by which his skill both as a grower and also as an exhibitor can be most satisfactorily gauged. Only a very moderate amount of experience is required either to grow or to set up moderate or under-sized flowers just emerging from their budhood. But to produce really fine blooms and stage these in the most perfect phase of their development is nothing short of a fine art, and will at all times tax to the utmost the skill, good taste, and judgment of the most practised rosarian.

Only a few years ago size, no doubt, often carried undue weight with our judges. But that is no good reason why many of them at the present time should rush to the opposite extreme and favour almost exclusively form, or colour, scarcely giving a thought to the question of the relative sizes of the flowers before them. By size I, of course, mean not the actual size of the blooms, irrespective of other considerations, but when taken in conjunction with the character of the variety. For, as is well known, some of the choicest kinds never produce anything but comparatively moderate-sized flowers.

Size is, of course, by no means everything. I only place it first in the order of importance out of the three qualities I have named, all of which every show Rose must, at least in a moderate degree, possess in order to entitle it to be counted at all. Indeed, a Rose, however large, if really coarse, ill-shaped, overblown, or faded in colour, should, according to the extent of these imperfections, either be passed over entirely or a point taken off the stand for it. It becomes at once, in fact, either a very indifferent or else a decidedly bad Rose. On the other hand, quite an undersized flower for the variety, however well-formed or brilliant in colour, should be similarly treated, as being altogether beneath exhibition form—in other words, a dainty little starveling and nothing more.

I am well aware that no code of instructions, however clear or comprehensive, could ever alone make any man a good judge at a Rose show. What, however, I do maintain is this, that until our numerous competent judges come to some definite agreement among themselves upon the elementary points I have mentioned, exhibiting Roses must necessarily remain to a certain extent a species of lottery. May the practical outcome of this symposium be a conference of

Rose judges on judging Roses.—EDWARD MAWLEY, in the *Rosarian's Year-Book*.

Standard Tea Roses in pots.—I quite agree with "E. M.'s" recommendation of these (p. 370). The plants bloom, if possible, more freely in this form than in any other, and few forms could prove more ornamental or more enjoyable. Safe from climatal severities, Tea Roses under glass can be moulded into the most perfect forms and preserved in the greatest perfection for any desired number of years. Age but adds to their free-flowering character, and concentrates and consolidates their charms. Standard Roses also lend themselves with much facility to charming combinations for decoration either in dwelling-houses or conservatories. Avenues of standard Tea Roses under glass in passages or corridors must be seen to be appreciated; while for standing out of and above stages or groups of other plants nothing proves more telling than standard Tea Roses in pots.—D. T. F.

Marechal Niel Rose dying.—Last year I had two plants of the above Rose of the same age and growing under the same conditions. They had been planted for four years, and had attained large proportions. Last autumn both appeared to be quite vigorous, but when the time came this spring for a renewal of growth one started freely, and is now flowering well, but the other never became active, and after a slight attempt to start into growth died outright. I have had them perish in the same way at previous times, but further experience does not in the least give the clue to the cause nor suggest a cure. The one that failed gave no indication of doing so. I do not feel justified in blaming those in charge of it for its death, and I regard it as unaccountable, although by no means uncommon.—J. MUIR.

The hardiness of Tea Roses.—I am acquainted with numbers of gardens here and elsewhere where Rêve d'Or, Mme. Berard, Aimée Vibert, Céline Forestier, Cheshunt Hybrid, Homère, and Gloire de Dijon have been grown without protection for twenty years. The first three I had as dwarfs in the open border for that time myself, and they never failed to flower. The two first-named, apparently planted nearly as long, I saw bearing finely in Stirling, N.B., last autumn. I have Mme. de Watteville, Francisca Kruger and The Bride, not to refer to other Hybrid Perpetuals in my town garden here, and they are pictures of health, though the soil, like that of most town gardens, is not the type of what I would call Rose loam. Every person knows that Gloire de Dijon is hardier than La France, Captain Christy, or Jules Finger, no matter how budded, how grown, or in what position. At least, I and others around here have found it so. For those in the south of England or Ireland who want to grow open-air Roses it is an immense advantage to get plants wholly grown from bud to bloom in the open air. It is not frost nor low temperature that paralyses or seriously injures Tea Roses; it is the north-east wind, just at the time the young foliage is pushing. In the open bed or border I put loose ropes of fine hay round my dwarf Rose trees, and this simple expedient is effectual.—W. J. MURPHY, *Clonmel*.

SHORT NOTES.—ROSES.

Rosa rugosa hybrids.—You give G. Brunt credit of being the first introduced hybrid with *R. rugosa*. Nearly two years previously you published a note from me mentioning my hybrids between *R. rugosa* (pistillate) and Harrison's Yellow. I have now sixty hybrids between *rugosa* and all sorts of Hybrid Perpetuals and Teas. I wish you could see them. It is to me very strange that *Rosa rugosa*, being the mother of all, there is not one that much resembles it. They are a strange lot.—E. S. CARMAN.

Roses and Asparagus.—I am glad "D. T. F." (p. 370) likes the idea of this combination. We do not salt the Asparagus between the Roses, as they are well fed with other materials more congenial to the Rose. Like "D. T. F.," I am of opinion that salt is not absolutely essential to the production of good

Asparagus. There is no rivalry between the two as to supremacy, and, so far as I have yet seen, both may be grown together if crowding is avoided.—J. MUIR.

—The idea of growing Roses and Asparagus together in the flower garden is certainly a novel one. I do not think the foliage of garden Asparagus is so often used in floral arrangements as it might be, especially at this time of the year, when the demand often exceeds the supply. We begin forcing Asparagus here in the autumn in the back beds of Cucumber houses, and the grass, too small to cut for cooking, quickly runs up and feathers out into beautiful foliage, which we find invaluable for cutting, as it lasts a long time in water when fully matured. There are two vases in the library here; one is filled with Gloire de Dijon Roses and leaves, which of themselves look rather stiff. By adding a few sprays of Asparagus the effect is enhanced. The other, a trumpet-shaped glass, 5 feet high, is filled lightly with large Arum Lilies and their own foliage. Among these several long Asparagus shoots are inverted, one or two drooping gracefully down to the ornaments on the table. A more noble yet graceful arrangement could scarcely be imagined. Where Asparagus is not forced as a vegetable, or where space cannot be spared for it to be left to fully mature, it would be worth while to put a few roots in pots for cutting from or for furnishing a conservatory or greenhouse. The longer the shoots can be left growing the more graceful and enduring they will become.—M. WEBSTER, *Cyfarthfa Castle Gardens*.

Early planting of Roses.—I have just proved the advantage of the early planting of Roses. One end of a range of hothouses facing south suggested itself to me as being a good place to plant some Tea Roses with a view to their producing flowers suitable for button-holes, &c., more particularly in the early summer and late autumn. The border in front of this wall is occupied with low-growing vegetables, and from annual additions of soil and manure it has become higher than was necessary. Therefore to gain an additional foot of height for the Roses the border has been lowered by wheeling out the subsoil, which was of a hard, clayey, stony nature. The border was trenched 2 feet 6 inches deep, the subsoil broken up, any old vegetable refuse obtainable being placed at the bottom of each trench. One end of the border was done in the manner described in October, and the Roses (various kinds of Teas) were planted in the early part of November. Owing to the standing crop at the other end, this part could not be completed until the end of February. The benefits of early planting are very apparent. Those plants put in first are now (April 15) showing flower-buds, while those planted at the latter date barely show signs of life. The plants were all taken from the same position. Therefore it is entirely owing to the late and early planting that I attribute the difference in their present appearance.—M.

Spring bulbs in 1889.—I do not write of Dutch bulbs imported annually, though complaints are heard of these not blooming so well as usual, but rather of hardy or semi-hardy bulbs in beds and borders, such as Daffodils, Crown Imperials, Tulips, Hyacinths, and, from present appearances, Lilies. In some cases, and over areas of considerable extent, flowers of some of the above cannot be found. Few have suffered more than the common Daffodil and common Hyacinth, though even Snowdrops and Crocuses were by no means up to the usual average. The cold, late spring and cool summer of 1888 seem responsible for this semi-flowerless condition of our hardy bulbs in the open air. The lack of bloom has been so marked as to make a very sensible difference in most flower beds and borders, as well as to mar the effects of the larger masses on the turf.—HORTUS.

—Spring-flowering bulbs are undoubtedly not blooming so freely this year as usual. With me this is especially the case with all sorts of Narcissi, including the great double Daffodil and Anemones. Crocuses were as good as usual. I thought forced

Hyacinths not good, but the blooms of those planted in beds are remarkably good both as to colour and size. I cannot account for this difference.—WM. WICKHAM, *Binsted - Wyck, Alton, Hants.*

CHRYSANTHEMUMS.

E. MOLYNEUX.

NOTES ON CULTIVATION.

SPECIMEN plants will now be growing freely, the points having been pinched out the second time when the shoots resulting from the first topping of the main stem had grown 4 inches long. Some of the more forward plants will have been topped three times, the last time also at 4 inches long, and three topplings of the shoots will form the framework of the future specimens. The most forward shoots should be staked, pointing them in an outward direction, so that the future training of the plants will be more easily managed, and without so much risk of breaking the branches as there will be later on if they have to be bent much to get them into position. The plants should now occupy 7-inch or 8-inch pots, and from these they will go direct to those 11 inches or 12 inches in diameter, which will be the ones they are to flower in. A position close to the glass in a pit or cold frame, where they will not become drawn up weakly or suffer for want of air or sun, suits them best at this stage of their growth.

Standards should have a similar position to that occupied by the specimens. The plants should be securely staked so that the points of the shoots do not get broken, which would check their growth considerably. Should an early bud show it must be promptly removed, and only the strongest looking shoot selected to form the stem. All side growths should be pinched off as fast as they appear, the object being to concentrate the energy of the plant into the main stem until the desired height is obtained. The plants should be shifted on into larger pots, as those they now occupy are filled with roots, the object being to encourage a free growth, which cannot be done if the roots are allowed to become pot-bound. By this time the latest plants grown for the production of large blooms will have had their second shift into 5½-inch pots. Some of the weakest or late-struck plants will only need pots 4½ inches in diameter. Should there be any plants not yet potted, no time should be lost in getting them done. By way of encouragement to those plants recently potted, they should be kept nearly close in the frames for a week or two after potting until new roots are formed, when a little more air should be given to them during the daytime in warm weather, closing the frames early in the afternoon to make the most of what little sun-heat there may be. By following this method of treating late-struck plants time will be gained by encouraging quick growth during their younger stages. Do not over-water the plants after potting, as this checks the quick rooting of the plants into the new soil for a time. The earliest potted plants should now with improved weather have an abundance of air given them, drawing off the lights entirely during the daytime and in the evening until dark, admitting air by tilting the lights a little on one side. In most gardens space in the cold frames is much wanted at this time of the year. The bedding-out plants need hardening off, and the Chrysanthemums need more room to keep them stocky. The earliest plants will shortly stand safely out of doors if they are now carefully and gradually hardened before being finally turned outside; therefore, if preparation is made for their reception so much the better. Select a

position facing south if possible, and if sheltered from east and northerly winds it will be an advantage. A surface of coal ashes should be prepared to stand the plants upon, and some protection should be afforded in the shape of hurdles thatched with straw, in order to ward off cold winds for a time. In the event of sudden frost, a temporary covering, such as scrim canvas stretched across the space on which the plants are standing, should be at hand to quickly place over the plants. Some varieties will require staking much earlier than others—for instance, *Soleil Levant*, which is of a drooping habit of growth. Thin stakes from 2 feet to 3 feet long will suffice for a time until the plants are placed in the pots in which they are to bloom, when the main stakes will be required for the support of the plants.

Pompons, *Anemone Pompons*, and single varieties have just been potted for the second time into 4½-inch pots. In some cases the plants have been topped to induce a bushy growth, while in others the plants are allowed to grow away with one stem, with the object of producing larger blooms and plants of taller growth than will be the case with those plants which have been topped.

THE BLUE CHRYSANTHEMUM.

Is there a blue Chrysanthemum?—that is to say, a blue variety of the *C. indicum* or *C. sinense*, for the other species are rarely intended to be meant when the generic term "Chrysanthemum" is employed. For present purposes it is assumed therefore that the query applies to the popular autumn composite, which does so much to enliven our dreary November month, and make it one of the busiest and most exciting periods of the year.

Up till now no horticultural writer has endeavoured to deal with the question beyond referring to it in the most casual way, and so far as my knowledge of Chrysanthemum bibliography extends, Mr. Burbidge is the only author who has given a direct mention of this floral curiosity. To avoid an unnecessary preface, it may be well to say at the outset that the generally received story is something to this effect: That the Japanese priests have long had in their possession a beautiful blue variety of the Chrysanthemum, that they cultivate it with great care, and jealously guard it from the eyes of the western traveller, and persistently refuse to part with their cherished favourite, or allow it to be multiplied in any way.

It would perhaps be impossible to state who the originator of the story was, and some two years ago I became much impressed with the paragraph in Mr. Burbidge's book, which runs as follows: "A blue Rose may be an impossibility, but we are told that a variety of the Chrysanthemum exists in Japan with blue flowers. It is represented very frequently on Japanese porcelain, both ancient and modern, especially that of Satsuma and Kioto; it also appears on Cloisonné enamels and embroidery." (1st edit., p. 11; 2nd edit., p. 20.)

Now, after a little reflection, it appeared to be an easy task to ascertain the truth of one part of the statement, namely, the representations of the blue Chrysanthemum on the pottery, and once that fact established, it seemed probable that some other road might be opened up in the course of the investigation. The first difficulty to be overcome was to find the pottery, and after a few inquiries, I soon discovered that there is probably as much Japanese pottery in London as anywhere else in the world.

The British Museum had not been very long in possession of the Franks collection, and I decided to begin at that point, and subsequently to pay a round of visits to other places where high-class Oriental works of art are to be seen. In our national collection there are two divisions, the Chinese and Japanese, and being then quite a novice at the work, I unconsciously began with the collection of Chinese ware. My time was limited, and anxious

to make the best use of it, there is no need to say that I deserted everything that was Chinese for the other side, as it was only in the Japanese ware that I hoped to meet with any reward. But still the short time spent on looking over the Chinese porcelain was not wholly lost, for sure enough two pieces of ware were discovered of great interest, and are worthy of mention here before I enter exclusively upon the Japanese.

One object was a snuff bottle in blue porcelain, with a circular body, shaped like a reflexed Chrysanthemum, with four rows of short, square-tipped florets, and an eye in the centre of the flower. The other piece was a vessel of Chinese porcelain, in the form of a globular reflexed flower, half closed, the centre being scooped out, and the whole glazed inside and out with a bright lapis-blue. At a short distance it might have been mistaken for a natural flower, its height being about 2 inches, and diameter 2½ inches. These two objects will therefore go to prove that if the appearance of the blue Chrysanthemum on Japanese pottery is evidence of its actual existence in that country, there is at least as good ground for believing it to be known in China. Close at hand are the cases containing the Japanese ware, and the first article to be seen is a small white porcelain box in the form of a bivalve shell. On the outside of the lid is outlined in blue a Chrysanthemum about 3 inches in diameter, having a yellow centre, and six rows of short florets. In the same case a pair of Saki cups in white porcelain is to be found. Both are decorated with figures of Chrysanthemums in blue. The pattern is the same in each, and consists of a stalk and foliage having one flower, with four rows of short reflexed florets, two buds partly opened, and another fully out, which may be shortly described as a whorl-floreted Japanese.

There are in the Franks collection many other instances of blue Chrysanthemums on the Japanese pottery, but the majority are of a conventional and not a natural type, and therefore will be of little service in elucidating the fact as to whether such a variety is really known or not. The Kiku, or Chrysanthemum crest, is figured in so many different ways that, whether blue or not, it can hardly be considered as anything more than a mere heraldic device handled in a thousand different ways, according to the vagaries of the native artist.

At other places, and notably the Japanese Fine Art Association, I have met with a considerable number of vases, cups, plaques, and other objects with Chrysanthemums painted or outlined in blue, and up to this point there seemed to be no justification for assuming that the blue variety actually existed, because in no case did the object purport to be a copy from Nature. Blue china in itself can be of little assistance, and it was therefore necessary to search for something in colour, and of a more artistic type than variations of our well-known Willow-pattern plates.

For this purpose recourse was had to the principal works on Japan and Japanese art published in Europe, for it has not been possible to obtain a glimpse of a Japanese illustrated horticultural book. Dr. Anderson's beautiful book, "The Pictorial Arts of Japan," yielded no result, nor did "The Mikado's Empire," by Griffis. Metchnikoff's "L'Empire Japonais," Bowes' "Japanese Marks and Seals," and his "Japanese Enamels" were equally unproductive. With Bowes' and Audsley's "Ceramic Art of Japan" I was more fortunate, and Plate 13 of that beautifully illustrated work furnishes us with a copy in colour of a Satsuma vase, upon which pink, red, and blue Chrysanthemums, with short reflexed petals, are painted. In Plate 16 we have some Japanese flowers approaching blue, but the tint is not decisive. Plate 28 is the portrait of a vase of Kaga ware, having upon it a medallion with three red, two white, and two blue Chrysanthemums, all of one kind, the petals being short and round, and the flower having a yellow centre or eye. The large edition of "L'Art Japonais," by Louis Gonse, contains nothing much if we except Plate 7, which portrays a Saki bottle of brown-coloured ware with a Chrysanthemum upon it in blue, an example that is useless for

present purposes, as the foliage is also of the same colour. In the above instances there is some good ground for reflection, as the Chrysanthemums are all so natural in appearance. If the red, the pink, and the white ones are natural, and copied from real flowers, why not the blue? There are in my possession two pieces of Japanese ware with blue Chrysanthemums upon them, but the objection to them is that they are not of first-class workmanship, while those represented in the "Keramic Art of Japan" are pieces of great value and artistic merit, and presumably the paintings upon them were not executed haphazard.

But the most striking case of blue Chrysanthemums to be met with has quite recently come under my notice. I must frankly admit that I started with the determination to prove that a blue Chrysanthemum was not and never had been in existence, whatever might be possible hereafter by the hybridiser's art. The last discovery was therefore a shock, and the reader will please imagine my surprise when I was shown a magnificent pair of richly decorated Satsuma vases about 30 inches in height, the body of each being simply covered with Chrysanthemums. Each and every bloom was a life-like study. The varieties depicted were in every way natural, both as regards size and colour. It was almost possible to name them, and my astonishment was the greater when I beheld a cluster of eight bright sky-blue-coloured Chrysanthemums in striking contrast to the rest. They were of similar type to those represented on the other ware referred to before. They were reflexed flowers, had three rows of short, flat-pointed petals, and, without exception, round yellow centres.

It is impossible in this work to give descriptions of the numerous instances in which blue Chrysanthemums have been found, but it is certain that they are very frequently met with on Awata ware, perhaps more so than on any other; but I am not inclined to regard the Awata porcelain with favour, as the artists invariably associate with the other coloured Chrysanthemums varieties of a bright emerald-green.

Whether pottery, even when executed by artists of the greatest talent, can be regarded as authentic proof of the existence of the blue Chrysanthemum the reader must judge. I see no reason why it should. It is only in rare instances that the artist is likely to copy from Nature, and pottery decoration, as a rule, is more likely to be a work of the imagination.

According to my experience, not certainly of long standing, but still somewhat extensive, I have found that the Chrysanthemum is very rarely met with on Satsuma ware or on that of Kioto. It is almost invariably found on porcelain of the Awata, Banko, and Awari potteries; seldom or never on Kaga and Imari. On lacquer ware it is frequent; on Cloisonné ware almost without exception; and although I have examined scores of pieces of Cloisonné enamel, I have never yet seen anything approaching a blue Chrysanthemum upon them. It is curious how these talented Japanese potters adhere to their own distinctive style of Chrysanthemum. The ware from one can scarcely ever be mistaken for that of another; in fact, you can tell almost by the style of Chrysanthemum to what pottery each piece of porcelain may be attributed. It is on this account that I am shy in accepting the coloured figures or even the best specimens of the Oriental Keramic art as evidence in support of the blue Chrysanthemum theory.

I am confirmed therein by a—to me—much more convincing fact than any likely to be brought forward. The reader is perhaps aware that the Japanese do not have pictures like us. The Kakémonos, or hanging pictures which ornament their chambers, stand in the place of the oil and water-colour paintings of the western world. These Kakémonos represent all kinds of subjects, and not the least among them is the Chrysanthemum. They are executed with a fidelity to Nature in form and colour that is more apparent as the eye becomes accustomed to the art, and if one has anywhere to look for truthful representations of either birds, beasts, fishes, fruit, or flowers, it is to a

collection of Kakémonos that he must go. As space is valuable, I am constrained to say that until I [see a blue Chrysanthemum depicted in a Kakémono, no amount of speculation is likely to lead me to think it exists. Out of 700 to 800 of these works of art which I have seen during the past fifteen months, there has not been a single instance among the Chrysanthemum pictures comprised in that number where anything like a blue variety has been figured. I consider, therefore, that the blue Chrysanthemum exists only in the imagination of the Japanese potter, for had it been otherwise, the artist, properly so called, would have furnished us with some examples in the work of art where Nature is most thoroughly portrayed, the Kakémono.—C. HARMAN PAYNE, in "Chrysanthemum Annual."

Single Chrysanthemums.—The coloured plate of a single Chrysanthemum given in THE GARDEN of last week should do much to bring this class forward. There are grace and characteristic beauty in the single varieties lost in the incurved, Japanese, and other sections; and though there is room for all, it seems that the single will eventually hold first place amongst flowers for decoration. The thread-like petalled types are my especial favourites; they are unlike any other flower, and can be arranged tastefully in vases with a little Fern or Asparagus. Jane is one of the most delicate and beautiful of its class. It is of the purest white and far more graceful than the short-petalled types, which are invariably stiff. A few years ago single Chrysanthemums were tossed on to the rubbish heap; but now, with a growing appreciation of such flowers, they have been recognised, and have possibly a great future before them.—W. T.

USEFUL PLANTS FOR WALLS.

In large establishments where the demand for cut flowers is on the increase, the gardener is often tried to the utmost. During the last six or eight months I have visited many gardens in various parts, and have had an opportunity of noting the many plants that are used to give cut flowers during the winter. In some places sections of fruit houses are used to grow Roses. The plants appeared to do well, and the flowers came in at various seasons, according to the starting of the Vines or Peaches. In other gardens plants are grown up pillars in orchard houses. Again, in others a strong-growing Rose is planted at the end of a Peach house, and two or three strong shoots are trained under the ventilators against the back wall. I have seen the Gloire de Dijon giving grand results in such a place. But for a mass of bright colour I have never seen anything to approach a high wall in one of the plant houses at Lyndford Hall that is covered with Tropæolum Ball of Fire. It is a span-roofed house in the centre of a long range. These plants are only one year old. There is a narrow border at the foot of the wall in which they are planted out. Mr. Lee, the gardener, informed me that the method adopted every year was to strike cuttings in spring, grow them on to strong plants, and about midsummer plant them out in good fresh soil. Here they grow rapidly and commence blooming about September. This wall is from 15 feet to 20 feet high, and the Tropæolum reaches the top by the end of the year. Although a common plant, it is nevertheless very useful, and used extensively for the decoration of churches, &c. Mr. Lee told me that one morning he gathered 100 bunches, with one to two dozen blooms in each bunch. They last fresh a long time when cut and placed in water. In this garden there are some strong plants of Poinsettia planted out against the back wall of a stove, and these give some enormous heads, as they grow very strongly and to a great height.

DOUBLE AND SINGLE PELARGONIUMS are found very useful to cut from at Didlington Hall. In one of the vineries there are on the back walls plants of both double and single kinds. The Vines are not allowed to quite reach the top, thus affording

enough light to keep the plants healthy. In this position the Pelargoniums continue blooming more or less all the season. When the Vines are cleaned the Pelargoniums are thinned out and tied in close, and the heat the Vines receive to start them soon brings these Pelargoniums into full bloom again. In summer they are not wanted, but for autumn and spring cutting they are found to be most useful.

CAPE LEADWORT (*Plumbago capensis*) is found very useful when planted out in this way, and it gives a quantity of useful bloom in autumn.

In one greenhouse a large plant of *Acacia longiflora* was planted out. At the present time it is covered with its long and beautiful soft yellow blooms, from which the flower-basket can be filled many times. Later on this house must be a grand sight when the Oleanders are in bloom, as here they are planted out and in vigorous health. Mr. Stocking tells me that they are most useful to cut from for filling vases, &c.

CLEMATIS INDIVISA LOBATA is a useful plant in cold houses to cut from in February and onwards. This is one of the most useful plants for a cold house where just enough fire is used to keep out frost. Its pure white blooms are most pleasing. It can be grown to a large size in a pot. I saw recently a plant covering a large surface of trellis at Bathford Nursery in the best of health. This Clematis should be more grown, especially by all who have limited glass accommodation.

EUPHORBIA JACQUINÆFLORA lends itself to the planting-out method. At Farnborough Grange there used to be two large plants that were planted out and trained over the end of the stove. They covered a large space. These plants were under my care for eight years, and they produced the best results, giving an enormous amount of bloom. At Hackwood Park, Basingstoke, there is a grand plant in the stove. This Euphorbia when in good health in a border gives long sprays of bloom. A small plant may be planted out now in good light soil. I observed that Mr. Stocking at Didlington had recently planted out some in the stove. He had chosen good strong plants, and used a mixture of peat, sand, and loam with a liberal amount of charcoal. It is rather a spare rooter, and needs to be carefully watered.

J. CROOK.

Destruction of weeds.—Those of a perennial character, or which have fleshy roots, rambling or otherwise—among these being included ground Elder, Dandelion, Twitch, Bindweed, and Crow-foot—are already active, and unless grappled with at once will soon be almost indestructible. In addition to forking out and burning as many roots as possible, it is also necessary to hoe off the top growth of any pieces that escape. If this is persevered with no progress can be made, the hoe eventually killing the most tenacious of weeds. I have also seen various fleshy-rooted weeds completely smothered and killed by the heavy haulm of the Scotch Champion Potato. If this variety is planted on moderately heavy, well-manured ground, it forms so much branching haulm that nothing can possibly survive under it. In addition to cleaning the ground, heavy crops of Potatoes of the best table quality are secured. A frequent use of the hoe among all advancing crops will destroy innumerable small annual weeds, a few minutes spent in this way saving many hours of harder and less effective labour later on. Weeds quite young when hoed up soon perish, but if left till they are nearly or quite fully grown, it must be a very strong sunshine that will destroy them. More often than not strong weeds hoed up and not raked off the ground will strike root afresh, and left alone will grow more vigorously than heretofore. Weed-killers used exactly as advised by their vendors are more effective than salt for destroying weeds on gravel walks, but they must not come into contact with living edgings of any kind, or these too will suffer. Box and other edgings may be protected with the aid of wide boards set on edge in front of them, and as the weed-killers only lightly damp the surface of the walks, no injury accrues to the roots of the edging plants.—W. I.

DENNE PARK.

ON the outskirts of the town of Horsham is situated Denne Park, the fine old residence of Mrs. Everfield. It stands high above all its surroundings on a flat tableland, and, together with its fine park, the place appears to be a large, broad, elevated natural terrace. A good idea of the house is obtained from the engraving. The style is purely Elizabethan, and some parts of the mansion, without a doubt, date back many hundred years. The newer portions, now grey with age, have been built in conformity with the old part, the whole structure being entirely built of sandstone. The roof of this house, like that of many more in this beautiful district, is composed of Horsham stone, this being sandstone found in the district in

Conifers, which formed a good foreground to the great deciduous monarchs which adorn the park. Fine specimens were noted of *Thuja gigantea*, *Picea lasiocarpa*, *Cryptomeria japonica*, varying in height from 40 feet to 60 feet, and a splendid specimen of the glaucous variety of *P. nobilis*, 40 feet high, with branches sweeping the ground, was noteworthy. Deodar and Lebanon Cedars were flourishing and making fine trees. There is a nice rockery at Denne, and upon it were seen many of the choicest gems of alpine plant life in strong healthy tufts nestling in nooks and creeping or hanging over the face of projecting rocks. The rockery is simply and naturally constructed, and in its season is doubtless very beautiful. Many hardy flowers were found in

subjects that are serviceable either for cut flowers or for indoor decoration, *Freesias* being grown largely in pots. The kitchen garden is a fine plot exactly 100 yards square. It is entirely surrounded by a wall, which is believed to be fully 1000 years old, and the appearance of it quite bears out the supposition.

From the park that surrounds the house some fine views are obtained. The surface of the park is almost as level as the lawn, and this formation, though natural, is most peculiar, for on walking a short distance, the ground, suddenly and apparently without reason, falls away into one of those long steep embankment-like slopes so characteristic of these southern hills. At the foot of the slope meadows spread out, and the town of Horsham is seen below, but even its



Denne Park, Horsham, Sussex. Engraved for THE GARDEN from a photograph by A. Seeley, Richmond, Surrey.

thin, very hard layers. It makes a strong roof, is prettier and far more durable than the brittle tiles and slates, while in the course of years the surface becomes clad with Lichens.

Ivy with enormous stems, betokening great age, clusters against the house in some parts, while other portions of the walls are draped with Roses, Clematises, Virginian Creepers, Jasmine and Pyracantha. Round the house there are nice broad, open stretches of turf, trees and shrubs being kept upon the outskirts of the lawn so that they may not have a dwarfing effect upon the house. This is an important matter often overlooked.

I saw Denne in the cool grey light of an autumn day, when it looked charming. On the outer portions of the lawn were some nice

the borders, and the Rose garden was gay, for the Teas, the true perpetuals, had been largely planted. Such lovely kinds as Mme. Lambard, Marie Van Houtte, Jean Ducher, Niphotos, and Francisca Kruger were, during the last days of September, as full of flower as they had been at any time during the season. This Rose garden has been made in an old orchard, some of the Apple trees having been left. Gloire de Dijon had quite monopolised one, and the whole tree was a perfect wreath of flowers. Many of our vigorous Roses might be freely used in this way, and they would make annual pictures, whilst giving no trouble at all, as the shoots ramble through the branches of the tree and are supported thereby. The plant houses were well filled with a variety of beautiful and useful

highest church spire does not reach as high as the ground from which we survey the scene, which is as diversified as it is beautiful. The broad rich fields of West Sussex are seen, while beyond the town are great woods in dense, dark masses, largest of which is the 9000 acres forming St. Leonard's Forest. A long and undulating line formed by the Surrey hills bounds the prospect, the great Leith Hill being conspicuous, and rendered all the more imposing by reason of the veil of autumn haze partly enshrouding it. Only those who have enjoyed our southern landscapes can fully realise their charm or know their changeful aspects in different lights and in various seasons. There is a wealth of noble trees in the park—Beeches, Oaks, Elms, and Limes in groups, and many

single specimens of enormous dimensions. Although the place looks almost inaccessible from the town, there is an easy and beautiful drive up to the house through the park. The London road skirts the park, and on the crest of the hill the drive turns in from the main road and passes between a noble avenue of Limes, well shown in the illustration. They do not overshadow the road, but there is a broad Grass verge between the road and trees. The trees, which are planted on either side in a double line, are very high, and have an enormous spread of branches. The mansion is seen at the end of the avenue, appearing in perfect harmony with its surroundings, and a fitting termination to a grand drive. A. H.

FRUIT GARDEN.

REGULATING THE FRUIT SUPPLY.

WHEN a regular and uninterrupted supply of fresh fruit for the dessert is required, considerable forethought is necessary in arranging, starting, and perfecting the various crops, so that gluts and gaps may, as far as possible, be avoided. If the fruit is grown for sale, little attention need be given to keeping up a good succession; in fact, when cultivated for this purpose it is often better to have a good quantity in together. For private use, however, the value of the crops, however good they may be, is proportionately reduced, as they often exceed the demand at one time and fall short of it at another. One cannot always be sure of timing a crop exactly, but by careful observation and to make doubly sure by making notes occasionally of the starting and progress of the various houses or crops, a pretty accurate idea can be formed wherewith to work upon. Where several houses or compartments are provided for growing such fruits as Peaches, Figs and Melons, there ought not to be any great difficulty in maintaining a fair succession of these fruits during the season they can be produced by paying due attention to timing them. This should be principally studied, but there are other points of less importance to be borne in mind—chiefly the selection of varieties and the size of the trees. A great number of varieties is not desirable, but enough should be selected, and these of such a character as to secure a succession for some time in the same house, as far as possible avoiding planting two that will come in together. Thus by arranging Early Louise Peach for the earliest to ripen and Victoria Nectarine for the latest, it is possible, with a good selection of intermediate varieties, to gather fruit from the same Peach house over a period of from ten to twelve weeks.

In regard to the size of the trees, I am in favour of a considerable amount of extension when it can be conveniently carried out, as nothing conduces to health and productiveness in a fruit tree so much as a free, and at the same time well-guided annual extension of growth. The temptation is therefore sometimes great to allow a good tree to expand, but those whose aim is a succession of fruit cannot afford to indulge in this system of training very much in the case of such soft fruits as the Peach, or they may often find that once the fruit begins to ripen it will come on faster than they can dispose of it, unless in cases where the consumption is great. A given space consequently occupied by one tree will not give so long a supply as if the same extent of trellis were covered by two, one following the other in their order of ripening. Again, the best varieties should occupy the most prominent places in the house, only giving perhaps a corner to one of the small

early varieties, which are valuable only on account of their earliness. Neither should very late varieties take up undue space, as they are apt to suffer in size and quality when much forced. The same may be said of Figs. Some cultivators grow no other but the Brown Turkey, and certainly in selecting this variety they possess, all points considered, the best; but White Marseilles will ripen at least a fortnight before it in the same house, and Negro Largo will come in just as the flush of the first crop of Brown Turkey is over; on this account alone they are valuable in prolonging the supply, and are, moreover, both first-class kinds. Much may also be accomplished by shading and ventilation to extend the gathering from a house. I always consider that Peaches, when well coloured and within a week of being ripe, are improved by shade during the hottest part of the day. Thus by shading and keeping the house cool, especially leaving full air on at night, the ripening can to some extent be regulated and the supply prolonged. Grapes are more easily managed in this respect, as most kinds will keep good for some time after they are ripe. There is, however, a stage when such varieties as Black Hamburg, Alicante, Foster's Seedling, and others are at their best, when they become ripe and full flavoured and before they commence to shrink; therefore, to preserve them in this condition as long as possible, the Vines should be shaded if necessary—that is, if their own foliage is not ample for the purpose, and the house kept as cool as possible. When quite ripe, and if required for home consumption, soft fruit can be preserved in a very cool, airy room for a week or ten days without deteriorating.

Pot trees will furnish a goodly supply of fruit, and are valuable for coming in between the permanent crops as well as for giving variety to the dessert. Even where a regular orchard house is not set apart for them they can often be accommodated in some of the houses where an open space occurs or a light end can be utilised, where a few Peaches, Plums, or Figs in pots will give many dishes of valuable fruit. In gardens of small extent, the different crops should be so arranged as to come in when they will be most appreciated, as well as having an eye to succession. Thus, when a few hundred Strawberry plants only are forced, no doubt they will be most useful as well as pleasing if ripened from the middle of March to the middle of May, little else in the way of fresh fruit then being available. Peaches, and perhaps Melons, will follow; after which outside Strawberries will be ripe, and these, with Gooseberries, will yield a sufficient supply for a small family. It is well, then, where the means are limited, to avoid as far as possible having any quantity of forced fruits on hand while Strawberries and bush fruits are abundant. These delicious fruits are often preferred to Grapes, Peaches, &c.; consequently these choice kinds which at other times would be greatly appreciated are liable to be looked upon as superfluous when outside fruits are plentiful, the result being that they are not eaten when they are in the best condition and are often wasted.

These few hints may perhaps prove useful in directing attention to the most profitable method of arranging the fruit crop, as it is only by looking well ahead that success in this particular will follow; for no fruit crop can, without suffering considerably in some way, be either forced or retarded at a few days' notice.

A. BARKER.

Strawberry Vicomtesse H. de Thury.—In the garden of Mr. J. Buchan, Wilton House, Southampton, there is in one of the Peach houses a

splendid crop of fruit of this Strawberry, showing, if it were necessary, the splendid qualities possessed by this variety either for early work or intermediate supplies of fruit. Each plant carries about twelve handsome fruits. A capital companion to the above sort is Laxton's Noble, a batch of which occupied another shelf in the same house. Both sorts were started into growth at the same time, and the fruit of the last-mentioned variety is just commencing to colour, while the fruits of the Vicomtesse are ripe. Noble appears to be a Strawberry of large size, the fruits in question being rather uneven, owing probably to the heavy crop the plants were carrying.—M.

EVILS OF GRAFTING.

IF, as "Scion" says (page 310), I have "not touched the main question" in my remarks upon grafting, how then does he define it? Going back to the commencement of this discussion, the main question, as I understood it, was, "Grafting is wrong, and the sooner it is abolished from our gardens, and some other means taken for raising trees and shrubs, the better." That is, I think, the question at issue. I said, "Not so. Grafting is, if rightly done, a success, and is, moreover, an aid to the gardener and fruit grower." This is the line of argument I have followed, and still maintain that "Scion" has not, as yet, advanced anything to cause me to alter my views, which are founded upon experience and close observation. Evils I admitted there were, but can we not remedy these without resorting to such drastic measures as that of abolishing grafting altogether? I think so; the remedy is in a great measure in our own hands, by paying more particular attention to the goods we purchase, not accepting Roses on the Manetti, grafted under glass in pots, when we want them on the Brier from the open ground, or Peaches on the Damson when we require them on the Mussel Plum. If only this discussion awakens an interest in propagating and a more careful study of the stocks upon which various kinds of fruits best succeed amongst gardeners, it will not have failed in some good results.

"Scion" asks me to tell him "why the vigorous Dog Rose stock is so often killed above the ground-line, while the Rose at one end and the Dog Rose roots at the other are still alive." I do not think such a thing does often occur except under very adverse circumstances, such as undue exposure in very severe weather; then I should rather say the method of cultivation was most at fault. If "Scion" will turn to page 273, he will see that I have little sympathy with standard Roses as usually grown; nevertheless, I am prepared to say that a budded standard Brier, if given as much shelter as it enjoys in its native habitat, and not pruned to a skeleton every year, but allowed to form a good head, will form as hardy and vigorous a bush as the Brier itself. It is not the grafting, but the pruning and exposure which kill. I had an instance this winter of the advantage of having Tea Roses on the Brier. In the autumn I planted a warm border with Tea Roses, dwarfs on the seedling Brier, and not having quite enough to make up the rows, I planted two on their own roots which I had struck myself. Those two are now quite dead, while all the others are alive mostly to the points of the shoots, all having had the same protection—namely, a spadeful of leaf-mould to each plant.

The idea of grafting the Peach upon a restricting stock, and then dosing it with stimulants to compensate for the vigour we have thereby deprived it of, is a new phase to me in Peach culture. I wonder what Mr. Coleman—who partially lifts his scores of trees grafted on the so-called restricting stock every year to check their vigour—would say to this? Is the Peach on its own roots, then, such a grower that it exceeds in stature the Mussel Plum? or does "Scion" suppose that he could produce the heavy crops of Peaches which are now grown—for instance, one to 9 inches or a square foot, and from 6 oz. to 8 oz. each—from trees upon their own roots without liberal supplies of stimulants? One would think from his remarks that his own-root trees possessed some wonderful powers of taking up

nourishment when he says, "Is it right to check a plant's powers of taking up nourishment and then to give it stimulants?" He seems to throw some doubt upon the possibility of obtaining a crop of fruit the third year from the graft. I should consider him a poor cultivator who could not accomplish it. "Scion," however, admits that the trees will last a lifetime when he says "they do not always do this." It would, indeed, be surprising if such was the case, seeing how they are often treated. In regard to his statement, that for indoor culture trees on their own roots would in the long run be far better, has he any evidence in support of this, because it is a well-known fact that where the Peach is used as a stock for named kinds the trees are short-lived, even in America? When "Scion" can point to a healthy tree ten or twelve years old upon its own roots and carrying 150 fine fruit, I shall feel more inclined to listen to him.

When I said Damsons were the only fruits at present cultivated upon their own roots, I had in my mind stone and pipkin fruits, and I must thank "Scion" for reminding me that Grapes, Figs, and bush fruits are grown in the same manner. He has before taken me to task for not noticing these fruits amongst the ungrafted, but there is not much in this fact to advance his case. The reason why these fruits are not often grafted is evident to everyone having any knowledge of gardening, as they can be raised and grown as well and as quickly without it. The Grape, however, is grafted more than "Scion" would seem to be aware of, not always because it cannot be cultivated as successfully on its own roots, but as a matter of convenience. Inarching the Grape Vine is one of the readiest means of introducing another variety into a house of established Vines, and it has been largely adopted by experienced growers for changing the kinds either wholly or partially in their vineries. There is no doubt, too, that some kinds are improved by grafting. The free-growing and abundant rooting Foster's Seedling makes a capital stock for varieties not endowed with such a good constitution; whilst Black Hamburg and Muscat of Alexandria have also been employed with advantage as stocks.—A. BARKER, *Hindlip, Worcester.*

JUDGING MELONS FROM APPEARANCE.

ONCE more we have almost a page (357) of THE GARDEN devoted to this knotty question. Not a few societies and jurors have attempted to cut rather than untie the knot by having two classes of Melons, one to be cut and the other uncut. This relieves exhibitors and jurors alike of much responsibility, and seems to offer a practical solution of a difficulty which we are assured on high authority may have dealt a death-blow to exhibiting. Be that as it may, there are still a good many horticulturists who would hesitate to admit that the cutting of Melons at shows to test their quality is bad on the face of it, or is either antiquated or demoralising, excepting to the Melons. That it mars the beauty and lessens the value of individual fruits is obvious enough; but that is nothing to the point. The exhibitor of Melons must be prepared to run all legitimate risks, and may be assumed to have counted the cost before he entered his fruits in competition for a prize. What these risks are may be best illustrated by a case that once happened to the writer in which a luscious Queen Emma absolutely vanished under the twin ordeals of testing and widely advertising its quality. The Melon had wholly vanished, but a first prize card and the hearty congratulations of many eminent horticulturists had taken its place. Will growers or jurors affirm that that Melon was lost? True, the fruit was not only demoralised, but dissolved, but surely the prize and the praise—the latter so emphatic and unique—were worth far more than the mere money value of the Melon.

It may be natural for exhibitors to object to their Melons being cut. The prize and the fruit intact are worth more than either alone. But prizes are not offered for the mere convenience or enrichment of exhibitors, but for the discovery and reward of special qualities in the exhibits. Hence the importance of eliminating, if possible, the ultimate

value of prize Melons or other fruits from the question of the surest means of testing their quality. Otherwise tasting will be condemned as a matter of course, and we will be assured on the highest authorities that when the eye is satisfied the palate will also be gratified, or to put it in the exact words of a correspondent, "that when fruits are properly finished, and the same with Melons, flavour is there."

Well, could pithy dogmatism settle the matter, that sentence would settle it. But it, unfortunately, will not. Melons absolutely decline to have their qualities determined even by such lucid assertions, though light of another sort is the most potent factor in the evolution of their lusciousness.

It may be convenient in discussing this matter of tasting fruits to confine our remarks to Melons. While admitting the truth of what most of your correspondents say on the importance of size, form, weight, colour, odour, maturity, finish, condition, and special varieties as indices to quality, yet I have no hesitation in affirming that the only sure and certain proof of the Melon, as of the pudding, is in the eating, or, at least, the tasting of it. And this is so in the case of Melons, for the very special reason that their highest condition of quality is of short duration. To enforce my meaning, I would somewhat exaggerate this point by saying of the maximum lusciousness of many Melons, "We can hardly say it's here, only that it's past."

Neither can it hardly be said that there is any sure and certain cultural or physical formula for its production. For instance, how many Melons fell far below their usual high quality standard last year. The skill, the soil, the sorts, the treatment, the food, the size, the form, the finish, even the colour were all there. But one thing they lacked—normal or abnormally high quality. Why? Ask the veiled sun and leaden skies of the summer of 1888. Mr. Coleman furnishes other illustrations of the vital importance of timing the quality of Melons almost to a day, or an hour, if we would win first prizes. But how are the presence or absence of such niceties of flavour and deliciousness of aroma to be discovered unless by tasting? Timing fruits for shows is among the greatest practical difficulties, for in Melons cut too soon or Melons over-ripe it is physically impossible to find the highest quality. These and some other points urged by Mr. Coleman seem strong arguments in favour of judging Melons by flavour and not by appearance. The results of judging by sight in shows where the two classes of to be tasted and not to be tasted are adopted, furnish some of the most potent arguments in favour of judging Melons by taste. The contrast between the awards in the two classes provides an object lesson of the most suggestive character on the insidiousness of the qualities of Melons, and the impossibility of determining their merits by mere appearance.

As if to enforce this lesson in the loudest tones, how seldom are the prize fruits in the two classes of the same varieties. On the contrary, how often are fruits that no one would have placed in the running from mere appearance placed first through the simple fact of their superior flavour, while showy Melons with even a fair share of aroma are not seldom proved by the test of taste to be little better than Swedes.

No; external stamps of quality cannot be relied on in Melons. At best they are but the guinea stamp—too often but the golden gilt—on a brass farthing. The quality and the flavour are the proper guide; and as the quality of Melons is the one point to be determined and heightened by all our showing and judging of Melons, it follows that the appeal should be made to the only sense that can adjudicate on such matters, viz., the sense of taste.

With such a deeply interested arbitrator in power we may hope to keep our Melons brimful to cracking at the stalk with the most aromatic odours and luscious flavours; but once set the eye to determine quality, and the logical result will be Melons like a new series of the fabulous box of Pandora packed full from core to rind with hard harsh flesh of evil or little odour and less flavour, while Nature and art may seem to have combined their forces to

clothe their rinds with beauty and bedeck them with a profusion of ornamentation.

Fortunately, in several finer strains of Melons we have much elaboration of finish and great perfection of form in conjunction with high excellency of internal quality. Provided we have the quality, there can be no possible objection to the external beauty. But the main object in all our growing, judging, and showing of Melons should be the more perfect evolution of their flavour, and to this end we must insist that the test of their quality must rest with the tasting or in the eating of them.—D. T. F.

P.S.—The classification of Melons into the two classes of scarlet and green-fleshed should either be extended to include white, and probably golden or yellow-fleshed, or be abolished. It seems almost anomalous to include white-fleshed Melons among green; while yellow or lemon-fleshed ones would hardly be passed among scarlet. The time seems to have come for the abolition or extension of mere colour classes, and to extend the practice, seldom adopted as yet, of offering prizes for the more popular varieties by name. This would greatly simplify the labours of the jurors and generally give more satisfaction to exhibitors, and also afford far more pleasure and profit to the public.

— I have read the various letters that have appeared in THE GARDEN on this subject, and I think that some of the writers have much exaggerated the difficulties. I judge at many exhibitions of Melons during the season, and have tasted hundreds in the course of my duties as judge, and have no hesitation in saying that the best looking, largest fruit seldom wins when put to the test of judging by taste. Personally, I never complain about having to taste a score of Melons. My plan is to cut a round piece out as large as a shilling with a small knife, and by merely putting a small piece in the mouth (no need to swallow it), the best three can soon be selected from a score or more. The small round piece can be put back again in its place, as is done with cheese. Those likely to win may be cut to a greater extent.

It is the duty of societies to provide good judges, and they would taste fruit only when it is absolutely necessary. As to the remark about the shows being held to suit the Melons, of course it is not possible to fix a date that would be the best for everybody, and gardeners will keep their fruit too long or show it too soon; but if it looks all right outside, how are judges to tell what the flavour is unless they taste it? Another point to which attention has been drawn is the superior quality of certain varieties, and Mr. Coleman alludes to Turner's Scarlet Gem and Read's Scarlet, remarking that it is a question if any of the modern hybrids would touch them. We all know that cutting a fruit a day or two too early or a day or two too late will make all the difference; but here, again, appearance will not help the judge to a right decision. I have been an exhibitor of Melons and other fruits for nearly a quarter of a century, and I will give an illustration to show that an error may be made by pitting old and well-known sorts against modern hybrids and judging them without tasting. I exhibited green and red-fleshed Melons in two classes at one of the great summer shows which were held at South Kensington by the Royal Horticultural Society about sixteen years ago. They were hybrids of my own raising, and were shown against Scarlet Gem, which was a favourite at that time, and, I think, Trentham Hybrid and Bailey's Green Flesh, but I cannot now remember; at any rate, I won first prize in each class. I fancy I would have been nowhere if the prizes had been given to the well-known named varieties and unknown hybrids had been ignored. The only very large fruit exhibition I ever knew where Melons were not tasted was held the same year. It was one of the great international fruit shows held at Edinburgh. Amongst other things I exhibited in the classes for green and scarlet-fleshed Melons, and I well remember the arrangement was to hand in our boxes of Grapes, Melons, &c., to the stewards to stage the fruit for us. The exhibitors were not allowed in the show-room at all. I handed in my Melons, I re-

member, to Mr. W. Thomson, then gardener at Dalkeith Palace. I had but one scarlet flesh, but two specimens of the green. One which I knew would be of the best flavour had a very small, almost unnoticeable spot of decay at the stem. I pointed this out to Mr. Thomson, and he said, "Better put up the sound one." The fruits were not cut, and I again won both first prizes. But the best-flavoured Melon was the one not staged, and the small spot of decay might have been fatal to it, as the judging was done by appearance. There were, I remember, several letters in the *Gardeners' Chronicle* at that time for and against cutting Melons at exhibitions, but the weight of evidence was in favour of cutting. Indeed, I do not know any large exhibition, or indeed small one, where the Melons are not cut.

On the other hand, I never knew of Peaches or Nectarines being cut. The largest, best-coloured, and soundest fruit, if ripe, is sure to win. It is not necessary to taste Grapes, unless two dishes are so close to each other in merit, that it is necessary to taste the fruit in order that the point of flavour may tell one way or other. No one would think of tasting Pine-apples. Plums, Cherries, Gooseberries, &c., need not, as a rule, be tasted, but I have done so sometimes, and found it an aid to determining the awards. Next to Melons, Pears are the fruit that it is most essential judges should taste. Sometimes the best looking fruit is quite gone at the core and void of flavour, and in a close competition there is no other way of determining the relative merits of certain dishes; but as six fruits at least are exhibited in one dish, it may not be necessary to cut more than one of them. It is not so necessary that Apples should be cut, but no one would object to a judge cutting a small portion of an Apple.—J. DOUGLAS.

Setting Grapes with the syringe.—It is not a matter of great moment, but I would like just to say that if Mr. Baines was "the first to bring the syringing method of setting Grapes under the notice of readers," I am equally sure I was the first to be abused for recommending the practice in the case of Grapes, Peaches, and Strawberries, &c., even before *THE GARDEN* began, if I am not mistaken, and in *THE GARDEN* soon after it began, and in other papers also many times. I am glad, however, to find Mr. Baines recommending the plan.—J. S. W.

Grafting the Pear on the White Thorn.—The Pear is grown on its own roots or grafted on the Quince, but in dry and shallow soils it may be grafted on the White Thorn. All the varieties do not succeed on *Crataegus Oxyacantha*, and some of them produce when so grafted small woody fruit. It is necessary to try the two types—monogyna and digyna—and compare the results. In the *Jardin Ecole de Reims*, the grafting of the Pear on the White Thorn of America, *Crataegus crus-galli*, corallina, coccinea, &c., has succeeded. We are continuing these experiments on subjects raised from seed or already grafted on the common White Thorn, and will keep you informed of the results.—CHARLES BALTET.

. Will M. Baltet kindly say if ever the finer kinds of Pears are grown on their own roots?—ED.

Apple Newtown Pippin.—Prof. W. F. Massey, of the Samuel Miller Institute of this county, who has been favoured with a proof slip of your letter to the *Garden and Forest* (New York) on the Newtown Pippin, has sent me a copy of it. We claim to have the finest Apple in the world. We call it the Albemarle Pippin. Mr. Downing says it is the same as the Newtown Pippin. Mr. Fitz, in his book, claims that it is a distinct variety which originated in this county (Albemarle County, Va.). However this may be, nowhere in the United States do they grow to such perfection as in the glens of the Blue Ridge Mountain in this and other Piedmont counties of Virginia on the east side of this mountain. As Prof. Massey says, in his note to the *Fruit and Grape Grower*, "Those Americans who told you they had better Apples evidently did not live in Albemarle County, Va." They do not grow to their highest perfection even in this county off

of the mountain. The Albemarle Pippin is, and has been for many years, shipped from this county to Liverpool. Some shipments are made in original packages from this county, but most of them are shipped to New York, re-packed, and shipped from thence. Prof. Massey, who is a high authority, says, "You had evidently been eating Albemarle Newtown Pippin." There are some interesting facts connected with this Apple which I have not the space to give, having already troubled you with too long a letter.—A. R. BLAKEY, Ed. *Fruit and Grape Grower*.

. Many thanks for the above interesting communication. Shall be very glad to have any further particulars you may care to send us on this subject.—ED.

FRUITS UNDER GLASS.

PEACHES.

OWING to the unseasonably cold, sunless weather, forced Peaches, as well as those on open walls, are later than usual, but, unless forcing against time, this is not quite an unmixed evil, as the fruit must have plenty of time when passing the trying ordeal of stoning. A flood of light and plenty of sun when the trees are in flower, and again when the fruit is taking the last swelling, are very important factors, and much of this weather being overdue, we may reasonably hope that a good time is in store when delays may be redeemed without distressing the trees. It is not a good plan to keep the trees tied in too trim when the fruit is not laying on pulp, but once the stones are perfect a general tying down and stopping of laterals must be proceeded with. Any pendent fruits, too, which can be raised apex upwards at the same time must receive attention. When a good set of fruit is secured, enough and to spare can generally be found on the upper sides of the shoots, but this in many places has been an exceptional year. Consequently, Peaches in any position are acceptable. The trees must be regularly syringed twice a day, the first time when the temperature begins to rise, probably about 7 a.m., and the second time when the house is closed about 3 or 3.30 in the afternoon. Pure soft water, or water free from lime, is best, as any kind of sediment marks and spoils the appearance of the fruit. This should be applied with some force, and the top as well as the under sides of the leaves should be well moistened, especially on bright afternoons. Examine inside borders, mulch with short stable manure any old heavily cropped trees which show signs of weakness, reserving the longer and less rich litter for others which do not require assistance. Water copiously with warm diluted liquid or pure water, as the condition of the trees may dictate, and damp down with liquid every evening when a chink of front air is put on for the night. Under good culture it is hardly likely that fly will now be troublesome, especially where soot-water in a weak, clear state is used once or twice a week; but should a single fly become visible, omit the afternoon syringing and fumigate when the sun has gone down and the foliage is quite dry. Two light smokings in succession are safer and better than one heavy one, and in all cases syringe well and early the following morning. As Peaches and Nectarines will stand a higher temperature throughout the last swelling, they may range from 65° to 70° at banking time, 60° to 65° at daylight, 70° to 75° through the early part of the day, and 80° with full air when solar heat is the principal agent. The secret of airing consists in the early chink, an increase as the temperature rises, the avoidance of sudden bounds or depressions, also of cutting draughts, and equally careful reducing after the turn of the day.

Succession houses in which the fruit has set well and is swelling away freely will require copious syringing with pure warm water, also plentiful supplies of tepid water to the roots. Disbudding and thinning, little and often, of course will be carried on simultaneously, and as every man can tell to a nicety what number of Peaches his trees will carry to maturity, this part of his business must be left to his superior judgment. In thinning, the triples and doubles should be reduced to one,

naturally the best, with point upwards, then the puny singles must go, 25 per cent. being ample to compensate for faulty fruits which never pass the stoning process. Disbudding, again, is a very important matter, especially where the trees are young and vigorous and the sap rushes rapidly upward to the extremities of the strongest shoots. This work should always be commenced where this grossness is most perceptible, but instead of taking the shoots off close home, many of them with fruit at the base may be pinched back to two or three leaves, final removal being deferred until thinning is finished. By this mode of procedure the strongest shoots can be brought into subjection, when an improvement in the lowest and weakest parts of the trees soon becomes perceptible. The temperature of this house may range about 60° at night, 70° to 75° through the day, and 80° after the closing bath. Some few antiquated growers persist in working to a certain degree in all weathers, but this is a great mistake and most trying to the assistants, as no plant or fruit enjoys one uniform temperature in its native habitat.

Late trees in cold houses, if any such still exist, and in wall cases will now have set their fruit, and as these structures are too often crowded with a medley of pot plants, fumigation in nine instances out of ten is the first operation. Once the trees are clean they may be well syringed on fine mornings, but knowing how treacherous the weather continues up to the end of May, the houses should be shut up warm and dry until all danger of frost has passed away. A good crop of late fruit being the first consideration, fly and frost are the two enemies the cold house cultivator has to contend against. The other operations of thinning, disbudding, and heeling in will claim timely attention, and water to the inside borders will make or mar in proportion to its liberal use.

FORCED CHERRIES.

Houses in which the earliest varieties are ripening must be kept somewhat drier on dull and wet days, and as freely ventilated as may be consistent with the swelling of later sorts when the weather is fine. If well watered and mulched shortly before they changed colour, the early trees will hardly require more root moisture until after the crop is gathered; neither must they be touched with water through the syringe, but the late varieties will require another supply before they are mulched, and syringing on fine mornings only, whilst keeping the trees fresh and clean, will lead to the full development of the fruit. Green and black-fly being so troublesome, one of the most important operations is a thorough fumigation on a fine calm evening when the foliage is quite dry, when the earliest fruit shows signs of changing colour. If the trees have been neglected and black aphid has got a firm hold, the curled points of the shoots should be dipped in weak soap and tobacco water overnight and well syringed with clean soft water the following morning. Quassia water also may be used, always provided the trees are thoroughly washed the next morning, and the house is well ventilated with gentle fire-heat to prevent condensation of moisture upon the fruit. Grub, as a matter of course, has been disposed of; but there yet remains another enemy, and this is the wily blackbird, whose instinct and eye for colour are unfailing guides to the open ventilators. As no one likes to kill these beautiful birds, and constant ventilation when the fruit is ripe is imperative, fishing nets should be thrown over the openings before they make an attack.

PLUMS

started with Cherries and now swelling freely must be well thinned with a pair of Grape scissors, preference being given to the retention of fruit where there are most leaves. As the earliest of these have barely passed the stoning stage, mulching, feeding, and syringing must be continued for a considerable time. As Plums, like Grapes, are of little value when the bloom is damaged or destroyed, the purest water only should be used for syringing purposes, and then it should be sufficiently copious to thoroughly wet every part of the fruit. Partial wetting or light spray often spots

the fruit where thorough immersion leaves the bloom intact. Grub will still require attention, and aphid must be kept down by occasional fumigation.

WORK AMONGST HARDY FRUITS.

If a late season exempt from severe spring frosts has anything to do with a good set, fruit of all kinds should be plentiful, but all, unfortunately, is not gold that glitters, and although cheerful reports have been published, I still fear that a great deal of unripe wood will produce imperfect flowers. In this locality, indeed, a great number of buds which should have developed perfect trusses of flower, owing to their unripe and imperfect condition, have broken away into leaf-shoots, and in not a few instances rather strong wood of the past year has cast many of its flower-buds, or died back altogether. This is particularly the case upon choice stone fruits, including Apricots and young Peaches against walls, a fair proof that trees upon open quarters in nurseries must have suffered severely. Sweet Cherries and Morellos promise well, but they are very late, and after so much piercing cold from the north and east we may certainly expect a profusion of aphid. We syringe our trees with soapsuds until the flowers begin to open, and rarely suffer from attacks of fly until after the fruit is set, when pure water through the hose prevents it from spreading. Tobacco water makes an excellent dip for the points of the shoots, and tobacco powder carefully used through a puff is the only safe insecticide when the trees are in flower. Bush fruits look well, Gooseberries showing apparently a solitary fruit at every bud, but the crops last year were enormous; consequently, this taking a season lightly is by no means surprising. Pears with us, even upon walls, are partial, the best and fullest blossoms appearing where the trees made least wood and were cropped lightly last season. Of Apples it is as yet too soon to venture an opinion, as a great number of the flower-buds may not develop a single perfect flower. A great authority, Mr. W. Paul, in a most excellent paper upon culture for profit, advises the selection of sorts which flower late, but this is not an infallible guide, as Garnons, sometimes called the Wise Apple, the latest variety known, has not produced full and fine crops for several years. Late flowering means late ripening, not only of fruit, but of wood in the autumn—a matter of small import after a hot dry summer, but following a bad year like the past, the latest trees this spring will most likely rush into leaves instead of flowers. I do not object to a sparse blossom upon well-ripened trees, as this invariably sets well, and the fruit takes the lead of the leaves, but once these gain the ascendancy the Apple crops in this country are partial.

But, fruit or no fruit, the most minute details must not be neglected. Protection from late spring frosts, I may say, is one point, and prevention of the spread of insects is another. The ways and means may be rough and ready, or they may be refined, but this matters little provided the crop is secured and insects do not paralyse the young growths at the outset. In the management of Peaches which have failed, there is nothing to prevent the use of insecticides, which may act as deterrents, when the earliest growths will get away without a check. There is nothing to delay early but piecemeal disbudding, as there is no fruit to protect beneath the sheltering leaves; therefore the first great disappointment left behind, we must work with a will for a clean moderate growth of thinly trained shoots which will ripen well and early in the autumn. Trees of all kinds should always be disbudded in mild weather, the first and main point being a timely check upon the most vigorous parts of the tree, generally near the extremities. All the shoots should not be taken at once, the removal of the forefront and underside growths being quite sufficient the first day, then as the weak points improve in strength those on the upper sides may be pinched, care being taken that enough and to spare are left intact for laying in to the wall. The veriest tyro can see at a glance which shoots he must remove at the first and

second disbudding, but the exact number he must retain is more difficult. Too many, as a rule, are left, but in most cases a growth from the base and another from the point of each fruit-bearing shoot in restricted trees will be found ample, whilst in extension trained trees having fruiting shoots 3 feet more, or less in breadth, one at the base, another in the middle and the terminal will be found sufficient. When disbudding is finished, the young shoots should lie 5 inches apart, with room for extension to any length without crossing or shading each other. As some of these upon gross wood may strive for the ascendancy, they may be pinched when they are 10 inches or 12 inches in length; also, as a last resource, they may be slightly defoliated by cutting a few of the largest leaves through the middle when the point laterals are growing freely.

FIGS.

Favoured by a mild winter, the young growths made last year have looked satisfactory until quite recently. Embryo fruits, it is true, were neither prominent nor plentiful, but the points of the



Tritoma caulescens.

shoots to the casual observer appeared fresh and plump, and had they been at all well ripened, a fair sprinkling of ripe Figs might have been expected in September. Vegetation being so late, my own trees were not touched until last week (middle of April), and a great number of the healthy-looking shoots have been found soft, sappy, and useless. Our situation (low and damp) is not favourable to outdoor Figs; consequently mine may be an exceptional case; but in the event of others finding themselves like owners of comparatively barren trees, the question arises, What is the best mode of restoring them to fertility? In my own spring treatment all useless and blind pointed shoots have been cut hard back to a single bud and the others have been tied or nailed in to bide their time for the present. If these push point leaves and fruits they will be retained, but otherwise they will be pruned close home to the young shoots which the dormant buds of 1887 are sure to push profusely. As these will be numerous and weak they will be well thinned out, those retained being tied in full length with their points close to the wall to ripen. Wall Figs should

never be pinched, as the second breaks cannot be expected to ripen before winter is upon them. Neither should fruitless trees be mulched or watered, the main factors being a warm, dry root-run and a fair spread of short spur-like shoots, the shorter the better, which a good ordinary summer will ripen properly. W. C.

FLOWER GARDEN.

TRITOMA CAULESCENS.

Of all the species of the genus *Tritoma* this is certainly the most remarkable, not only on account of the peculiar manner in which the flowering stems are developed, giving the plant the appearance of some kinds of *Yucca*, but also from the arrangement and aspect of the leaves, which somewhat resemble those of the great *Eryngium* of the Argentine Republic. It is, moreover, a rare species, and one of the only two kinds which have a caulescent and more or less arborescent habit. It may be described as follows:—

A caulescent plant, sending up suckers from the root. Stems more or less numerous, sometimes 3 feet or more in height, and from 3 inches to 6 inches in diameter, cylindrical, leafy at first, but becoming bare below as they increase in length. Leaves numerous, erect, very closely set, very broad at the base and gradually narrowing to a point at the extremity, exceedingly glaucous, channelled, triquetrous, very finely serrulated on the edges and keel, from 20 inches to 32 inches long, and of a soft, yielding texture. Flowering stem stout, cylindrical, from 2 feet to over 2½ feet long, glaucous, hoary, slightly rust-coloured on the upper part, where a few thin, scarious, papery bracts are produced. Inflorescence broadly spicate, obtuse, and as if truncate, 3 inches or 4 inches in diameter and about 6 inches or 7 inches in length. Flowers drooping, very closely set. Flower-buds at first of a deep vinous brick-red colour, changing into coppery-red, and afterwards becoming of a greenish tint. Stamens very prominent, with filaments of a pale yellowish green, afterwards assuming the same tint as the flower. Anthers shortly oval, of a deep red colour, changing into brownish grey.

This species comes into flower in June, the flowers opening first at the bottom of the spike, on which the unexpanded flower-buds are of a deep vinous-red colour and slightly mealy. As the flowers open the spike becomes two-coloured, the upper part, occupied by the unexpanded flower-buds, being of a brick-red or vinous-red colour, while all the lower part, on which the flowers have opened, is of a pale greenish yellow. The plant is comparatively hardy, having withstood the winter unharmed in the open air at Montreuil since the year 1881. It flowered for the first time in France in 1885 in the nurseries of M. Godefroy-Lebeuf at Argenteuil, and has been figured in the *Botanical Magazine* (t. 5946). Its flowers, foliage, and *Yucca*-like or *Aloe*-like habit all combine to render it an exceedingly ornamental species. —*Revue Horticole*.

Auriculas, yellow selfs.—In THE GARDEN, April 6 (p. 315), Mr. Horner gives a very full, and I have no doubt accurate, description of his new yellow self Buttercup. I am very pleased to learn there are already so many plants (nine) of it in existence. It may all the sooner get into general cultivation. In my last communication (p. 271) I stated that there were only two plants of it in

existence. I did so on the authority, written to two different gentlemen, of a grower whom I thought was almost as good an authority as Mr. Horner himself. For this unintentional inaccuracy I have to apologise to Messrs. Douglas and Horner. Mr. Horner asks why I "so carelessly misquote Mr. Douglas." Will Mr. Horner kindly point out the misquotation? When he does so I will be able to reply to his strictures in full.—W. S. B.

COLOUR IN PRIMROSES.

I AM glad that Mr. Engleheart (p. 332) credits me with sufficient sense to believe that I shall not agree with him in his fads about the colour in flowers. Why should we wish to eliminate from our garden Primroses so many singularly varied and beautiful flowers just because someone holds them to be of heretical tendency. The very features which one will condemn constitute another's joy and delight, and because in Primrose production I find nine persons out of ten will differ from me in my own strong liking for self-coloured flowers, I am fain to admit that not I, but the public must rule. Why, for one who despises a blue Primrose there are fifty who go into ecstasies over it, as they will over many fancy or oddly marked flowers which some hyper-critic will condemn. Mr. Engleheart's rejection of purples, magentas, &c., is intolerable judgment, and no one will support it. Amongst purples, of which I have many, are found some of the most perfect of selfs, as also of fancy flowers, and rich in beauty when in bloom. Colours which give life, that is, reflect the light, are the most telling in the clumps, and magentas, cerises, reds, and rich crimsons, whether pure selfs or at all edged or tinted with white or cream, are very striking and effective. Very much depends upon the light. Of late the sun has been hidden behind heavy rain clouds, but all the same under leaden skies the flowers have been very beautiful. Polyanthus give many odd tints not found in the Primrose, as, for instance, we get no true yellow in the Primrose, but both rich yellow and orange in the Polyanthus. From out of the orange has come some warm browns, or what Mr. Engleheart terms cinnabar-chamois, which is perhaps an indescribable hue. Some pretty salmon and buff tints also occur, and finally there are some which in the sunlight come very near to scarlet, so fiery are they. Art critics may or may not admire these peculiar tints, but I have found ladies of refined taste go into raptures over them; therefore, odd tinted or not, they must have some beauty in them. A real rose-coloured flower is hard to get in either section; the prettiest I have found in that way is a Hose-in-hose Primrose of a lovely rosy carmine, but the plants are this year quite small, having been divided. I am hopeful that a batch of seedlings from it will next year give some charming rosy tints. There is no doubt an inexhaustible field open in garden Primroses and Polyanthus for everyone with time and material to work in. So far as I am concerned, however, I shall reject no pretty flower because it offends against the canons of art in colours.

A. DEAN.

Bletia hyacinthina.—I was pleased to read in THE GARDEN, April 20 (page 363), that this plant succeeds well out of doors. My experience with it as a pot plant goes to prove that it does best with a little heat. Three years ago I had six newly imported plants of it, and in order to test its capabilities as a hardy pot plant I placed two in a cold frame, two in the Auricula house, where frost is merely kept out, and two in the cool Orchid house. Those in the frame were plunged over the rims of the pots in Cocoa fibre refuse with Lilies and other plants until they started to grow, when the fibre refuse was removed from the crown. The result was that the plants in the cool Orchid house grew the strongest, next to them those in the Auricula house, the cold frame plants being the weakest. None of them flowered the first year and only two the next, and these were the plants that had been kept in the Orchid house. They were all potted alike in peat and leaf-mould with a little sand. I used peat because they had a substance like fibrous

peat round their roots when they were sent to me. All the plants are now in the cool Orchid house and are doing fairly well. It is very subject to the attacks of green-fly, which can be destroyed by the use of tobacco water.—J. DOUGLAS.

NOTES FROM NEWRY.

SPRING FLOWERS are now opening fast, and borders and rockeries are becoming quite gay. Narcissi, as a matter of course, assert themselves everywhere; so do the many and beautiful forms of *Primula acaulis* and *Polyanthus*. *Aubrietias* are beautiful masses of purple and lilac.

ARABIS ARENOSA is quite worth growing on the rockery. Being slender and compact in habit, it forms a pretty tuft of rosy lilac flowers.

CAMPANULA ALPINA is, as usual, the first of its family to bloom, and though not so showy as other kinds that come later, still, when a number of plants, purple and white, are grown together the effect is very pleasing.

DIANTHUS ALPINO-BARBATUS, the first in its group, is a dense-growing, leafy plant, and interesting both on account of its parentage and also because its flowers open white and change to crimson. This will be followed in a day or two by an early form of *D. superbus*.

ERYTHRONIUM AMERICANUM has been very beautiful; bulbs growing in stiffish soil and in a wet, but well-drained position are best. *E. citrinum* is now charming. It is one of the freest growers, a leafy and vigorous plant with tall, 6-inch to 8-inch scapes, bearing two to three flowers each. *E. grandiflorum* is distinct in its shade of yellow. *E. Howelli* is a most distinct plant of rather dwarf stature with creamy white flowers, having a purple spot at the base of the divisions. I find all these kinds are stronger and better when planted 6 inches to 8 inches deep in damp sandy loam and with a little shelter, not necessarily shade, for those on the south side of a hedge are better than those on the north.

FRITILLARIA MELEAGRIS, white and coloured kinds, ought to have a place in every spring garden. They grow and flower freely, are of pretty colours, and strangers always ask what they are. The rather sombre-coloured *F. pyrenaica*, though not nearly so attractive in the distance, is beautiful in the chequering and shades of green, brown, and purple.

GENTIANA ACAULIS PALLIDA is a very lovely thing indeed, pale sky blue, with lighter shading, and a spot of green at each division, and lines of small purple dots passing from the throat to the base of the flower. *G. a. lilacina* is rather similar in colour, having the green spots, but no other markings. *G. a. cærulea* is charming, of a clear shade of light blue, and with rather a short flower. A large batch of seedlings of *G. acaulis* is now blooming and the plants vary considerably, not only in leafage, but in colour and size of flower. The colour ranges from light clear blue to deep purple-blue, and in every instance is the length of the flower-tube proportioned to the depth of the colour, the deepest coloured being the longest, and *vice versa*.

IRIS PRÆCOX is the first of the rather numerous group of dwarf Irises to open. It is similar in habit and colour to *I. pumila cærulea*. This will be followed in a day or two by *I. pumila macrocarpa*, which also precedes the type.

MENZIESIA EMPETRIFORMIS is a most desirable dwarf shrub; the vivid green foliage, the close habit of growth, and also its earliness render it valuable.

MUSCARI ATLANTICUM is by far the finest with which I am acquainted—a robust growing plant, intense in its depth of blue, most lasting in bloom, and throwing up from three to five scapes from each bulb. *M. Heldreichi* is either a variable plant, or spurious kinds have got about (see p. 330). What I have always known under this name is a dwarf growing plant, charming in its light cærulean blue. It is a fortnight or more later than *M. botryoides*. *M. Strangwaysi* is a fine form of *M. botryoides*, flowering at the same time, and growing about 8

inches high. *M. Sartori*, only just coming into bloom, is rather a dwarf plant, with intense blue-purple flowers. *M. Maweanum* is a good plant from a colour point of view, and also as lengthening the season, the tips of its scapes being only just visible. *M. Szovitzianum* is a pretty form, the top of the spike being much lighter in colour than the rest of the flower.

RANUNCULUS ANEMONOIDES is a good garden plant, and will, I expect, where the soil is rich and moist, grow into clumps as vigorous in proportion as *R. aconitifolius*. *R. flabelliformis* is distinct in leafage and free in growth, but its flowers are very inferior. *R. millefoliatus* is a beautiful plant, forming a low hillock of narrow thread-like leaflets and pretty yellow flowers. *R. montanus* is quite one of the best of the dwarf yellow forms, free in growth and profuse in bloom. *R. rutefolius* is charming both in foliage and flower.

PRIMULA ROSEA SPLENDENS is quite the best of the lot; many shades richer in colour than *P. rosea grandiflora*, earlier in bloom, and throwing up its scapes 6 inches or 8 inches high.

TULIPA SYLVESTRIS MAJOR is a really good garden plant, ample in foliage, growing 12 inches to 14 inches high, and with mostly two flowers on a scape, yellow and nodding. *T. s. italica* is a very distinct plant, with long, nearly erect, narrow channelled leaves, with smaller flowers, but similar in colour. *T. Reichenbachiana*, again, is the smallest of this species, only growing 3 inches to 4 inches—quite a miniature. *T. Clusiana* is a pretty plant in a mass, flowers small, rose and white in colour. *T. elegans* is a beauty, with narrow pointed petals of a rich crimson colour. *T. præcox* and its variety *major* are distinct and handsome plants, alike in leafage, stature, and flower; while *T. Greigi* needs no praise from me; it is the most glowing mass of colour in the garden just now.

NARCISSUS UNICOLOR GRANDIFLORUS, large-flowered Paper-white, is the most beautiful white flower at present in the garden.

TRICHONEMA BULBOCODIODES, with its pretty rosy purple yellow-eyed flowers, has been in bloom for a fortnight; it is the earliest of the group to bloom, and will be quickly followed by *T. ligustica*, whose buds are already showing colour.

T. SMITH.

SINGLE DAHLIAS.

I NOTE "R.D.'s" most suggestive remark (GARDEN, April 13, p. 334), "Single Dahlias do not require the rich soil recommended for the larger Dahlias that are grown for show purposes," and re-quote it to express my approval in the most emphatic way in my power. The overfeeding of single Dahlias is largely responsible for their waning popularity. They have been in many cases pampered and fed to such a degree, that steps are needed to enjoy their all too transient beauty. Tall by nature, they have become yet taller by artificial feeding, until much of their merit as effective decorative plants has been lost. Gross feeding also lessens their value for cutting by reducing the number and enlarging the size of their individual blooms. We want fewer cheese-plates and more blooms of smaller size, greater substance, and richer colouring. These wants have been met to some extent, though much more remains to be done. There are at least two obvious modes of securing denser, dwarf strains of single Dahlias; the one is by raising new varieties, and the other by starving existing strains into closer proximity to the ground through growing them in poor soil. Neither is it needful to carry the starving process to extremes. Single Dahlias, partially stunted and dwarfed through poverty of soil, can readily be helped with manure water when the heaviest strains or crops are upon them. Semi-starvation renders them not only more dwarf, but more free-flowering, and so soon as this desirable habit and condition are attained, the cultivator may aid them with manure water to enable them to go on blooming freely to the end of the season. The difference in the decorative value of single Dahlias in poor and in rich soil must be seen to be appreciated to its full extent,

while their value for cutting is also greatly enhanced by growing them in poor soil, for not only are the blooms more numerous from the latter, but also more lasting.

HORTUS.

WHAT IS NARCISSUS SABINEI?

N. SABINEI was figured and described in Lindley's *Botanical Register* (t. 762) many years ago. This plant was sent to Mr. Sabine in 1818 by Mr. Wm. Baxter, the then curator of the Oxford garden. Salisbury saw it named *Queltia bicolor* in the gardens of the Horticultural Society, in the spring of 1823, and left a pencil sketch of the plant now preserved in the Natural History Department, British Museum, with a note in which, comparing it with N. incomparabilis, he says, "filaments inserted lower down than in incomparabilis, converging as in N. bicolor."

Mr. Ellacombe, of Bitton, seems to have cultivated this plant, as it appears in his bulb list of 1833. But of late years the plant was not seen in our gardens and was thought to be lost. Mr. Barr used to talk to me a good deal about some of the Backhouse seedlings being like Sabinei, and finally he named these seedlings Backhousei, as a compliment to the raiser, and our friend Mr. Baker upholds the name in his "Amaryllidaceæ."

Mr. Barr now claims to have introduced the true N. Sabinei, and it appears in his list for the current year, but I have not as yet seen the plant so named. It may be pointed out that Salisbury's drawing differs a little from the figure in the *Botanical Register*, but not more than seedlings from the same pod of seed may and do vary from each other. My friend Simon de Graaff, of Leyden, has also raised seedlings exceedingly like N. Sabinei, and one named Wilhelm de Graff, and another, viz., S. A. de Graff, are exactly like Salisbury's sketch and description. Both N. Backhousei in all its forms and N. Sabinei are the produce of N. bicolor by the pollen of N. tazetta, and my present contention is that, if botanical priority means anything now-a-days, the sectional name of Backhousei must give place to that of N. Sabinei. Mr. Baker ("Amaryllidaceæ," p. 18) places together quite a collection of hybrids under N. Macleayi (*Botanical Register*, t. 987, *Botanical Magazine*, t. 2588). They are as follows: N. Sabinei, notwithstanding that N. Sabinei was figured and described by Lindley before N. Macleayi; N. Nelsoni, N. tridymus, N. Bernardi, &c., are others placed under N. Macleayi, the true position of the last-named being evidently under N. incomparabilis.

F. W. B.

Centaurea ragusina hardy.—Years ago I was in the habit of seeing this plant treated in Scotland as a tender subject. It was lifted from the beds and wintered under glass in heat, and as it does not bear transplanting well, many of the plants were lost; but now I am of opinion that the operation was unnecessary, as here they remain in the open all the year round and year after year, and we have frequently as much as 18° of frost. We, however, protect them a little by placing a few Spruce branches round them in the most severe part of the winter, and with the shelter of these they are as luxuriant now as they were in August last.—J. MUIR.

Primula nivea.—What is the correct name of this very beautiful little Primula? It is generally named P. nivea or nivalis, sometimes intermedia nivea, sometimes ciliata nivea, and at Kew I find it is termed P. pubescens alba, although that seems to be anything but a commonly accepted appellation. This confusion of names ought not to be in respect to one of the prettiest and, perhaps, most widely cultivated of all the Primula species. Generally, it has been held to be a relative of intermedia or of ciliata, but why it should be classed with pubescens seems difficult to understand, as the leafage seems to be free from any downy character. I note in an old list nivalis (snowy), but with purple flowers, from Dahuria. The whiteness must in this instance, of course, refer to the foliage. Is there such a species? Also, there is P. nivea (snow white)

from Siberia, whilst the habitat of pubescens is given as South Europe. Perhaps someone will kindly put this matter straight.—A. D.

Primula obtusifolia.—This charming Primrose is of quite a different style of beauty to that of P. Reidi, and is also a striking addition to this already interesting family. The leaves are elliptic or oval, usually slightly mealy with crenated margins; the flowers, several in a bunch, are of a fine deep purple and about an inch in diameter. It is quite hardy, and may be grown readily wherever P. sikkimensis will do. It somewhat resembles forms of P. Stuarti, but may be readily distinguished by the thinner texture of the leaves and flowers. The varieties Roylei and Griffithi, differing in colour of flowers and shape of leaves, are not yet in cultivation. P. obtusifolia seeds freely, and if the seed be sown as soon as gathered it will germinate quickly. It is a native of Kumaon, Sikkim, East and West Himalayas, Bhotan, at elevations of 11,000 feet to 12,000 feet. It is a really desirable plant.—D.

Lathræa clandestina.—In reply to Mr. Lynch, in THE GARDEN, April 13 (p. 329), as to the supporting host of this charming parasite, it will only be necessary to draw his attention to the large established mass of this plant at Kew, and which he refers to in his note. At Kew it is growing on Willow roots, but it does not seem to be confined to the Willow, as the plant mentioned by Mr. Tallack is growing on the deciduous Cypress (see note in THE GARDEN, April 6, p. 317). It is a very beautiful species, and from my experience with it at Kew, it is easily established.—D. DEWAR.

—In reply to Mr. Irwin Lynch (p. 329), allow me to say that I have little doubt that the supporting host of the Lathræa here is the Cypress mentioned in my note, that being the only tree within several yards of the plant. As my knowledge of the genus is limited to the specimen I wrote of, I may be mistaken in this, and cannot investigate closely for fear of doing it an injury. But I have sufficient evidence to show that the host is a generous one. It will probably cover at least three times as much ground next year as it does now, for one of its long white underground growths, which looks like a much elongated and loosely built Gesnera bulb, has been traced a distance of 15 inches from the nearest growth above ground, and the surrounding soil, which is thoroughly saturated with water, appears to be full of such shoots.—J. C. TALLACK, *Livermere Park*.

Border Carnations.—The advantage of wintering a few spare plants of these Carnations in boxes in a cold frame was well seen this season. When taking off the rooted layers and making a new plantation, as we annually do in the early part of October, we pack closely together any spare plants in boxes. We find these immensely useful for filling up the gaps in the spring. This year there has been a good number, the slugs eating out the hearts of many of the plants as well as damaging the stems just under the surface of the soil. Especially is the old crimson Clove affected in this manner. Early in April we proceed to fill up any gaps so caused.—M.

Carnations and Picotees.—There is no reason whatever why the florist's Carnations or any other of the genus should be "dismal failures" in small gardens, and Mr. Rowan does well to champion the culture of this beautiful plant. Mr. Rowan is a skilful cultivator, and he it was who won the two first prizes at Oxford with flowers cut from plants grown in a small town garden. It all depends upon the culture; the plant will not thrive anywhere unless it is propagated annually from layers. Our garden here is near London, and much exposed to north and east winds, but we do not find any difficulty with the Carnations in the open borders. When the old plants have been left unlayered most of them are killed, while the young ones, either left where they have been rooted or planted out in beds or clumps in the borders, pass through the most severe frosts unscathed. Indeed, it is not so much the continuous severe frosts that damage the plants as alternate frosts and thaws,

which will even throw some of the weaker examples out of the ground. The hardiest and easiest to manage are the seedlings. The seeds ought to be sown early in April. They vegetate very quickly on a hotbed, and when the seedlings are large enough they are pricked out in boxes and afterwards planted in the open ground early in June. They will, in suitable soil, grow into plants large enough to produce a hundred or two hundred blooms on each. It has been stated over and over again that the Carnation, when well cultivated, is not only the hardiest of border plants, but will thrive within the impure atmosphere of large towns, as witness Mr. Rowan's plants at Clapham, Messrs. Veitch's at Chelsea, Mr. Barlow's, near Manchester, and the worst case of all, Mr. Simonite's at Sheffield. Good fibrous turfy loam is best for Carnations, but, as a rule, this material contains so many wireworms, that it is almost impossible to save the plants. A few may be trapped, but they work underground, and before they are observed the mischief is done. Rabbits are also passionately fond of Carnations, and unless the plants are well enclosed, they do much damage. The only trouble we have here is from sparrows. They start to eat the young growths as soon as the leaves are formed in the spring, and we have either to net the birds or stretch cotton thread over the plants. The thread usually scares them away.—JAS. DOUGLAS.

FLOWER GARDEN NOTES.

SEEDLINGS OF VARIOUS KINDS.—These are likely to suffer most if longer neglected, and these, therefore, shall have first attention. Shirley Poppies are very thick in the seed bed. A portion is to be planted permanently in groups in the mixed flower borders, but I do not know whether the plants will withstand the frost and keen winds that we are likely to get for another three weeks to come, and therefore the precaution will be taken to prick out a reserve lot of plants in cold frames. The same kinds of structures are also being prepared for the pricking out of Phlox Drummondii, Zinnias, Everlastings, Salpiglossis, and some of the best kinds of Asters and Stocks. The bulk of the two last named were intentionally sown thinly, to prevent it being necessary to transplant them other than to their flowering positions, and this will be done during the third week of this month. We shall hope about the same time to plant out Indian Pinks, Scabious, French and African Marigolds—in fact, all the kinds of annuals we grow. I have frequently alluded to the necessity of getting all hardy bedding plants out early, so that more time and thought might be given to the planting and arranging of tender kinds at the proper season; but this is not the only incentive to get the work done, a not less important one being that hardy plants grow most rapidly without the fierce sunshine that we get at the end of May, and therefore they ought to be planted sufficiently early to get a good hold of the soil, and in some instances to have covered their allotted space by that time. Shrubs, Pansies, Violas, Sedums, Herniarias, dwarf Veronicas, and Cerastiums ought by this time to have got a good hold of the soil. Calceolarias, Verbenas, herbaceous Lobelias, Leucophyton, Gnaphalium, Gold Feather Pyrethrum, and old stools of Dahlias should now be planted out. With respect to the last-named, I may remark that sometimes the position in which Dahlias are planted necessitates that they should either be of a naturally dwarf habit or be kept so, and the numerous growths that are thrown up by old stools readily lend themselves to this dwarfing process, which is done by pegging out the shoots, as growth progresses, in horizontal fashion to such a length as may be thought sufficient to ensure the desired height when the upright growth has been completed. I perhaps ought to say that I have only tested this dwarfing system with the single and Cactus sections of Dahlias, these being the only classes in favour here. The dwarfing of young plants of such single varieties as grow abnormally tall we practise by pinching out the points of the leading shoots from the time they are about 9 inches high till they have reached a height of 3 feet, and this brings them to about the

same height as the bulk of the single kinds. They flower a little later in consequence of the pinching, but that is a small matter and not worthy of consideration. The principal sowings of Mignonette and Sweet Peas ought to be made at once. A deep and firm soil is essential for the growth of first-class Mignonette. Sweet Peas best like a cool position, and are not fastidious as to soil so long as there is a good depth of it. Notwithstanding the free use of all the foregoing hardy plants for bedding, the tender bedders are still so numerous as to cause us some anxiety just now as to how all the plants are to be hardened off preparatory to planting them out. Seedling sub-tropicals, Castor-oils, Solanums, and Cannas must have the shelter of glass until almost the end of the month; as must also *Amaranthus*, *Iresine*, *Alternanthera*, *Heliotropes*, and all the latest propagated tender kinds; hence the pits and frames, now filled with *Geraniums*, *Marguerites*, *Ageratums*, variegated *Mesembryanthemums*, &c., must be cleared of their present occupants to make room for these. *Geraniums*, *Marguerites*, and plants of similar hardiness will do under the shelter of fruit tree walls or under the shelter of hedges and trees, provided tiffany covering is used in the case of frost. Hazel spray and Fir tree branches laid lightly over them are almost equal to tiffany.

PREPARATION OF THE BEDS.—For sub-tropicals the correct preparation is all-important. Free drainage, a good depth of rich soil, and loam of medium texture should form two-thirds of the whole, leaf-soil and well-rotted stable manure making up the remainder. Throw the soil well up above the turf, and the sun's rays will warm it the more effectually. For ordinary bedding this elaborate preparation of soil is not required, but if we except *Pelargoniums*, I know none others but that revel in free manurial dressings. I do not forget that many beds will for some time to come be occupied with spring flowers, and therefore these cannot be got ready. Our rule with these is to manure them well in the autumn before planting the bulbs, and as soon as the spring flowers are gone it is only necessary to dig deeply and they are ready for replanting.

SLIGHT PROTECTION FOR FLOWERS.—The frost has caught me napping on several occasions, but I am determined this time to save my favourite *Ranunculoids* from injury, and so have guarded them with a few light Spruce Fir branches till all danger from frost is past. The flower-buds of *Pæonies* are also liable to injury from frost; in fact, we have more than once lost all the buds of several plants owing to neglect of a very little protection. Laurel, Fir, Yew, or thick Birch spray is all the protection needed to save the flowers. Tulips and valued kinds of Iris and Lilies are also worthy of similar attention. W. W.

SHORT NOTES.—FLOWER.

White Rock Cress (*Arabis albidia*) varies considerably. A mass of a selected form in the Broxbourne nursery of Messrs. Paul and Son is worth a note. The flowers are much larger than usual and remarkably beautiful just now.

A showy Caltha is *C. palustris monstrosa plena*, which is now the brightest flower on the Broxbourne rockery. It is dwarfer, more free, and has larger flowers than the common double, and is also earlier. For the margin of a stream or boggy spots in the garden there are few finer things. It is a pity to exhibit such flowers as these; they never appear to advantage.

Pink and white Hyacinths.—A very fine bed of *Hyacinths* may be seen near the Cactus house at Kew. The outside ring is composed of the white variety *Grande Vainqueur*, and the centre of the bed is filled up with the brilliant rose-coloured *Robert Steiger*. Such a contrast is remarkably rich, and might well be copied.

Atragene sibirica.—This is a pretty, free-growing, and perfectly hardy member of a small genus allied to the *Clematis*, from which it differs in having small petals. The various kinds are found in both the Old and New Continents, and in the one under notice the flowers are of a distinct and pleasing lilac shade, but the colour varies. There

is a white form in cultivation under the name of *alba*. The type is considered the same as *alpina* and *austriaca*. Where there are large rockeries, a small part might well be given this *Atragene* to ramble over. A plant in a pot was flowering freely last week in the Broxbourne Nursery of Messrs. Paul & Son.

THE BEDFONT PRIMROSES.

THERE is no spring hardy flower more bright and showy than what is called the coloured Primrose, and there are few strains that can approach the splendour of Mr. Dean's, who, by a rigid course of trial, selection, and skilful culture, has raised a series of beautiful flowers in which both form and colour are as perfect as hybridising can make them. Though coloured Primroses are used largely in gardens, they might be planted more than they are in blocks, groups, and beds of one distinct colour, as in this way a richer, more striking result is obtained than if the colours are arranged indiscriminately. Two rows of a white Primrose were of unusual beauty, the plants one mass of bloom, and the flowers of bold handsome form. A very delicate Primrose variety is of a similar shade to that of our common Primrose of the woods, but the flower is larger, smoother, and of much better shape. It is difficult to convey in words the infinite variety of tints to be found in the Primroses of our gardens. We have no true scarlet, it is true, but there are closely allied colours, almost a true blue, and, of course, a rich series of shades of the prevailing hues, which are purple, red, rose, mauve. Some of the crimsons are intensely deep, and those flowers that are of a bright brick-red, which some call crushed strawberry, glow like fire in the sunlight. In the vast assortment of shades which we see in the coloured Primrose there are several that can be described as intolerable, as some of the tints of mauve in which a grey is infused, and a few of the reds that are mixed with a light brown. Nothing could shock a sensitive colourist more than such combinations, but there is no need to have these kinds when we have a storehouse of definite self colours of the richer and more beautiful types. One great point a critical observer will notice, and that is the well-defined eye. In a few instances it breaks into the body colour, and when it does so the result is not gratifying, but in the majority of the flowers it is very decided. Usually it is rich yellow, but a better contrast is produced when the colour is of a quieter, less staring pale lemon. There are some colours which are less apt to suffer from frost than others; the blackish crimson and purplish tints are quickly changed by cold. The *Polyanthus* is only a Primrose at one remove, but it is a distinct garden flower, exhibiting the same delightful shades of colour, having the same robust growth, and throwing strong stems which support numerous flowers of the finest form. White and orange are the richest and most striking, and the most curious the *Hose-in-hose*, old-fashioned garden favourites that we hope will never disappear, especially the singular *Jacks-in-the-green*. One named *Crimson Beauty* is deep crimson, with a bright yellow eye and very quaint in its collar of green leaves.

There is little more to add. Of course, only very few of the varieties are named, and this simply when there are striking departures, as in the *Primrose Blue Gem*. As the plants are grown solely for seed, the flowers are left untouched, and we can thus see the immense display made by healthy clumps. There are tufts in various stages of development. Some are mere seedlings; others, two, three or four years old; but all evidently relishing the stiff loamy soil of the Bedfont Nursery. Mr. Dean sows the seed in early autumn, plants out in the spring, and the plants have then a good period of growth before them. Both the Primrose and *Polyanthus* have a long season. The first lasts for about three months, and, indeed, when the weather is mild, blooms more or less the whole winter, while the flowers of the *Polyanthus* can be enjoyed for about eight weeks.

Francoa appendiculata.—This, having passed safely through the two last winters without any

protection in the open ground here, may be considered as thoroughly hardy. Last season it was in a rather sheltered position and scarcely lost a leaf throughout the winter, but this year, in a border swept by south-east winds, it has been cut to the ground level. I was afraid it was killed, but every plant is now making two or more growths which will come away strongly. The handsome foliage and strong spikes of rosy-pink flowers make it a decided acquisition for the hardy border. *F. ramosa* has not yet been tried, but I see no reason to doubt that it is just as hardy as the other, for it has not suffered in a cold frame. In the same border mentioned above, *Choisya ternata*, also without protection, has come through uninjured, while the golden form of *Euonymus japonicus*, standing almost side by side with it, has been killed to the ground. I am afraid, however, that biting winds will cut off the flowers of the *Choisya* when they are opening.—J. C. TALLACK, *Livermere*.

GARDEN FLORA.

PLATE 699.

DWARF WINDFLOWERS.

(WITH A COLOURED PLATE OF (1) ANEMONE RANUNCULOIDES AND (2) THALICTRUM ANEMONOIDES—SYN., ANEMONE THALICTROIDES.*)

It would be very difficult off-hand to name a genus amongst the hardy flowers of English gardens that gives us such a diversity in habit, height, colour of flowers, and time of flowering as do these charming Windflowers. They begin at Christmas with *A. blanda*, which is one of the hardiest, and produces its deep blue flowers heedless of the weather, followed in early spring by the *Hepaticas*, of which we have now a large assortment, *Pasque Flowers* in variety, &c., and at no time from then until the autumn frosts destroy the flowers of the Japan plant are we without abundance of *Anemone* flowers, both single and double, scarlet, blue, and white. A few of them, such as *A. sylvestris*, *pennsylvanica*, are very pretty when allowed to produce their seeds, which when bursting look like large fluffy woollen balls and last a considerable time. The diversity of habit from the tiny alpine vernal *Pasque Flowers* of the Alps to the giant *A. Fannini* of Africa, with its umbrella-like leaves and towering flower-stems, supplies us with a selection of beautiful plants suitable for all parts of the garden, the stronger and more robust species being fitted for the semi-wild portions—the mixed borders or flower beds; while the dwarfier and alpine species are best accommodated in the rock garden, where they can get plenty of water during the growing season. The two species represented in our coloured plate are both well-known garden plants, although we rarely see them in sufficient quantity to give us an idea of their beauty in their native home.

THE YELLOW WOOD ANEMONE, also known by the name of the Golden Windflower (*A. ranunculoides*), is an interesting and beautiful species and a near ally of our own Wood Anemone (*A. nemorosa*), to which it has a great resemblance, both in habit and general appearance. They grow together in various localities in Switzerland and elsewhere, and although not perhaps strictly alpine species, the former, at any rate, is found at home among the dwarf alps on the Col de Jamen. *A. sulphurea*, or *intermedia*, under which name it is best known in this country, is supposed to be a natural hybrid between the above two species, and this may not be unlikely if appearances go for anything. It is, however, highly speculative, and it

* Drawn FOR THE GARDEN in 1888 by H. G. Moon. No. 1 at Munstead; No. 2 at Messrs. Paul's, Broxbourne. Lithographed and printed by Guillaume Severeys.



YELLOW WOOD ANEMONE A RATTIN TULLOCH (ED.)
CAMEL W-FUE ANEMONE (THALLOTHUM ANEMONE) (LIES)

hardly follows that because a plant happens to be intermediate between two others that it must be considered a hybrid. *A. ranunculoides* has been very aptly compared to the *Apennine* or common Wood Anemone done in gold, but this, unfortunately, is the extent of the likeness, as in gardens it is neither so robust in growth nor so free flowering as either of the above species. As regards situation or position, *A. ranunculoides* does not appear at all fastidious, but we have never found it thrive so well on a clayey as it does on a light, sandy or chalky soil. We rarely, however, see this beautiful plant to advantage in English gardens, or even in well-established tufts or patches a yard or so in extent, or in sheets, as it is found in its native haunts. Our small, often miserable, tufts give but a faint idea of the pretty effect it produces in quantity. Associated with *A. apennina* or any of the dwarf blue-flowered species it produces a charming picture, and might with advantage be naturalised in semi-wild places, shrubberies, and other likely spots in company with *Hepaticas*, &c., where it would be left pretty much to itself. It might also be introduced among the common Wood Anemone, the Pasque Flower, and many other plants of similar habit. The variety *pallida*, or *citrina*, is a useful companion to the type, the flowers being paler, but larger, and, if anything, more numerous. It flowers from the latter end of March to May.

AMERICAN MEADOW RUE (*Thalictrum anemonoides*—syn., *Anemone thalictroides*).—This is one of those unfortunate plants about which botanists differ, and in consequence it has been badgered about from *Anemone* to *Thalictrum* no less than thirty times, and is still on the move. Referring to Sereno Watson's bibliographical index of "North American Botany," we find that fourteen botanists have placed it in the former genus, while sixteen have preferred the latter. Hofmann and Spach have each got out of the difficulty by inventing two new generic names, *Syndesmon* and *Anemonella*, but they have, fortunately, not been adopted. Bentham in the "Genera Plantarum" has retained the old Linnean name of *Anemone*, which we prefer following for the reasons there given, viz., its distinct involucre and numerous sepals. In *Anemone* proper the sepals run up to twenty, while in *Thalictrum* there are only four or five. The habit and general appearance of this charming little plant suggests the Windflower rather than the Meadow Rue, and we are told that in its native locality so nearly does it resemble *A. nemorosa* as they grow together, that none but a practised eye can detect the subject of our coloured illustration. In the American "Botanical Gazette" for 1875, Prof. Porter writes: "From the woods in the neighbourhood of Lancaster, Penn., I obtained a stock of this plant now growing in my garden, and whose flowers have nearly all the stamens converted into petals; they are very delicate and beautiful, and look like miniature white Roses tinged with pink." This tendency to double in a wild state has long been on record, and Peter Collinson in a letter to Bartram dated 1738 speaks of having received a double form of the Rue Anemone at that time. At home it flowers in spring at the same time as *A. nemorosa*, and is said to form one of the prettiest pictures of early wood scenery that we can well imagine. From its delicacy and low habit it is essentially a rockery plant, and always does best when under the kindly shelter of a large boulder or jutting portion of the rock, where, when pushing up its delicate Maiden-hair-like foliage, it escapes the east winds in spring. Like most American plants of this class, it prefers a partially shaded position in a deep, rich peaty soil, and plenty of moisture during the early spring months. Here it continues to increase, and is every year adding to the number of its flower-stems. The radical leaves are trifoliate on long stems, not unlike the *Adiantum*, and as they rise from the ground might readily be taken for *Isopyrum*. De Candolle describes it very tersely as having the habit and frondescence of *Isopyrum*, with the involucre of *Anemone* and the fruit of *Thalictrum*. The flowers, each about an inch in diameter, usually white, but sometimes tinged with purple or pink in both the single and

double forms, are produced in April singly on slender stalks. The latter form is the rarest of the two, though quite as hardy as the other and lasting much longer in bloom. *Anemone thalictroides* may easily be increased by division or seeds, the latter preferable, as it is not always advisable to interfere with established plants. Native of Canada, North Carolina, and the Western States.

D. K.

KITCHEN GARDEN.

VEGETABLE MARROWS.

THERE are very few establishments where these are not appreciated, and seeing that it sometimes happens that they are nearly the only green vegetable available during a very hot and dry summer, their popularity is not likely to decline. Amateurs ought especially to cultivate them, not only because they are so easily grown, but also because they will find their own productions far superior to the Vegetable Marrows sold in the markets or shops. The latter are invariably of great size, or past their best in point of quality; whereas they ought to be cut when quite small, or about the diameter of a good-sized Cucumber, and when cooked and served whole, that is to say, without the embryo seeds being removed, they are simply delicious. We cultivate three varieties, viz., the old Long White, Sutton's White Bush, and Muir's Pen-y-byd, the fruit of these when cut in a young state being of about equal merit, but if left till they are nearly or quite fully grown, Muir's distinct sort is decidedly the best in point of quality, and in any case is much the most productive. It is not the best, however, for either exhibition or market purposes, as it more resembles in shape a medium-sized round Melon than the ordinary Marrows.

Where Vegetable Marrows are to be grown should depend greatly upon circumstances. In the more favoured localities they not unfrequently succeed better in the open garden than on heaps of manure, the latter being more apt to cause a gross rather than fruitful growth, but in colder districts, and also where garden room is limited, it may be necessary or advisable to form hotbeds of manure or some kind of heating material for them. For an early supply, and such is considered indispensable in many gardens, a mild hotbed and the assistance of frames or handlights are needed. Supposing a hotbed has been formed early for propagating purposes; this might now be devoted to forwarding one or more Marrow plants, a hillock of soil being placed in the centre of every light, and one plant put out in each. Failing this, a hotbed from 2 feet to 3 feet in depth might be formed of a mixture of partially exhausted heated material, such as leaves and manure, or the latter alone, on this being set a frame or a few handlights. Any rather light loamy soil suits them, and if the plants are not already raised, two or three seeds may be sown in the centre of each heap and the seedlings eventually reduced to one in number. The lights, unless the heat in the beds is rather strong, may be kept close at first, and when the seedlings are up air should be given every day, according to the state of the weather. When the plants commence to run, more soil should be added so as to form a level surface, and by the time the frames are well filled with haulm, or say early in June, it will be safe to harden off and gradually remove the frames. More manure and any rubbish should also be banked around the heap, and the Marrows being allowed to ramble unrestricted will usually prove productive. When large frames are used, a few extra early fruit may be

obtained before these are taken off, but as a rule it will be necessary to fertilise the female flowers in much the same manner as Melons are treated. The flowers are expanded a short time only, and in bygone days when we needed extra early Marrows for exhibition purposes and grew the plants in large pots under glass, we had frequently to fertilise the flowers as early as 5 a.m., or otherwise they failed to set.

When the principal or only crop of Marrows has to be grown on heaps of manure or decaying rubbish, these may be formed in a sunny corner of a yard, frame ground, or other sheltered position. As before pointed out, a great mass of rich manure is not suitable for the purpose. A slight hotbed might with advantage be formed in order to give the plants a good start, these afterwards being surrounded by all kinds of decaying or decayed rubbish and soil. If this is made firm and kept moistened, it will serve to support the haulm as well as the roots, which quickly find their way into it. In some gardens a large square heap, consisting of a mixture of leaves, straw litter, road trimmings, grass from the mowing machine, and decaying rubbish generally, is made, and this, in addition to producing a great crop of Marrows, is gradually converted into a valuable mass of soil, than which there is nothing better for mulching fruit trees and bushes. If small narrow beds are formed, a single row of plants may be put out or raised about 3 feet apart, while if large heaps are formed, the mounds of soil for each single plant ought to be not less than 4 feet apart each way. In each and every case crowding is most harmful, and the fewer plants there are on heaps of rich soil and manure the greater certainty of their being profitable. If the seed is sown where the plants are to grow, and no temporary protection afforded, the second week in May is quite early enough to do this, the young seedlings, if raised earlier, being liable to injury by late frosts. It is a good plan to raise the plants now under glass in gentle heat singly in 4-inch or rather larger pots, hardening them off somewhat and planting out before they become badly root-bound. Then, if they are protected with either handlights, bell-glasses, inverted pots, hoops and mats, or even branches of Evergreens during cold nights, a strong early start will be made.

As before stated, Vegetable Marrows are frequently the most productive when grown in the open ground, and this method of culture also entails the least labour. A sunny position should be selected, and a space 4 feet wide and of any length be marked out. The top spit of soil should then be thrown out on each side and again returned on to the top of about 2 feet of partially exhausted or half-decayed farmyard or stable manure, this generating sufficient heat to either quickly germinate the seed or to give the plants a good start, and also well supporting the plants in the hottest and driest weather. In our case, very much less manure suffices, but we do not put out the plants till the second week in June, and cover all for a time with handlights. About 6 inches of the surface is thrown out and a liberal dressing of manure forked into and well mixed with the next foot of soil, that first thrown out being again returned to its former position. Thus treated the plants produced abundantly, without any trouble in the shape of watering, during the dry summer of 1887, and succeeded nearly as well during the wet season of 1888. Where this, or a somewhat similar, system of culture is adopted, one row of plants is ample for each bed, and if more than one bed is formed the rows ought at least to be 10 feet apart, the 6-foot spaces between each bed being utilised for

the production of early Potatoes, early Cauli-flowers, Lettuces, or other quick-growing crops. It should be added that if the ordinary garden soil is naturally stiff and not well pulverised, some fresh loamy compost should replace it where each plant is put out, or otherwise the start will be a poor one. Seed sown on these beds during the first week in June will usually germinate in a few days, while if pot plants are available, these should be put out in a sloping direction, this facilitating training. In dry weather the latter will need watering occasionally till well established. Unless the position is extra well sheltered, it will be necessary to peg down the leading shoots till the ground is well furnished, or otherwise the wind may do much harm.

The bush varieties, the best of which I have already named, form few or no running growths, and these may therefore be planted 3 feet apart each way. Those of a running habit are admirably adapted for rambling over arbours or any temporary framework, and are quite as ornamental and much more profitable than Pumpkins, which are often grown in these positions. Mix plenty of manure with the ordinary garden soil and the plants will grow rapidly and strongly. In each and every case, the more closely the Marrows are cut, the more productive the plants will be, the old fruits too often left on the plants soon impairing their usefulness. W. IGGULDEN.

TOMATOES IN THE OPEN AIR.

THERE is always a certain amount of risk attending the culture of Tomatoes in the open air in this country, and last year the crop was such an absolute failure that many may in consequence be deterred from planting them. But warm summers will come again, and the steady, plodding cultivator is sure sooner or later to get his reward. I have no sympathy with those who are afraid of failure. It does one good to have a failure sometimes. It leads to a reconsideration of the whole matter, and very often a reform in the practice grows out of it. If the ungenial weather of last season leads to more attention being given to the plants before they go out, a useful lesson will have been learnt. Very often the seeds are sown too late, and the plants are then drawn up weakly under Vines or Cucumbers instead of being kept near the glass in a moderate temperature where robust growth can be secured. Then, again, the plants should not be stunted and starved in small pots. It is true the stunted plants may produce an early bunch of small fruits, but they will do nothing beyond this for a long time, and if the season is ungenial this will constitute their only effort. For open-air culture I like to keep the plants to a single stem from the first, and by repotting when necessary and keeping the plants in a light position to have their stems as strong as possible. Tomatoes in a young state must not be over-watered; at the same time they must not be allowed to flag from lack of moisture. Towards the end of April move them to a cold pit, but cover up at night to keep out any sudden frost. On warm days after May sets in, draw the lights off and give the plants the benefit of full exposure to harden the foliage, and by the 20th of May they may be safely planted out in the sunniest spot available. A south wall or a wooden fence that has been tarred long enough for the tar to have got thoroughly dry are pretty safe cropping positions if the plants have been well prepared. I have seen good crops grown planted at the foot of a sloping border, and bound to stakes bent over about a foot from the ground. I do not advocate planting Tomatoes in poor soil, as there must be vigour in a plant that is to bear a full crop; but the soil should be made firm by treading it round the plants; in fact, the work of training and pinching will tend to consolidate the soil in which the plants are growing. As soon as a good lot of fruits are set, mulch with good

manure and give stimulants to swell them to a large size. The side growths should be removed when quite small; if this is not done, the object of their removal will be defeated. When managed rightly, a knife need never be used to prune Tomatoes. The number of varieties in cultivation is now immense, and among the Perfections, the Wonders, the Favourites, and the Prolifics it is difficult to say which are the best; but it may be safely said that most, if not all, are good if well grown; and for outdoor culture a good early selection of the old red will be sure to yield a crop. I grant that it lacks refinement, and to many its rough, corrugated skin is an objection; but it has a robustness of constitution that is sometimes lacking in the higher bred kinds, and for open-air culture this is an important consideration, and this vigour and hardness are plainly discernible from the moment the young seedlings emerge from the soil. I have made a selection of about a dozen of what I consider the best varieties, including one which I am taking on the raiser's word only, and I intend planting some of each variety both under glass and in the open air in a position where, if there is any sunshine, they will have the full benefit of it.

E. H.

KITCHEN GARDEN NOTES.

ASPARAGUS.

THIS is later than usual, our first dish not having been cut till April 23, but it is coming up strongly, and there is a possibility of its being as plentiful and good in quality as last year. Opinions vary as to the advisability of leaving the weakly growths uncut, those who advocate their preservation holding that the early-matured top growth favours a stronger root-action. We prefer to cut or pull everything while the season lasts, or say up to the middle of June, and subsequently to allow strong shoots only to develop. Strong top growths lay the foundation of fine-crowns or buds for next season, and the timely removal of all weakly shoots on well-established plants is one important detail in the cultivation of the finest and best Asparagus. The small shoots ought not to be wasted, as these are excellent for soups. Asparagus should be cut before the points or heads are much run out, and the greater the length of the blanched stems the better and more valuable they are. The simplest method of blanching consists merely in drawing the soil up in the form of a ridge, a depth of 4 inches or rather more being sufficient for all but the very strongest or most thinly-grown plants. For these, 6 inches of light soil is not too much, and the shoots should be cut or pulled soon after the points come through the surface. We prefer to trace the shoots down to near the roots and to twist them off, this being less injurious to the plants and saving the other growths. When the ordinary Asparagus knife is used, a jagged, bleeding wound is formed, and not unfrequently other quite young shoots are damaged. The sooner Asparagus is used after it is cut the more tender and succulent it proves, a few hours with the cut ends in water having a decided hardening effect—freshness being a strong point in favour of home-grown produce. In warm weather it will be necessary to go over all the beds every morning the shoots are collected. If duly sorted over and neatly bunched up according to their size, the shoots will keep well if set in damp Moss in a cold, dark shed until required for use. On no account should comparatively young plants be cut from, the untimely removal of shoots from these having a most weakening effect, and greatly impairing their usefulness in subsequent years. As a rule, all Asparagus ought to have two clear seasons' growth. In some few instances where three-year-old plants were put out these may have grown sufficiently strong to admit of a few dishes being cut from them, but more often than not these prove most disappointing and take longer time to recover and become established than do younger plants. Fresh plantations may yet be made, or failures in new beds be made good, care being taken to preserve as many roots as possible.

RUNNER BEANS.

The ground in most districts being in a very moist state, and the seed available being either old

or badly ripened, a blunder may easily be made in sowing too early, this, perhaps, resulting in the loss of most of the Beans. If the sowing is delayed to the first week in May in warm localities and a week later in colder districts, the chances are all the sound seed will germinate and a rapid growth of the plants follow. Runner Beans also transplant readily, and a sufficient number of plants for one early row can be raised thinly in boxes or else singly in $3\frac{1}{2}$ -inch pots under glass, very little heat sufficing to start the seed quickly. A deep and rich root-run ought always to be provided for these crops, or otherwise they are liable to collapse quickly in a hot and dry season. If the ground has not been recently trenched, trenches about 2 feet wide may be opened, a good dressing of solid manure being then forked into the bottom spit and about half of the soil thrown out returned to the surface of this, all being made fairly firm. The seed ought to be covered with some of the finest soil to a depth of about 2 inches. In addition to a moist and rich root-run, runner Beans also require very much more room than is generally allowed them. When sown or planted thickly they are weak and smother each other and an early failure inevitably results. Every plant ought from first to last to be comparatively clear of its neighbours, and the rows not less than 6 feet apart, a greater distance being given when extra long stakes are employed. Those who prefer the old plan of growing the Beans in double rows 9 inches to 12 inches apart—the stakes for each crossing each other near their tops, where they are duly braced together—ought to either plant 15 inches or thin out the seedlings to that distance apart; if a single row of plants is grown, the plants should be about 12 inches apart, one plant for each stake being ample. It is surprising to what a great height runner Beans will grow if the ground is well prepared for them. We have had them rambling and cropping heavily all over tall and thinly-branched standard Apple trees, and at Longford Castle stakes about 20 feet high are used, the Beans reaching the top of these and bearing heavily throughout their whole length. After the plants have been staked a liberal mulching of half-rotten manure may well be given, the soil remaining from the first spit thrown out of the trench being drawn up to and over the manure, and serving to prevent its drying and also forming a basin, thereby much simplifying the process of watering later on. If extra long-podded varieties are preferred, either Jubilee, Ne Plus Ultra, Girtford Giant, Mammoth, Scarlet or White Giant may be grown, while for ordinary purposes the Champion and the true old Scarlet Runner are the best. The last named is remarkably productive, the pods being small, straight, and good in quality.

The market growers' plan of growing these Beans without stakes answers well in the open fields, but only in very few instances does it find favour in private gardens. The most frequent cause of failure in the latter case is the neglect to keep the running growth frequently and closely nipped off, the consequence being a thicket of leafy growth and but few pods. In the open fields the soil as a rule is not so rich nor deep as in private gardens, and the snipping being closely attended to, extra fine spikes of bloom are pushed well above the foliage, the fields for a time presenting a most brilliant appearance and heavy and continuous crops resulting. It must be added, however, that the pods are not generally so clean as those obtained from staked rows, and in showery weather they have to be washed before they are marketed. Should this plan of growing runner Beans be adopted, the seed ought to be thinly sown in rows 3 feet apart, and the seedlings eventually thinned to a distance of about 12 inches apart. The point of the first running growth must be pinched out early, and all side shoots kept closely stopped. A mulching of straw litter serves to keep the ground moist and the pods fairly clean, and no pods should be left on the plants to mature seed; the better plan if seed is required is to only thin out the pods on one row, and leave the rest to grow and ripen seed. The old Scarlet, Painted Lady, and Champion are the varieties principally grown for the markets, the

last named being the most extensively sown, and the former the favourite with the buyers.

PREPARING CELERY TRENCHES.

During April and May there are frequently better opportunities for preparing Celery trenches than at any time afterwards. It is a decided advantage to have everything ready for the plants by the time these are fit to finally transplant, and it is the neglect of this precaution that frequently leads to their being spoiled. When the plants are left a few days too long in the beds into which they were pricked out they become leggy and move badly; whereas if put out while yet sturdy, they scarcely feel any ill effects from the shift. Then, again, the early formation of the trenches ensures the requisite pulverising of those soils needing it, and also admits of the ridges being utilised for the production of Lettuces, kidney Beans, or other quick-growing crops. Celery may well follow old Cabbage stumps, Brussels Sprouts, Broccoli, and similar crops, most of which are or may shortly be cleared from the ground. Where space is limited extra wide trenches are sometimes formed, these being about 5 feet wide and capable of holding four rows of plants. Rather more care in moulding up must be exercised than is necessary in the case of plants in narrow trenches, and the Celery is scarcely so fine, but these are the only drawbacks to the system. These wide trenches should be not less than 6 feet apart, as a considerable amount of soil is needed when the plants are moulded up, but, as before pointed out, they can be utilised for summer crops. Some cultivators favour the system of forming trenches 18 inches wide, these to hold two rows of Celery; but nearly as many plants can be grown in a single row with less trouble, and not unfrequently with advantage as regards quality. We usually form trenches two spades wide and 4 feet apart, and find we have none too much soil for the final mouldings. In each and every case it is not advisable to dig deep trenches; in fact, in cold low-lying positions, or where the soil is naturally heavy, the nearer the surface Celery is planted the better it will thrive and keep. We throw out about 6 inches of soil on either side, and level, fork into, and well mix a moderately heavy dressing of half-rotten manure with the subsoil of the trench, and face this over with about 2 inches of the surface soil. In very many instances the trenches are about half filled with strong manure, but this causes a rank growth, and Celery of much the best quality can be grown with a smaller quantity. In the case of stiff clayey soils the trenches ought to be cut 10 inches deep and filled with a mixture of short, partially decayed manure and light loamy soil. The Celery roots will take quickly to this, and a much better start be made than would be the case if only the ordinary soil is returned to the trench.

W. I.

Books.

THE TOMATO.*

So much having been written upon this now popular vegetable, one might assume that the subject was completely exhausted; but when that master of the art of growing and exhibiting vegetables, Mr. W. Iggulden, turns his attention to the production of an enlarged second edition of his popular little book, the mass of useful information which he has penned will not disappoint the reader. Of easy culture, and hitherto profitable, the Tomato has been largely taken up by the market grower, and the fruit being so universally esteemed, nearly every amateur who has a bit of glass or a warm nook in his garden tries his hand, and, seasons permitting, he is fairly successful. To the last-mentioned class of cultivators Mr. Iggulden's book will be invaluable; to growers for market and to private gardeners who have won their spurs it conveys a great deal of practical information, many useful hints and reminders; and last, but not least, it tells the goodwife how to dress the fruit in sixty different ways. After premising in his introductory

and historical chapters the decadence of physic, the author devotes fifty pages to the production of early crops, successional supplies, and main crops under glass; to culture in frames, to winter crops, to crops in the open air, concluding at p. 40 with advice to amateurs. The next nineteen pages are devoted to hints for market growers, invaluable to the young beginner, to culture for exhibition, an art in which Mr. Iggulden has been most successful, to remarks on varieties, diseases and insects. One might quote many passages acceptable to the most experienced growers, but considering that a book containing fifty pages on culture and thirty on cooking can be bought for 1s., it would be hardly fair to the author to pluck one line from it. It is written in a sound, practical style, the type is large and good, and it is bound in stiff cloth covers, rendering it at once a cheap little volume, which all sorts and conditions of cultivators may peruse with pleasure and profit. The author may be congratulated on having so successfully and exhaustively treated this subject, especially as it is one in which all grades of growers and consumers are deeply interested.

W. C.

TREES AND SHRUBS.

ORNAMENTAL PEARS.

WHILE the garden varieties of Pears that are cultivated for their fruit alone are very beautiful when in bloom, there are some species of *Pyrus* belonging to that section which includes the true Pears that are well worth planting, not for their fruit, but for their ornamental qualities alone. To this group belongs the Sand Pear (*Pyrus sinensis*), a very ornamental, but at the same time uncommon species, which, according to Loudon, was introduced into this country in 1820, but it is even now rarely met with unless in a botanic garden, or in the collection of some lover of our hardy trees and shrubs. It is of free growth, and forms a tree from 15 feet to 20 feet high, with a rather spreading head, somewhat thickly clothed with foliage. The leaves are large and heart-shaped, and when mature they are of a dark glossy green hue, and retained till late in the autumn; indeed, it is during mild winters almost sub-evergreen in character. The flowers are white, sometimes slightly tinged with pink, but they do not form the greater part of the spring display, this being furnished by the unfolding leaves, which as well as the young shoots are of a bronzy red colour. It is the earliest of all Pears to burst into leaf, and in that stage is very distinct from any of our other hardy low-growing trees. The fruit is large, but hard and gritty, and even when ripe is of no value. Another very distinct and ornamental-leaved species is the Willow-leaved Pear (*Pyrus salicifolia*), whose leaves are narrow and Willow-like, but their most prominent feature is the white woolly hairs with which they are thickly clothed, thus imparting a silvery grey hue to the entire foliage. This character is especially noticeable during bright sunshine or when associated with dark-foliaged trees. It is indeed one of the very best of greyish-leaved trees, of which we certainly have no great choice.

The Willow-leaved Pear is a native of the Caucasus and Siberia, so that it is perfectly hardy here. It forms a good sized tree, reaching, as it does, a height of 20 feet to 30 feet when fully developed. Another very ornamental kind is the snowy-leaved Pear (*P. nivalis*), which forms a free-growing, but somewhat pendulous-branched tree, with oval-shaped leaves of a silky whiteness beneath. It flowers freely, but the fruit is of little or no value. It is a native of the Alps and Austria, but does not attain the dimensions of the species immediately preceding. A distinct and bold-growing

kind is that known as the Bollwyller Pear (*P. Bollwylleriana*), which is easily distinguished at all seasons from any of the others by reason of the branches being upright, thick, and rigid, and few in number. The leaves are large, rough, ovate in shape, and somewhat woolly beneath, while the small yellow fruit is of no value for eating. It has been suggested that this is probably a hybrid between some form of Pear and Apple, which, indeed, may be the case, though I should be inclined to think otherwise. It comes from Bollwyller, on the Rhine, from whence its name is derived. A very handsome species is the variable-leaved Pear (*P. variolosa*), which is a native of Nepaul, where it assumes the dimensions of a good-sized tree, but in this country it is somewhat tender, being, however, only injured by unusually severe winters. The rather small shining leaves are retained on the plant till late in the season, many of them often nearly throughout the winter. The sturdy, spiny character of the branches, and the habit the plant has of pushing out straight thick shoots from various parts are two very distinctive features. The veins of the leaves and the young shoots are tinged with red. There is a peculiar variety of the common Pear, known as the Sanguinole Pear (*P. communis sanguinolenta*), which has rather small gritty fruit, the flesh of which is quite red, thus imparting to it a very singular appearance. The fruit is small, but of moderate quality. A second variety is the variegated fruited Pear, a very distinct form, for in some specimens the fruits are most beautifully marked with yellow and red, but they vary a good deal in their markings, some being far more attractive than others. The flowers are white and do not differ from those of some of the ordinary cultivated Pears.

T.

Street trees.—Street trees have not only to contend with an inhospitable climate from smoke and other noxious vapours in the air, but likewise often suffer immense damage to their roots by the presence of coal gas, which occasionally escapes from the pipes below ground in their immediate vicinity, and thus contaminates and poisons the soil and renders it unsuitable as food for the roots. This fact may be verified in more ways than one. I have often seen men employed on the streets forcing a crowbar in between the pavement stones to move them a little from their bed, then by applying a blazing torch to the orifice the presence of escaped gas from the street pipes could be detected at once. I have no hesitation in saying that the sudden death of many street trees has been brought about in a great measure by the presence of coal gas or other deleterious substance which had got mixed up with the soil at the formation of the street. On examining the roots of some of these trees I found some of them to be quite dead, others half rotten, and some in a sort of torpid state, all of which, I think, is pretty strong evidence that such trees often suffer more damage below than above ground. In order to prevent or mitigate this state of things as far as possible, the gas pipes along streets that are to be planted with trees should be laid in a culvert drain, and an iron grating fixed here and there on the surface along the line to afford ventilation and prevent the gas from forcing its way in all directions through the soil. If means are not taken to keep the soil pure we may plant trees in vain, for they cannot succeed, and instead of being an ornament, they are in many cases an eyesore.—J. B. W.

The Stone Pine (*Pinus Pinea*).—Though of little or no value as a timber tree, and by no means planted largely for ornament, the Stone Pine is, nevertheless, one of the most distinct of the extensive genus to which it belongs, and forms, especially when old, a highly picturesque specimen. It is a slow grower at all times, but especially so during its earlier stages, in which it is also liable to be injured by sharp frosts. Still, after a time a

* "The Tomato: its Culture and Uses." By W. Iggulden, Marston House Gardens, Frome.

severe winter has little or no effect upon it, so that it must not be passed over on the score of being tender. The Stone Pine is native of a considerable tract of country in Southern Europe, and is besides cultivated to a great extent in Italy, where it reaches a height of 80 feet to 100 feet. In this country it forms a low-growing tree, the trunk of which usually divides into several large branches at a little distance from the ground, the branches in their turn being thickly clothed with foliage, so that a well-balanced specimen forms a dense roundish head. This Pine makes a good lawn tree, as the thick mass of deep olive-green foliage renders it very distinct from any of the others, and its slow rate of growth is, where space is limited, not altogether a drawback. This Pine does best in deep, rather sandy and well-drained soil, as where the ground is heavy and wet the tree is far more liable to injury during severe winters. The very large cones of this species, with their edible seeds, also furnish another prominent feature of the Stone Pine.—T.

NEGLECTED TREES.

THE question may well be asked, Why is it that so little attention is paid in England to any but the commoner kinds of deciduous trees? Go where one will, throughout the length and breadth of the land coniferous trees are to be found in plenty, and to the almost total exclusion of the many handsome and distinct forms of hard-wooded varieties with which this country has of late years been enriched. Can it be that these distinct and desirable deciduous trees are not sufficiently well known, or that the rage for new and rare Conifers has almost ousted them from cultivation? The first can hardly be the case, for take by chance almost any nursery catalogue, and scores of these pretty varieties may be found, and at prices too that bring them within the reach of every cultivator. Judicious mixing of deciduous and evergreen trees is a point that has unfortunately been sadly neglected in the laying out of every ninety-nine out of a hundred of our private parks and grounds. The great amount of shelter afforded—particularly at the time it is most needed, winter—by evergreen trees has unquestionably a great deal to do with the free use of these, but that such could be brought about by a free admixture of ornamental deciduous trees I am quite convinced. In addition, the beauty imparted to a sylvan scene by a judicious mixing of Pines and hard-wooded trees, particularly when distinct and ornamental kinds of the latter are planted, should influence the doing away with of our present system of "all Evergreens," and substituting instead a common-sense and natural method of landscape adornment. What can be more desirable when suitably placed than any of the cut-leaved forms of our various forest trees, to wit, the Oak, Elm, Ash or Beech, and yet how seldom they are found outside the walls of botanic gardens or in the grounds of plant lovers. Young's Weeping Birch has such an ease and grace about it as to please even the most fastidious. Planted in front of a clump of the Swiss Stone or Austrian Pine, its great beauty is then well set forth, be this during summer or winter, when in full leafage or bare.

Take another example of a neglected tree in the Cut-leaved Oak, for there we have not one, but several admittedly handsome forms, such as *asplenifolia*, *filicifolia*, and *heterophylla*, trees that are ornaments to any wood or park, and that succeed just as well as does the typical species. The Imperial and Fern-leaved Alders are also decided acquisitions to our list of ornamental deciduous trees.

But leaving the ornamental-foliaged varieties of our forest trees and coming nearer home, we have the Bird Cherry (*Cerasus Padus*), a most distinct and pretty tall-growing shrub or small tree, but one that, unfortunately for the summer beauty of our woodlands, is sadly neglected, and in truth it is one of the brightest gems when laden with its myriads of deliciously-scented flowers with which a bit of wild woodland could be decorated. The Tulip Tree and Maiden-hair might (particularly the former) well be used with greater freedom than they are at present, for their big, bright, nicely-cut

leaves are extremely handsome, while the trees are of rapid growth, quite hardy, and easily accommodated as to soil and position.

Of the Beech we have a most interesting variety in that popularly termed the Fern-leaved, while the Camperdown Elm and Egyptian Poplar can ill be spared from our parks and grounds. The Manna Ash (*Fraxinus ornus*) I have already drawn attention to as a tree of unusual interest and beauty. Unless in the south of England, the Acacia is a rare tree, and what handsomer lawn or garden specimen could be desired. Visitors from the north are delighted when they see for the first time a well-developed tree of the False Acacia (*A. Pseudacacia*) in full bloom. But there are many

anywhere else, their peculiarity, whether of leaf or contour, is most strikingly revealed.

A. D. WEBSTER.

STOVE AND GREENHOUSE.

HIMALAYAN RHODODENDRONS.

EXCLUSIVE of the many hybrid Rhododendrons now in cultivation, the Himalayan species are nearly all desirable subjects for the greenhouse or conservatory, where at this season of the year their flowers make a gorgeous display. Some of them will survive the winter in diffe-



Rhododendron Keysi.

other first-class ornamental trees that I could name and that are much neglected, but already, perhaps, sufficient have been brought under notice to show that a world of wealth exists amongst deciduous trees, and that Conifers are not the only subjects necessary for the perfect adornment of estates, as has heretofore been the general opinion.

Along the margins of plantations, especially such as are visible from roads and drives, many of the above-mentioned trees might be used with advantage; indeed, there are few positions where they would be unsuitable or spoil the landscape. Associated with evergreen trees is, however, the most suitable place for these deciduous ornamental-foliaged subjects, for there, more so than perhaps

rent districts of England, but it is when treated as conservatory plants that they are seen to the greatest advantage. As a rule, the first of this class to open its blossoms is *R. argenteum* or *grande*, a species of quite tree-like habit with oblong-shaped leaves, each often more than a foot in length, and very silvery on the undersides. The flowers of this are borne in huge densely packed clusters, and when in the bud state they are of a deep pink tint, but after expansion they are almost white, with the exception of a crimson stain inside just at the bottom. This Rhododendron will in a greenhouse temperature frequently open its earliest blooms

before February, and the flowers last a long time in perfection. The equally large *R. arboreum* is also an early-flowering kind and one of the hardiest of the Himalayan class. In this species the colour of the flower varies from pale rose to deep scarlet crimson, and a specimen of this last-mentioned hue is remarkably showy when laden with its large globular trusses of bloom. A near ally of this last, or probably a variety of it, is *R. nilagiricum*, which has beautiful deep pink-coloured blossoms. Among the larger kinds mention must be made of the rather uncommon *R. Nuttalli*, the individual blooms of which are very massive, but instead of being arranged in a closely packed cluster they are usually disposed in a horizontal tier at the end of a branch. Their colour, a kind of creamy white, is not so showy as that of many of the others, yet the plant forms such a stately specimen, and the blooms are so massive, that it ought to find a place in the most select collections of Rhododendrons. These latter remarks will also apply with equal force to *R. Falconeri*,

The foliage of *R. barbatum*, however, is very distinct, not only from that of *R. fulgens*, but also from that of any other Rhododendron, the leaf-stalks being plentifully furnished with long, rigid dark-coloured hairs. *R. Thomsoni* is a rather more erect-growing specimen than either of the preceding, but it does not attain the dimensions of *R. barbatum*. In this the foliage is roundish, quite smooth above and glaucous beneath. *R. Hodgsoni*, rarely met with (and for which I have seen *R. argenteum* doing duty), bears flowers of a purplish rose colour. The species, however, with the whitest leaves is *R. niveum*, the young foliage of which is entirely covered with a dazzling white tomentum, but as the leaves get older it is confined to the undersides, where, however, it remains most conspicuous. It forms a free, much-branched bush, with very dense heads of purple blossoms, not remarkably showy, but conspicuous against the silvery foliage and quite distinct from those of the other Himalayan species. *R. Dalhousiae* produces beautiful primrose-coloured



Rhododendron campanulatum.

a species remarkable for its large and handsome foliage. The flowers of this are when first expanded of a greenish tint, but afterwards they become pure white, with the exception of a dark blotch in the throat. The largest flowers of all the Himalayan Rhododendrons are borne by *R. Aucklandi*. In this the individual blooms are saucer-shaped, sometimes as much as 6 inches in diameter and usually white, flushed with pink when fully expanded, but while opening tinged with green.

Among the most select sorts must be mentioned three very bright-flowered species, viz., *R. fulgens*, *R. barbatum*, and *R. Thomsoni*. Of these *R. fulgens* forms a much-branched, rather globular bush, that under favourable conditions produces its blooms in great profusion. The flowers, which are borne in rounded clusters, are of a bright blood-red colour, and almost as shining as if varnished. It is quite hardy in most parts of England, but it cannot be depended upon to flower as well in the open ground as it will under glass. *R. barbatum* forms a much larger specimen than the preceding, though the flowers are somewhat alike.

blossoms, but a well-furnished specimen is rarely met with, its style of growth being long and straggling. In its wild state it often occurs as an epiphyte. It has been employed with advantage for hybridising purposes, as by crossing with free, yet more compact growing species the massive flowers have been preserved and a better habit of growth obtained. *R. campanulatum*, the subject of the annexed engraving, has pale lilac flowers, sparsely dotted with purple or rose-coloured spots.

Most of the white-flowered Himalayan Rhododendrons have been dealt with quite recently (March 16) in THE GARDEN, and of these nothing need be said. They are met with far more frequently than those with coloured blossoms, and have all been largely used for hybridising purposes. Of those not mentioned in the aforesaid article may be noted *R. virgatum*, the blooms of which are in some cases almost white, and in others of a delicate rose tint. It forms a dense twiggy little shrub, very pretty, but by no means showy compared with its larger brethren. The same remarks will apply to *R.*

glaucum, with thimble-shaped, purplish pink blossoms, and remarkable for the glaucous hue which overspreads the foliage. *R. anthopogon*, with yellowish blossoms, and *R. lepidotum*, with flowers variable in colour, complete the list of these small alpine forms. *R. campylocarpum* is a sturdy growing bush, something in the way of *R. fulgens*, but with clusters of bell-shaped primrose-coloured blossoms. It is a very pretty and distinct kind, the arrangement of the flowers as they are borne on rather long stalks being very different from that of most of the others. The last to mention of these Himalayan Rhododendrons is a group composed of the species *R. cinnabarinum*, *R. Keysi*, and *R. blandfordiae*. The smallest flowers of this class are borne by *R. Keysi*, which is well shown in the accompanying woodcut, the peculiarly shaped blossoms being red and yellow in colour. It is a native of Bhotan, from whence it was introduced as long ago as 1851, but it is still a rare species, though very pretty and distinct. The best known, however, is *R. cinnabarinum*, which is hardy in most parts of England, though even then it frequently fails to bloom in a satisfactory manner. Its nodding tubular-shaped blooms are borne half a dozen or so together in a drooping cluster. They are usually more or less of a cinnabar-red tipped with orange, but in this respect there is a good deal of difference in individuals. In *R. Keysi* the colouring is much the same, but the blooms are smaller, while *R. blandfordiae* is more in the way of *R. cinnabarinum*. In favoured spots along the south and west of England and in the sister isle most of these Rhododendrons do well, but in a good many districts of England the young growths are very liable to injury from late spring frosts. When treated as conservatory plants, the most satisfactory way to grow them is to plant them out as in the temperate house at Kew. In preparing a bed for their reception, it should be thoroughly well drained. In planting the specimens their ultimate height and size should be borne in mind to prevent as far as possible the need for rearranging the plants after they have grown for a year or two. *R. Dalhousiae*, which is a shallow and by no means vigorous rooting subject, succeeds best if some broken charcoal and pieces of sandstone are mixed with the soil in which it is planted. The compost for Rhododendrons should consist of rough fibrous peat, with an admixture of sand, turfy loam, and leaf-mould. They will also do well in peat and sand alone, but whatever is used it must be such as will remain sweet and wholesome for a long time.

H. P.

Coloured-leaved Fuchsias.—There are a few Fuchsias whose principal beauty is in their bright-coloured foliage, some having the leaves variegated, while in others they are suffused with a yellow or reddish tint. Where Fuchsias are grown in quantity a few plants of this class afford a pleasing variety; while two or three of them form very handsome objects out of doors during the summer months. The first I will mention is the one most commonly met with, and if not the best of them all, it is certainly second to none. I allude to Sunray, a good, free-growing Fuchsia, with ample foliage, which when young is bright crimson, but in the mature state the leaves are green, with a deep edging of creamy-white. As the plant grows throughout the summer, leaves in the various stages of transition may always be found on the same plant. The brightest-coloured foliage is obtained when the plant is fully exposed to the rays of the sun. The flowers are dark, but not borne so freely as in the case of many other Fuchsias. Another variegated kind, totally different from the last, is *F. gracilis* variegata, whose small leaves have a clear edging of white, which under the influence of sunshine

becomes suffused with red. This is, except in its variegated foliage, a counterpart of the old *F. gracilis*, and it is just as free as the typical kind. In the greenhouse at Kew this variegated form is one of the prettiest roof plants to be seen there during the summer, the myriads of bright-coloured blossoms being very conspicuous against the variegated foliage. In *F. aucubaeifolia* the leaves are large and blotched with yellow, but it is far less ornamental than the preceding. For several years I grew another variegated-leaved variety, viz., *Rainbow*, something in the way of *Sanray*, but with more pointed foliage. The flowers of this had a double white corolla, and on that account it was much extolled in various lists; but its constitution was so delicate that I at last discarded it, and this variety might now, I think, be sought for almost in vain. In *Golden Fleece* the foliage is of a uniform golden-yellow hue; while in the case of *Meteor* the young leaves are suffused with crimson, which changes to yellow as the foliage is matured. *Rubens*, another yellow-leaved variety, is notable from bearing very double dark-coloured blossoms. The last to mention is *Crimson Bedder*, whose young leaves are bright red, but when mature they change to a kind of bronzy-crimson. Notwithstanding its name, this variety is most effective under glass in early spring when clothed with its young foliage.—H. P.

Anthurium ferrierense.—We have several hybrid *Anthuriums* now in cultivation, among them being the one which was obtained by the crossing of *A. Andreanum* and the white-spathed *A. ornatum*. It was raised by M. Bergman, gardener to Baron Rothschild at Ferrieres, and received a certificate from the Royal Horticultural Society in the spring of 1883. The foliage of this *Anthurium* is large and heart-shaped, while the spathe is of a bright crimson-carmine colour, very different from that of any of the forms of *A. Scherzerianum* now in bloom. One great merit possessed by this hybrid variety is that of maintaining a succession of spathes nearly throughout the year, though, as a rule, the finest spathes are borne during the spring months. It is by no means a difficult subject to cultivate, as, like all of its class, a compost principally consisting of fibrous peat and Sphagnum, combined with a warm moist atmosphere, just meets its requirements. It can be readily increased by division, for offsets are produced somewhat freely, and they can be generally taken off with a few roots attached to them. Even then the better way is, after potting, to keep them close for a week or two till recovered from the check of removal.—H. P.

Propagating Combretum purpureum.—In THE GARDEN (p. 366) "T. B." writes thus concerning the propagation of this beautiful stove climber: "Some growers find the plant difficult to strike, and under the best management cuttings do not root so readily as those of most things." My experience of the propagation of this *Combretum* is that it is quite an exceptional circumstance to strike a cutting, so that for all practical purposes this mode of increase can be ignored. The method usually followed in the case of the *Combretum* is to graft a growing shoot on to a portion of a root taken from an old plant. In a close case a union is soon effected and the plant grows away freely, while suckers, which are a nuisance in the case of many grafted subjects, are never produced when the plant is grafted on its own roots. The above remarks will in all particulars apply also to *Ipomæa Horsfalliæ*.—H. P.

Clematis indivisa.—Is it usual for this *Clematis* to live to an old age, or do the plants exhaust themselves if grown freely from the start at say ten years old? A singular occurrence in connection with this plant, which I am at a loss to explain properly, has taken place with me this year. In the conservatory here a plant was put out in a narrow border nine years since; it grew freely and flowered abundantly every year. Last year it did not make so much new growth as previously, and had rather a heavy attack of mildew, which resulted in the loss of most of its leaves. The mildew was much aggravated by the position of the ventilators, causing a draught, the plant being trained close to these. In

January of this year the branches were taken down so that the house could be painted. The plant was again fastened in its former position, and since then it has not made the slightest sign of growth, and to all appearance is quite dead. I thought in this case that perhaps its life was curtailed by the extreme vigour in its early stage having weakened the plant.—A.

WORK IN PLANT HOUSES.

STOVE.—**CYANOPHYLLUM MAGNIFICUM.**—This distinct plant when in good condition always makes an attractive object either in a small state or when it has attained sufficient size to admit of the leaves being fully developed. When well grown, the leaves on a specimen that is 6 feet or 8 feet in height will be about 3 feet long by 18 inches or 20 inches wide. It likes a high temperature, with plenty of light and moisture, but must be constantly shaded from the sun through the spring and summer. Plants that were struck from cuttings last summer and that are now in 8-inch or 10-inch pots will bear a large shift; 15-inch or 16-inch pots will not be too large to allow of the plants showing their true character. Either peat or loam will answer. In the former, the growth is usually a little quicker. A liberal quantity of rotten manure and some sand must be added, and when the roots have got fairly hold of the soil, manure water should be given regularly every week through the summer. Plants that after losing their bottom leaves have been headed down make the finest specimens, as the growth from strong stools produces much larger leaves at the base than cuttings are capable of. Specimens that were headed down in the winter will now have started; all the shoots should be removed except one. Most of the old soil ought to be shaken away and replaced with new. Give pots a size or two larger if required. Cuttings should now be struck; these, if grown on with enough pot room, will make handsome examples before the end of the year.

SPHÆROGYNE LATIFOLIA.—Though the leaves of this beautiful *Melastomad* are not so large as those of the *Cyanophyllum*, it is still one of the finest of all ornamental-leaved subjects. With plenty of heat, atmospheric moisture, and pot room, cuttings struck a year ago will make full-sized specimens during the present summer, attaining a height of 3 feet or 4 feet, which is the size at which they look best. Young plants, such as were propagated at the time named and now in 7-inch or 8-inch pots, will bear moving into others 13 inches or 14 inches in diameter. Use soil of a similar description to that recommended for the *Cyanophyllum*. Keep the plants near the glass in a well-lighted house; this is necessary to have the growth short-jointed and to give the leaves the requisite substance. Any specimens, the foliage of which has got shabby, should now be headed down to within 10 inches or 12 inches of the bottom. If they are afterwards kept in a warm stove they will break in a few weeks, and as soon as the young shoots are 6 inches or 8 inches long thin them out to one, choosing the strongest and that which is best placed. Then turn the plants out of the pots, shake most of the old soil away, and replace it with new. This *Sphærogyne*, like the *Cyanophyllum*, must always be kept shaded from the sun, as the texture of the leaves is not of a character that will admit of their being exposed to the solar rays.

GREENHOUSE.—**CORDYLIN INDIVISA** is one of the handsomest amongst the *Cordylines* and their near allies the *Dracenas*, but it is liable to get out of condition unless more than ordinary care is taken in watering it. The roots will not bear any excess of moisture. It likes plenty of pot-room, and does better when it can have a little more warmth in winter than that which an ordinary greenhouse affords. Plants that require more root-room should now have a shift. Good yellow loam with some sand added suits this *Cordylin*. When in full growth during the summer, liquid manure is of great assistance, and will make the leaves come much larger and finer. Shade is necessary in bright weather all through the growing season. In potting,

the roots should not be disturbed further than by removing the old drainage material. Make the soil quite solid, so that it will not hold any excess of moisture. Young examples of this *Cordylin* should never be allowed to remain under-potted so as to let their roots get unduly crowded, as when they are moved they are likely to feel the effects.

DRACÆNA AUSTRALIS.—Either in a small or a large state this is one of the most useful fine-leaved plants for the decoration of greenhouses, conservatories, rooms, halls, or any place where ornamental foliaged subjects are used along or in combination with flowering plants. It is a free grower, not in any way liable to get out of health, provided it gets fair treatment and the foliage is kept free from red spider, which if the atmosphere where it is placed is over-dry and the syringe is not used sufficiently, is sure to attack it. When water is thus applied regularly during the spring and summer, and ordinary care is taken to see that it reaches the underside of the leaves thoroughly, red spider will give little trouble. This species does not need nearly so much pot-room as the *Cordylin*, a 12-inch or 14-inch pot being large enough for a specimen 6 feet high. Turfy loam with some sand added is the best soil for the plant. Young plants that require more room should now be shifted; they may have pots two sizes larger than those they have occupied. In common with other plants of like character it requires the soil to be made moderately firm. It is not necessary to give the plants so light a position as some things want; nevertheless, they must not be kept where too much darkened, or the leaves will not acquire sufficient substance. When well cared for the foliage keeps its vitality for several years; a specimen that is 5 feet or 6 feet high will retain the bottom leaves so that they will hang over the pot. The plants lose much in appearance when they get bare at the bottom; when in this state the tops should be taken off and struck. If severed so as to have about 10 inches or 12 inches of stem, they will root readily if kept a little closer in moderate heat. They should be put in sand, using pots that are large enough to hold them. Plants that are raised in this manner are preferable to seedlings, as they are better furnished with full-sized leaves down to the base. After the tops are taken off the stools should be put in a little warmth where they will push several shoots. These can be taken off when they have made leaves 8 inches or 10 inches long, and struck in the same way as the tops. The stools will keep on pushing more shoots, so that a large stock can soon be raised.

CASSIA CORYMBOSA.—This plant, though usually grown in a pot and trained in the ordinary bush form, does much better if planted out in a bed or border and its branches trained on a wall or round a pillar. The bed or border does not require to be so large as necessary for things of a more vigorous nature. It will succeed in either peat or loam, but in the latter it usually flowers more freely. The present is the right time for planting out, but, as with all plants that are turned out in this manner, when the bed or border, as is usually the case, is at some distance from the glass, it is well to have good-sized examples to begin with, as small ones necessarily have their tops too far from the light to enable them to make the requisite progress after planting. A moderate amount of rotten manure should be mixed with the soil, and it must contain enough sand to keep it porous. Where pot culture is adopted the plants should now have a shift. Specimens that flowered last summer, and that had their branches shortened in the autumn or during the winter, should be turned out and have all the loose material got away that can be removed without injuring the roots, replacing it with new of a like description to that advised when the planting-out system of cultivation is followed. Cuttings may now be struck; these should consist of the young shoots, which ought to be taken off with a heel. Without this precaution they are liable to damp off. An ordinary stove temperature is sufficient to strike the cuttings in. When they are well rooted they should be moved into 3-inch or 4-inch pots and grown on in moderate warmth. Stop the shoots so far as necessary to furnish the plants

with enough branches. This requires to be attended to during the first summer, as this *Cassia* is naturally less inclined to make side shoots than many plants. A second shift will be necessary during the summer.

FRANCOAS.—Large specimens of these useful herbaceous plants may now be divided. Where large quantities of cut flowers are in demand for filling vases, baskets, and other things of a like description, it is well to grow a fair proportion of plants that produce flower-spikes of a tall elegant character, such as the *Francoas*, the flowers of which are amongst the best that can be used for mixing with *Roses*, *Carnations*, *Pæonies*, *Poppies*, and others of more formal shape. The plants will thrive in either peat or loam. They like liberal treatment; consequently, a moderate quantity of rotten manure with some leaf-mould and sand should be mixed with the peat or loam. Keep the plants a little close for a few weeks after they are divided; later on a cold pit will be the best place for them until they come into flower, when they will be found of service for standing amongst ordinary greenhouse subjects. Where seed has not already been sown, there should be no delay in getting it in, so as to allow time for the plants to gain the requisite size before autumn.

T. B.

DOUBLE THORNS IN POTS.

I WAS glad to see the note on these in *THE GARDEN*, April 13 (p. 347). For many years we grew them rather extensively in pots, and few plants are more amenable to forcing than the double or single *Thorns*. As to the latter, however, it is hardly safe to rely upon them at Christmas, though they may be had even then; but, like many other plants, they are more easily forced into bloom in January than December, and yet more easily in February and March than in January. For a good many years it was my pleasure and pride to have a good many in bloom at Easter, and this being a movable season, success was at times a little difficult. To have the *May* in bloom under glass from March to the end of May is exceedingly simple. It is only needful to pot up a few dozens or hundreds of standard plants of different varieties in 10-inch or 12-inch pots. A light loam suits them best, and grown in a cool orchard house or other such structure the first year the plants get well established in the pots. Another object is also gained—the natural season of the growth and maturity of the wood are forwarded by a month, six weeks, or more. If potted up early, the plants will bloom pretty freely the first season; but to have *Thorns* in pots in anything like perfection for a series of years, it is well not to rely on them for the first season, but rather pick most of the bloom off and allow them to grow freely alike at root and top and mature early. About the middle of June place them in a sunny spot out of doors, either plunging or mulching the pots and seeing that the plants are well watered throughout the season. Plants treated thus will be fit for forcing by the end of October, and may be had in bloom almost at any season from Christmas to May at the will or means of the cultivator. *Thorns* in pots are worth some preliminary care and trouble, and under careful treatment and good feeding they will yield an ever-increasing harvest of beauty for many years.

I have recommended standard plants as being on the whole the most artistic and useful for intermixing with other conservatory, window garden, or room plants, and almost perfect for stairs, halls, corridors, &c.; but *Thorns* are likewise very telling as pyramids or bushes. Then as to varieties, *Paul's scarlet*, the double pink and white, and, in fact, any or all of the doubles are effective and more durable and useful for cutting than the singles; but they lack the inimitable freshness and fulness of the true odour of the common *May*, so welcome in itself and so full of home memories and the indescribable charms of rural life in hedgerows, lanes, and country landscapes.

Forced or potted *Thorns* must not be transferred from glasshouses to the open until the end of May,

as being out of season and normal condition, they are also abnormally tender, and a late frost-snap on their unripened wood would not only destroy a season's bloom, but also cripple the plants for several seasons, perhaps for ever. Thorns in pots in good health and robust growth are among the freest of all plants from insects and disease. But once let frost-bites, neglect, or other causes severely check or weaken them, and they may become the prey of aphides and mildew. Fumigation with tobacco smoke and sulphur are specifics for these, but it is wiser to at once plant out weakly plants for a couple or more years in good soil to outgrow the weakness that exposes *Mays* in pots to the attacks of insects and diseases. To be able to do this and still have sufficient plants to meet all demands, a few dozens or scores of *May* should be held in reserve in the open for potting up few or many as required, to maintain the whole stock of plants for forcing or flowering under glass in the best possible and cleanest condition. Those who have not grown *Mays* in pots may rest assured that no other plants will yield a richer or more welcome harvest at Eastertide or earlier or later.

HORTUS.

ORCHIDS.

W. H. COWER.

THE BRUSH-LIPPED PHALÆNOPSIS.

THIS is a section of this beautiful genus which has not found so much favour with the majority of Orchid growers as the *grandiflora* class, and which I look upon as the *Phalænopsis* proper. It has frequently occurred to me that these plants, of which I here give a brief description, should be separated from those of the *grandiflora* section. Those described here resemble the others in habit of growth, but they may claim to be of stronger constitution. They flower freely, but as their flowers are smaller, they do not produce such a splendid display as do *P. grandiflora* and *P. Schilleriana* when in bloom, but yet they are extremely beautiful, whilst the colours are rich and in striking contrast to those of the large-flowered section. Like them, I believe all the kinds hitherto discovered are natives of the Indian Islands. They enjoy strong heat, a moist atmosphere, good light, but not strong sunshine; at least under cultivation they retain their leaves longer, and consequently make larger and more handsome specimens when so treated than when they are exposed to the full glare of the sun's rays.

The finest lot of these plants that I know of are, like those of the *grandiflora* section, to be found in Mr. Partington's collection at Heaton House, Cheshunt, where they are subjected to just the same treatment, and where some of them are always to be found in bloom.

P. SPECIOSA.—This is a kind from the Andaman Islands, which are situated in the Bay of Bengal, and in such a situation the plants are naturally subjected to a very moist atmosphere. It, like those of the large-flowered section, produces large, fleshy, two-ranked leaves, and seldom makes much stem. The leaves are about a foot long, the nerves plainly visible, and the colour light green. The flower-spike on small plants is, as a rule, short, and bears but a few blooms, but in the collection above-named the flower-spikes are considerably longer than the leaves, and bear a quantity of blooms, several of this species being in flower now in the middle of April. The flowers are each nearly 2½ inches across, thick and fleshy in texture; the sepals and petals soft rosy magenta, more or less streaked, the lateral sepals being the largest; lip three-lobed, the side lobes erect, small, and of an orange colour; front lobe rich purple, thick, and fleshy, and furnished on the upper part with a dense cushion-like brush of short, white, woolly filaments.

P. SPECIOSA IMPERATRIX.—This is a lovely variety now flowering in the Heaton House collection; it is similar to the above, but the whole flower is of a rich, uniform, magenta-purple.

P. SUMATRANA.—In all probability this is the plant which gave rise to the report of a scarlet-flowered *Phalænopsis* which was in existence some years ago. It is a native of the island of Sumatra, somewhere in the province of Palembang. It would appear to have been first discovered about fifty years ago, but it is first recorded as having flowered in Holland a little over thirty years ago. It first flowered in this country in the spring of 1865 in Mr. Day's collection at Tottenham, since which time I have seen it upon one or two occasions, but it remains a rare plant in a cultivated state. It is variable in colour. Mr. Day's plant had the highest coloured and the largest flowers which have hitherto come under my notice; sepals and petals spreading, the former slightly the broader, white, tinged with straw colour, and transversely barred with deep reddish brown; lip three-lobed, the side lobes erect, white, with just a stain of yellow towards the base; middle lobe narrow, white, and streaked with dotted lines similar in colour to the sepals, the front portion being furnished with a dense cluster of woolly hairs.

P. TETRASPIS.—This is similar in appearance to the preceding as far as habit of growth and shape of the flower are concerned. The finest form which I have ever seen of this plant had long drooping spikes of delicately fragrant blooms, which are pure ivory-white throughout, saving the side lobes, which in the centre are stained with rich yellow, the front portion densely tufted with woolly hairs. Native of the Andaman Islands.

P. CORNINGIANA.—This is a plant which I have never seen, and I should be thankful to receive a flower from any of my readers. It is said to be nearly allied to *P. sumatrana*, the sepals and petals being more or less transversely streaked with brownish purple, whilst the lip is rich violet-purple, and bears a tuft of hairs in the middle. It is named in honour of the owner of one of the largest American collections of these plants.

The above are the principal kinds of this set of plants, all of which have several varieties not enumerated here. There yet remains another set of these *Phalænopsis* which are destitute of the brush-like appendage to the lip, and which also do not possess any tendrils, as in the original species. These, however, I must leave until another time.

Vanda tricolor Dodgsoni.—From Mr. E. Meachen comes flowers of this superb variety for a name, but not having seen the plant I cannot decide for certain, but it certainly approaches the form known as *Dodgsoni* closer than any other that I know. The flowers are large, sepals and petals boldly streaked and blotched on a white or faint yellow ground, and bordered with violet. Lip large, the erect side lobes white, the anterior lobe purplish violet, with a few streaks of white at the base. I am glad to see an improved taste manifesting itself in the growth of various kinds of this genus. It was certainly a mistake to have ignored these plants for so long.—W. H. G.

Odontoglossum triumphans.—This species was first found by M. Linden, of Brussels, upwards of forty years ago, and certainly in his establishment about twenty years ago I saw some varieties of it which were the deepest and most intense in colour which, even at the present time, can be found. It is a strong grower and a free bloomer, and I would fain induce my readers to grow it more largely than they do. The necessity for this is the more strongly impressed upon my mind by some flowers recently sent by Mr. Fraser, gardener to Mr. White, Arddarroch, N.B. Amongst them is a variety of superior size and shape; indeed, the largest and best formed flower I have yet seen. The sepals and petals are even and spreading, measuring fully 4 inches across. They are somewhat ovate, plain on the edges, the lateral sepals slightly the larger, and measuring an inch across. The ground

colour of both sepals and petals is rich golden-yellow, the former broadly blotched with deep chestnut, the basal half of the latter heavily spotted with the same deep colour, above which is a large irregular spot of shining chestnut. Lip large, white at base, bordered in front with yellow, and bearing a large lunate blotch of chestnut.—W. H. G.

Odontoglossum roseum.—A small-growing species, but yet producing the brightest-coloured

siderable elevations, and revels in the coolest treatment.

ARRANGEMENT OF ORCHID HOUSES.

If there is one class of plants more than another that has become in a sense identified with those having small gardens, that one is formed by the Orchids. Until a few years ago the Orchid was

house such as that represented in the accompanying engraving, which was reproduced from a photograph sent by M. J. Desforbes, Charlton, Kent, and in such a structure as this there is space for many kinds. The arrangement of the Orchid house is frequently sadly wanting in taste. A pleasant mass of *Masdevallias* greets the eye, and hard by a group of white *Odontoglossums*. Such incongruous mixtures are intolerable and unnecessary, as by a little adjustment of the plants in flower both delicate and rich effects may be obtained. There is, of course, especially in comparatively small gardens, the greatest difficulty in making a show; and even in large places a "show house" of Orchids such as we find in some of the leading nurseries is a luxury not indulged in. In the photograph, *Dendrobium thyrsiflorum*, *Cattleya Mendeli*, and *Odontoglossums* are worked in together, and a rich display is the result, but where there is a larger house and a rich assortment of the different genera, a splendid display may be produced by anyone who has an eye to the true disposition of colour. There is always a tendency to place the plants in a mass, so as to be seen at once. This not only makes a lumpy effect, and sometimes simply a blaze of colour, but the plants when placed far from the light for any length of time frequently suffer, especially in the case of the smaller kinds, which are sometimes completely overshadowed by stronger-growing types. There is another serious mistake made, and that is the large number of plants hung from the roof. The evil is apparent, as the specimens underneath cannot receive the proper share of light, and they thus lose strength and initial vigour. A few flowering Orchids suspended in baskets or on blocks from the roof are exceptionally beautiful, as they give a graceful, tropical aspect to the house. Nothing could be more lovely than a mass of pendent racemes of *Dendrobium Devonianum*, *citrosimum*, *Pierardi*, *primulinum*, or *Phalænopsis amabilis* and *Schilleriana* when they are not huddled together so that their individual beauty is lost. It is the preponderance of one thing that spoils the effect, and in the case of roof plants keeps the light from things underneath. Some kinds of Orchids, especially those that are deciduous, have little except the colour or delicacy of the separate flowers to recommend them, and it is then that the arranger can seek the aid of Maiden-hair Ferns or *Asparagus tenuissimus* to act as a foil to the rich tints and shades of the Orchid blooms.



A well-arranged Orchid house.

flowers in the genus. The plant bears some resemblance to *Mesospinidium vulcanicum*, but the shape of the lip is quite distinct. Moreover, its colour is more brilliant and it blooms at a different season. We have noted it recently in several collections in the suburbs. The plant is a native of Peru at con-

served solely for the rich, but with an improved system of culture, a better notion of what to grow, and a greater assortment of species and varieties to select from, cultivators have increased from a mere handful to hundreds, if not thousands. In many a garden, for instance, we can find a

Orchis undulatifolia has many a time been recommended in the pages of THE GARDEN for outdoor culture in this country. Some well-grown specimens were exhibited lately at Westminster as pot plants, and well they looked, the stout stems and globose heads of pinky white mimic flowers being well thrown up and abundantly produced. I have found this pretty hardy Orchid to succeed well almost anywhere, but perhaps best where the soil is of a calcareous nature. The broad green, rather silvery green leaves, nicely undulated and occasionally spotted with deep purple (this only

is, I have noticed, in the finer forms), are pretty too, and set off to advantage the bright flower-heads. It is well worthy of culture. Other pretty Orchids shown were *O. papilionacea*, with almost terra-cotta-coloured flowers, and *O. longicornu*, which may best be described as a well-developed form of our native *O. Morio*, even the green-stained wings being very conspicuous. The two plants, *O. longicornu* and *O. papilionacea*, had got mixed up together in one pot—a method not worthy of commendation.—A. D. W.

Oncidium Marshallianum is exceptionally beautiful in the nursery of Messrs. Veitch and Sons. This superb Brazilian species is one of the finest of the large-petalled class, and bears dozens of the large brilliant yellow flowers in the strong branching panicles; the sepals are small, but the petals measure quite an inch long in the best varieties, and are marked conspicuously with blotches of brown along the centre, laid on a ground of rich yellow; the lip is very large and beautiful. Some of the specimens had magnificent spikes. *O. concolor*, which was also blooming, is another brilliant self yellow-coloured *Oncidium*.

Cattleyas at Chelsea.—There promises to be a fine show of Cattleyas in about three weeks' time in the Chelsea nursery of Messrs. Veitch, as the plants of *C. purpurata*, *Mendeli*, *Mossiae* are showing well. At present in bloom are a few exceptionally beautiful forms of *C. Schroederæ*, one of which was prettily tinted with delicate pink, the throat of the lip orange; *intermedia*, *Lawrenciæ*, *purpurata*, and *Mossiae*. One form of *intermedia* was conspicuously beautiful; the sepals and broad wavy petals were shaded with pink, the lip rich purple. A large specimen of *C. Skinneri* was remarkably handsome; there are few Orchids that can approach for showiness a well-grown plant of this noble Cattleya when in full bloom. One variety of *Lawrenciæ* named *concolor* had a very compact, neatly-shaped flower, in which the lip was shorter than usual. The flowers will open more quickly if we get such brilliant sun as favoured us at the end of last week.

SHORT NOTES.—ORCHIDS.

Odontoglossum nevadense.—This species, which we recently observed in flower, does not appear to become plentiful, although it is now twenty years ago since M. Linden received it. It appears to be a variable plant, and we should imagine it may yet startle us with some splendid forms.

Lælia anceps alba.—This is a variety with pure white flowers, saving a tinge of yellow in the lip, and was recently very chaste and beautiful in Mr. Tautz's collection at Shepherd's Bush. This, in common with the other white forms, we hope, when they become thoroughly established, will produce their flowers more freely than they have hitherto done.

Masdevallia Shuttleworthi.—A very large and brightly-coloured form of this gem we recently noted in Mr. Smee's garden. It was laden with flowers, and Mr. Cummings tells me the house in which it stands has frequently during the winter been as low as 48°—a clear proof that these plants love to be kept cool.

Dendrobium dixanthum.—This is an interesting Moulmein species, the stems terete in character, slender at the base, and about 12 inches or 16 inches long. The flowers are very bright and exhibit two shades of yellow, the richer tint appearing on the lip; while the freedom with which they are produced adds to the value of the plant. Messrs. Veitch and Sons have a good specimen of it in bloom.

Cymbidium Devonianum.—This is an uncommon and characteristic Indian species, named in compliment to the Duke of Devonshire. The radical peduncle produces a pendent raceme of flowers, the sepals and petals of which are of a pale greenish tint, overlaid with spots of crimson-purple; the lip is of the latter colour, spotted with very dark purple on each side. It is flowering now.

Cypripedium Calceolus and **C. pubescens** were lately shown in capital condition at Westminster. The former quite filled a 12-inch pan, had the brightest and healthiest of foliage, and bore twenty-two flowers. Never before have I seen a finer clump. *C. pubescens* was not one whit behind, the big Plantain-like

leaves in the rudest health, and the large, quaintly-shaped flowers of chocolate and gold being produced with the greatest freedom.—A. D. WEBSTER.

Phalænopsis Schilleriana.—To show how long the flowers of this Orchid will remain fresh with a little care, one noble panicle in the nursery of Messrs. Veitch and Sons has been in condition for about two months, and though showing signs of fading, is still fairly handsome.

Dendrobium lituiflorum.—This charming old Indian species is especially beautiful in Messrs. Veitch and Sons' nursery, a specimen in a hanging basket bearing four of the pendulous, slender, terete, and deciduous stems, which are smothered with the purplish flowers. Every amateur orchidist should have this easily-grown *Dendrobium*.

Dendrobium splendidissimum grandiflorum.—Flowers of this very fine Veitchian hybrid have been sent from Mr. G. Cypher, gardener to Mrs. Studd, of Bath. The flowers are large and spreading, the sepals and petals white at the base, tipped with rosy-purple; the lip, white or straw colour in front and tipped with purplish-rose, has a very large blotch of rich Indian purple on the disc. This superb variety is a cross between *D. heterocarpum* and *D. nobile*, and is undoubtedly the finest of the hybrids from these parents, its only fault being its long name.

Cattleya Schroederæ.—This plant was not well received upon its first introduction, but the more one becomes acquainted with it the higher it must be appreciated, if for nothing else than its delicious fragrance. It also flowers at such an advantageous time, namely, just as the *Trianae* section are passing away, and just before the flowers of *C. Mendeli*, except a few very early ones, have opened. We have recently noted some fine forms in Mr. Partington's collection, and also with Mr. Smee. In the latter establishment we observed a pure white form which is very elegant. This, we believe, is very rare.

Epidendrum bicornutum.—This plant grows strongly and flowers freely in the collection of Mr. Partington, Heaton House, Cheshunt. I recently saw it in bloom there hanging close to the glass in the East Indian house. Mr. Searing assured me that he grew it in this position all the year round, the only change for it being a diminution of the water supply and a decrease of temperature during winter. In the summer months the heat must be intense, as the plant hangs close to the glass, the aspect being due south. Its lovely ivory-white flowers, which last a long time in full beauty, are faintly dotted with crimson at the base of the lip. It ought to be seen more frequently in cultivation.—W. H. G.

Vanda Amesiana.—A grand lot of this beautiful plant is now to be seen in Messrs. Low's nursery at Clapton. I have also seen it flowering in several establishments recently, thus fairly establishing its claim to be a free grower and an abundant bloomer. Judging by the great quantity of spikes upon the plants in Messrs. Low's introduction, we yet have a treat in store when this new *Vanda* becomes established. I recently saw a specimen of this species which varied considerably from the figure of the first plant which flowered in this country, so that forms with a great variety in colour may yet appear. It is a plant which appears to thrive well with other *Aerides* and *Vandas*, but should not be kept in a temperature lower than about 60° during winter.—W. H. G.

Miltonia cuneata.—A very pretty and elegant species which, as it flowers during the spring months, is a desirable acquisition. It produces an erect raceme, bearing from four to eight flowers, each of which is between 3 inches and 4 inches across; the sepals and petals are rich deep brown, tipped with pale yellow; lip large, pure white, the fleshy ridges at the base tipped with brown. A very fine form of this plant was recently blooming in the collection at Studley House. The plant is a native of Brazil, and it thrives well at the cool end of the Cattleya house, so that in all probability it comes from a considerable altitude. I cannot accept the statement of "S. D." (p. 337), that plants "being natives of Brazil do not require much heat," because I

have found that some Brazilian species require a very strong heat.—W. H. G.

Phalænopsis Sanderiana.—Flowers of this charming Moth Orchid come from Mr. W. Cypher, gardener to Mrs. Studd, Bath. This form, however, does not please me so well as those having the sepals and petals deep mauve or rose; here they are white, more or less flushed with rose; lip white, with recurved tendrils on the extremity of the middle lobe, the side lobes at the base being tinged with pale yellow and faintly spotted with crimson. The fleshy callus on the disc is white spotted all over with bright brown and faintly tinged with yellow on the edge. Although this is not a deeply coloured variety, it is an exceedingly chaste and beautiful form. It comes from the Eastern Islands.—W. H. G.

Arpophyllum giganteum.—Individually the flowers of this plant are very small and deep rosy-purple, but when seen in the mass they are thickly clustered round the spike, which is usually from 9 inches to 1 foot high. They are very beautiful, and the density of the erect spike has suggested the name of Fox-brush for this plant. It is a native of the cool regions in Mexico, and usually refuses to flower when grown in heat. The genus is remarkable, as one of the species is said to grow upon the branches of the Mexican Alder at an elevation at which the Oak refuses to thrive. This species (*A. alpinum*) I have never seen. *A. giganteum* is now flowering in one of the cool houses in Mr. Smee's garden.—G.

Maxillaria Sanderiana.—A grand flower of this comes from Mr. Cowley, gardener to Mr. F. Tautz, Studley House, Shepherd's Bush, and is the largest bloom of this species I have seen. The sepals are spreading, upwards of 5 inches across, and close upon 1½ inches wide, thick and fleshy in texture, and pure white, the basal portion heavily stained with deep vinous red; petals large, white, the basal part stained with the deep claret colour of the sepals. In the upper portion this deep colour is confined to numerous spots, which, however, leave the tips quite clear. The large lip outside is deep blackish purple; inside it is dull yellow throughout, prettily lobed and frilled on the edge. This appears to me like a form of superior size to the one figured in THE GARDEN, July 23, 1887, otherwise the markings are very similar to those of that plant. It certainly is the finest of its race yet introduced to cultivation, and deserves a place in every collection of Orchids.—W. H. G.

Epidendrum Stamfordianum.—This beautiful species belongs to the *Psilanthemum* section of the genus, in which the flowers are produced from the base instead of the top of the pseudo-bulb, and it is the only species of this section known to me in cultivation. It is a native of Guatemala in the low country. The plant loves the shade and requires to be kept very moist all the year round, the heat of the Cattleya house suiting it best. It has been a long time in cultivation, but is very seldom seen, so that a plant in flower in Mr. Partington's collection was a pleasing surprise. It produces a branched, dense-flowered raceme of bloom, the flowers being delicately scented, sepals and petals yellow, spotted and freckled with green, and the lip deep red, with side lobes white and the middle lobe yellow, bearing a rich violet spot at its base. This form of the plant is exceedingly pretty, and deserves more attention at the hands of growers than is usually accorded it.—W. H. G.

Dendrobiums at Chelsea.—The nursery of Messrs. Veitch and Sons, Chelsea, contains several species and varieties of *Dendrobium* now in full bloom. The beautiful *D. Wardianum* was flowering well, and there was a splendid piece of *Devonianum*, one of the loveliest of its genus, especially as in the form at Chelsea the flowers are brightly coloured. The golden-yellow *chrysotoxum*, *suavisimum*, the laced-lip *Brymerianum*, and the large-flowered *Jamesianum* were in full beauty. There are few finer Orchids than *thyrsoiflorum*, the plants carrying several of the heavy racemes of richly coloured blooms. A pretty and delicate variety is *Farmeri album*, called also *albiflorum*, the sepals and petals white, lip orange. *D. albo-sanguineum*

and *Falconeri giganteum* are two handsome *Dendrobium*. The last-mentioned is a very fine form of a noble species. The flowers are larger than those of the type. *D. Pierardi* was, of course, in full beauty, and we have few more delicately beautiful Orchids.

Dendrobium crassinode Wardianum.—I have been much interested in reading the notes on the above in your columns. The name *Waltoni* is quite new to me. I have a plant growing here which I believe is a natural hybrid between *Wardianum* and *crassinode*. I bought it in the spring of 1881 along with some newly imported *Wardianum* just arrived from Burmah. When it flowered it was at once noticed as distinct both in flower and growth. Flowers of it were sent to Professor Reichenbach, who described it as a natural hybrid with most likely the above-mentioned parentage and sent the name as "*Melanophthalmum*." The plant in appearance is exactly intermediate between *crassinode* and *Wardianum*, the nodes on the growth not being quite so much raised as in *crassinode* nor so thickly placed together. The flower is like that of *crassinode* with two maroon blotches smaller than in *Wardianum*. The sepals in a mature flower are bolder and not curled to the same extent as in *crassinode*. The above plant coming from Burmah clearly proves it not to be the Assam variety of *Wardianum*, as has been surmised.—G. H.

HARDY PRIMROSES.*

THE Primrose thrives best in its native habitat when surrounded by shade and solitude, whilst it seems to be unsuitable for the active and incompatible surroundings of a garden. The common hardy Primrose is not limited to Britain. It is an European plant, and almost invariably in its wild state produces sulphur-coloured flowers, somewhat loose and irregular in form, and far from being individually attractive. In rare cases the Primrose has been found carrying white flowers or of a reddish tinge, but so rarely as to indicate nothing except that the plant may sometimes sport, whilst it is most remarkable for its consistency of character in flower-production. It is stated that occasionally double flowers have been found in wild Primroses, but that assertion needs proof. At the most it shows that one plant out of millions may now and then produce flowers having more than the ordinary number of petals. It is not at all needful here to particularise the diverse features of the Primrose as distinct from those of the Polyanthus. Primroses bloom earlier invariably, chiefly perhaps because the flowers being borne on single stems are more quickly developed than are those on umbels, as the Polyanthus flowers are, and thus we find in the earlier blooming and the method of producing its flowers the chief characteristics which divide the Primrose from the Polyanthus.

PRIMROSE DEVELOPMENT.—It would be very interesting to trace, were it possible so to do, the gradual process of development under the florist's care of the wild form to its present beautiful condition. It is difficult to understand how far here in Britain assistance in this course of development has been afforded. Certain it is that so recently as some twenty years ago really rich coloured single Primroses were anything but abundant in gardens; hence it would seem as if the florists of the Continent had been the chief workers in the Primrose field. I make this assertion because of the probable fact that to the industry of the German or Flemish florists do we owe most of the pretty double forms of the Primrose which we possess. That in the production of these interesting varieties very large numbers of beautiful single Primroses have been raised there can be no doubt, and to those chiefly do I attribute the existence of the fine varieties or strains now enjoyed by us, and which probably transcend in variety of colouring, in size of bloom, and in robustness of plant all that the Continental florists have ever produced.

STARTING NEW STRAINS.—I date my first asso-

ciation with the single Primrose chiefly to meeting unexpectedly in a private garden near Southampton, some twenty years ago, with several clumps of a beautiful single crimson variety, which later became widely known and was certificated under the name of *P. vulgaris auriculæflora*. This form, though never robust, yet flowered freely; the flowers were of excellent outline, and, most important for future work, all had prominent thrums or anthers. Very soon after that I became possessed also of a more robust form, known then, and for some time later, as *P. altaica*, although that was an incorrect description, as it was but a strong-growing, mauve-hued form of *P. vulgaris*. This variety, happily, had pin-eyed flowers, that is, the style was prominent in the throat, and hence gave special facilities for hybridisation or rather intercrossing with the flowers of *auriculæflora*. From these two charming forms sprang all the race of hardy Primroses now grown at Bedford, and the process of development, though slow, has been sure, for never were there seen finer flowers, more varied hues, nor stouter growth than the present season's flowering plants show. The blue-flowered kind lately certificated by the Royal Horticultural Society is the outcome of nearly twenty years' development from the mauve tint of its now almost ancient seed parent.

WILD PRIMROSES.—It is worthy of note that the wild Primrose invariably seems to thrive well only in shade, and I may also add in solitude. On the other hand, provided the soil be deep and cool, I find the coloured strain of Primrose to thrive well in the full sunshine; indeed, if the particular variety which has been introduced to notoriety as a political emblem is modest, retiring, and unassuming in character, the richly coloured garden Primrose, happily not thus made notorious, is equally happy in an abundance of light as it is in shady retirement. The conversion of the wild Primrose into a party flower is in danger of leading to its gradual extinction, a matter which all true lovers of Nature must deplore. This seems to be all the more inevitable because it is found that, in spite of its hardiness, *Primula vulgaris* seems to be after all more dependent upon seed-production for its existence than in any other way; and whilst its surroundings are generally inimical to seed-distribution and proper germination, the gathering of myriads of flowers just at the time when efficient fertilisation may be expected must also have disastrous results. Transplanted into gardens the common Primrose seldom thrives, but so much the more does it seem desirable that we should as lovers of this charming flower encourage the garden cultivation of those forms, which because so robust, so beautifully coloured, and so easily reproduced by seed, all the more merit our warmest appreciation.

DOUBLE VARIETIES.—Reverting again to the double-flowered forms, I would, as indicative of their Continental origin, draw attention to the fact that they are invariably termed *Primula acaulis*. This appellation has given rise in some quarters to the belief that double Primroses are of a diverse species to that of the *Primula vulgaris*. *Acaulis* is, however, but the German equivalent for *vulgaris*; hence it seems fair to conclude that the close adhesion of the term *acaulis* to the double forms implies their Continental origin. In all my experience, ranging over twenty years, of many thousands of seedling Primroses, I have never yet met with a double or one tending towards doubleness. Now in the production of doubleness it is well known that the change is created by the conversion of the anthers of the flowers into petals, and where such process of conversion is complete, of course fertilisation is destroyed. Now I have rarely saved seed from other than thrum-eyed flowers for my own sowing since making the cross referred to. Thrum-eyed flowers have the anthers prominent in the eye, and from this form alone do double flowers develop; hence it may well be assumed that if doubling in Primroses was a British feature I should have had some experience of it. I have found double forms to revert to singles, having had both the white and the lilac in that condition, but never to become double again. I have always held that the beauti-

ful single crimson form, already referred to as *auriculæflora*, was the single form, or really a reversion from the most beautiful of all the doubles, the deep rich crimson. This latter variety we have heard associated with the name of Mme. de Pompadour. Can it be that it was the contemporary of that famous French royal favourite, and was so named by one of the old French florists? How interesting would it be to learn all that could be gleaned as to the origin and history of these pleasing flowers.

VARIETIES.—Double Primroses now comprise white, blush, lilac, early sulphur, giant yellow, or Cloth of Gold; rose, really salmon-coloured; Croussei, slaty blue; platypetala plena, or Arthur Dumoulin, purplish violet; Scotch red, rather small, claret hue; crimson-purple, very free-blooming, sometimes comes in clusters; old purple, deep violet hue, with rather long, narrow leafage; old velvet crimson, or Pompadour. This list comprises twelve kinds, all distinct. The blush, somewhat rare, is a tinted form, a sport from the white. The early sulphur is one of the hardiest and earliest to bloom, whilst the giant yellow is one of the latest. It is offered under other appellations, but I have never found any to be other than the old giant yellow, more or less well cultivated. All double-flowered Primroses are, of course, more fertile, and are dependent for existence and perpetuity upon division and very careful culture. Here in the south it is only possible to grow during the summer many of the choicer varieties in cold frames and in pots. They suffer far more from hot dry air, promoting thrips and spider, than from the coldest of our winter weather.

ANCESTRY OF DOUBLES.—Loudon in his "Encyclopædia of Plants," 1829, gives eight varieties of doubles as of British origin, but no proof is shown, and in the "Encyclopædia of Gardening," 1834, he gives the following varieties as in cultivation: white, dingy lilac, yellow, carmine, crimson, and dark crimson. Much more valuable is the evidence of the early existence of double Primroses on the Continent, found in "Dodden's Herball," translated into English 1578, more than 300 years ago, wherein the writer refers to the "duble kinds which are planted in gardens. These herbs do flower in Aprill, and sometimes in March and February." A more recent note yet, 130 years old, is that of Philip Miller's, made in the "Gardening Dictionary" of 1759. He says, "There are several varieties of the Primrose which have been accidentally obtained, as the paper-white, with single and double flowers; the common Primrose, with double flowers; and the red Primrose, with single and double flowers; these have but one flower on a foot-stalk." That quotation shows that double Primroses were few indeed in Miller's day in this country. I would here remark that the two more recently introduced doubles, Arthur Dumoulin and Croussei, are both of undoubted Continental origin.

SINGLE PRIMROSES.—A few years ago we found it desirable to propagate by division and offer under name certain single Primroses. Then high-class quality, rich colours, fine flowers, and strong robust habit were much scarcer than is now the case. But the very lack of robustness rendered the preservation of named and divided varieties all the more difficult. Propagation of such things may be easy enough under cold moist skies, but during hot dry summers the preservation of such plants is very difficult, whilst even when preserved the growth made seldom repays for the care taken in cultivation. But constant selection through seed-saving has done wonders in the production of quality allied to size of flower and robust habit of plant, so that whilst seed will reproduce all the best features of a strain the result must ever be more satisfactory to the grower. But we have found that whilst propagated Primroses root sparsely, seedlings do so in suitable soil with exceeding freedom, the rootlets going deep and wide; hence the plants are so much the more capable of withstanding drought when summers are hot and dry. Primroses, again, are rather impatient of removal when they have become well established. My own practice, so far as permanent breadths are con-

* A paper read before the Chiswick Gardeners' Mutual Improvement Association by A. Dean.

cerned, is to sow seed in shallow pans or boxes, or even better, if space can be found, in cold frames looking north, as soon as possible after the seed has been well ripened. I find that then the germinative capacity of the seed is greatest, and that growth comes freely in about three weeks. If immediate attention can be given to the matter, the seedlings are ready to dibble out into the open ground early in October, and if fairly strong soon get good hold of the ground. When, however, the plants seem to be too small, they are dibbled up thickly into frames for the winter, and are then transplanted to the open ground at the end of March. The young roots will at that time be found to be some 5 inches to 6 inches in length, and the plants, if carefully lifted, sorted, and dibbled out in rows 12 inches apart, will thrive wonderfully, suffer little or nothing during a hot summer, and beginning to bloom freely in the following autumn, will make remarkably fine plants by the ensuing spring. The second and third years also they will bloom profusely, but as the raising of seedlings is both easy and very interesting, and the increase of variety and beauty of the flowers is inevitable by constant raising from seed, it is obvious that old plants must in time be destroyed to make room for their more active and improved successors. Seed of the hardy Primrose is not easily collected, the pods naturally and shyly gather down close under the leafage, as if anxious to escape attention, and very close observation is needed during the month of June to ensure the proper saving of the crop. As under ordinary conditions the seeds would be well matured at midsummer, it is evident that sowing should not be deferred later than the month of July.

COLOURS OF SINGLE PRIMROSES.—It is rather odd that whilst we have so many hues of colour in the flowers of the single Primrose, yet that the one creating least enthusiasm is the sulphur or wild Primrose tint. "Oh!" say critics, "that is like the common Primrose," in the most deprecating way, and yet the world is supposed to be lacking sense of appreciation for floral beauty if not prepared to praise enthusiastically the colour of the wild Primrose. However, as I rather share the above opinion in reference to the sulphur-hued form, I do not complain. Now it is another rather odd fact that so far we have not yet found a true yellow in the single Primrose; very likely you will hear it said, "Oh! I have some," but, depend upon it, further inquiry will show that the yellows in question are of the fancy Polyanthus strain, in which, oddly enough, rich golden and orange-yellows are plentiful. Some people call everything, whether the flowers be produced, as those of the true Primrose are, singly on stems, or whether in clusters on umbels, Primroses; but there is a marked distinction, especially if care be taken to preserve that distinction. Thus the true Primrose strain blooms fully a month earlier than do the fancy Polyanthus, and almost every plant adheres to the form of the strain. The same may be said of the Polyanthus, the plants blooming later, and if many of the earlier flowers resemble those of Primroses, all the main later bloom is produced on umbels; hence, the distinctions in the respective forms are to florists clear enough. Now pure white is a prevalent hue in the single Primrose, and fine flowers of good form are freely produced. Then come sulphur, lilac, deep mauve, blue, and light and deep purple, or violet; also pink, rose, red, claret, and crimson. Then there are many variegated flowers; indeed, of these it would be impossible to describe or classify them. They all have as grounds the colours above named more or less, and, it need not be said, are wondrously beautiful. Given ample space, such as a nursery or market garden affords, where the respective colours could be duly isolated, I have no doubt whatever but that single Primroses may be induced to breed pretty true strains from seed. That may be an advantage in some cases, especially for bedding purposes; but the saving seed from plants grown indiscriminately leads to the production of wondrous variety in colour and in markings. For ordinary bedding purposes, however, there can be no doubt but that such striking colours as white, sulphur,

blue, purple, red, and crimson would be found very popular. After my own experience of the wondrous beauty found in hardy Primroses, I can no more conceive of a garden without them than I can of one without Roses or many other of our popular summer flowers.

PROPAGATING.

TEMPERATURE OF THE PROPAGATING HOUSE.—Now that the sun is more powerful, very little surface heat will be required in the propagating house; therefore the heat should be turned off early in the morning before the house becomes too warm. I always try to avoid a rapid rise of temperature. It is much better to shut the heat off a little too early than to have too much after the sun is well on the house. I believe it is an essential point to keep the surface temperature somewhat below that of the bed where the cutting pots are plunged, especially for spring propagating. Most subjects are impatient to start into growth, and are liable to draw the sap away from the base of the cuttings unless the under surface is warmer than the atmosphere of the house. Too much importance cannot be attached to the regulation of temperature. I always avoid giving any set temperature either for surface or bottom-heat, for the reason that it is almost impossible to keep up a stated heat, especially when we consider that the temperature of our changeable climate will sometimes vary as much as 30° Fahr. one day to another. I noticed this difference once during the past winter. One morning at 7 o'clock the thermometer stood at 15° Fahr., and the following day at the same time it was up to 45°. It would require excellent management to regulate the temperature by artificial means when we are subject to these sudden changes. At the same time with ordinary care the inside temperature may be regulated sufficiently to avoid any harm being done. Sudden changes or either extreme should be avoided. If, for instance, the temperature has by accident risen too high, the house should not be thrown open all at once or any cold draught suddenly admitted, but the heat should be reduced as gradually as possible. Cuttings when first taken from the close propagating pit are so easily damaged by a dry atmosphere or cold draughts, that too much care cannot be taken to avoid anything like a sudden change; in fact, the whole secret of success in this department lies in careful and regular attention.

EPIPHYLLUMS.—Of all the Cactaceae plants, Epiphyllums are the most useful. The varieties of *E. truncatum* and *E. Russellianum* being remarkably showy and flowering early in the year, they are well worthy of the attention of all who have the convenience to grow them. It requires some care to establish good plants and to flower them successfully. The species alluded to may be propagated from cuttings, which should be taken just before the plants begin to make fresh growth in the spring. The cuttings may be made of pieces with one or two joints, or larger pieces will make plants more quickly. They should be put in light sandy loam with a good surfacing of clean sand, each cutting having a stick put to it to keep it firm, and the base of the cuttings should not go below the sandy surface. Give them a warm position and keep them rather dry until rooted. Plants propagated from cuttings are useful for many purposes, especially for standing in elevated positions, but the prettiest and most useful in a general way are those grafted on stems about 18 inches high. *Pereskia aculeata* is the best stock on which to graft the Epiphyllums. The stocks may be easily propagated from cuttings and should be grown on in rather small pots. They may be used for grafting as soon as they have made sufficient growth. It is necessary that the wood should be fairly firm at the point where the graft is to be put on. Wedge-grafting is the best method. The scions may be obtained in the same manner as cuttings, but only small pieces should be used. Just press them firmly in the cleft, and fix them with a spine from the *Pereskia*, or the

flat leaf-like stem of the scion which spreads beyond the stock may be pierced on each side of the stock, and a piece of cotton passed through and tied. If placed in a close warm position they will soon unite. The Epiphyllums succeed best in good loamy soil, to which may be added a little manure and a good sprinkling of old lime rubbish. The plants should be grown in a stove temperature, but after they are large enough for flowering they require to be ripened off a little in the autumn; they should be placed in a cool house where they will be well exposed to the sun, and should be kept rather dry. At no time should water be given too freely.

ELÆODENDRON ORIENTALE.—This useful foliage plant, which is perhaps better known as *Aralia*, Chabrieri, should find a place in every collection of stove plants. In general appearance it much resembles an *Aralia*, but instead of having digitate leaves it has lateral branches and long narrow leaves, which are of a dark bronzy hue. The plant is of regular outline, and forms an elegant subject for table and other kinds of decorations. It may be propagated from cuttings taken from the lateral shoots; they should be taken off close to the older wood and put in light sandy peat, which should be pressed firm. A little sand at the base of the cuttings will be helpful. The best position for rooting the cuttings is in the close propagating pit, where there is a good bottom heat. After the cuttings are rooted it will take some time to establish good plants, as they will grow one-sided and almost horizontally, but if left in that position and not tied up they will eventually break out at the bend and form a leading shoot. After this is well started the growth beyond may be cut off, and a good plant will soon be formed. A similar compost may be used to that recommended for *Aralias*. A.

Nitrate of soda for crops.—I have heard so much said for and against the use of nitrate of soda for cereals, roots, and Grass crops, that I should be pleased to have the opinion of some readers of THE GARDEN.—M.

Luminous glow-worm beacons.—These have a wood stem about 1 foot in height and a globular glass top, in which phosphorus is enclosed. They are recommended to be put on the edges of garden walks, roads, cliffs, and other dangerous places as guides and indicators in the dark, but after testing them fully, I am of opinion they are unreliable, and do not accomplish their purpose.—J. Muir, Maryam.

The "Chrysanthemum Annual" of 1889.—This little work should be consulted by all Chrysanthemum specialists, as it is rich in useful information as to forthcoming shows, certificated varieties, and other points in which growers are interested. There are gossip notes upon the past season, a series of valuable articles upon various topics by well-known authorities, and the whole of the papers read at the Sheffield and Westminster conferences. Notes from the midland and northern counties give the "Annual" a cosmopolitan character; it contains something more than mere London news. It is published at 171, Fleet Street, E.C.

Landscape gardeners' plans.—Mr. R. H. Vertegans, Chad Valley Nursery, Edgbaston, brought an action against Edward King Mason, churchwarden, St. Thomas's Church, to recover £9 9s., the cost of a plan for the redecoration of St. Thomas's Church. In 1884 a conversation took place between plaintiff and defendant about laying out and planting St. Thomas's churchyard, and plaintiff alleged that he received an order from defendant upon that occasion to prepare plans and specifications. These were duly prepared, and an offer made to do the work for £274 5s. Plaintiff sent in his account to defendant for £23 3s. 3d., being £9 9s. for the plans and 5 per cent. commission on the £274 5s. The plans were not used, and defendant refused to pay for them, alleging that he did not give the order. The claim for the commission was withdrawn, and on examination of defendant it appeared there had been an understanding as to the work being done. Judgment was given for plaintiff for £5 5s. and costs, his Honour

remarking that it was too often the case that people went to professional men and expected them to give advice free.

NOTES OF THE WEEK.

Aubrieta violacea is especially beautiful in a mass. A large breadth of it the other day in Mr. Dean's Bedford Nursery made a carpet of violet.

Oxalis cernua.—I agree in your praise of this lovely flower. It is a native of North Africa, but is quite naturalised in many parts of the Riviera.—WM. WICKHAM.

Dendrobium Wardianum.—Mr. H. Richards, Fern Bank, Stapleton, sends flowers of a good form of this beautiful Orchid. They are large and well coloured.

Flowers from Beeston.—Mr. W. H. Frettingham, Beeston, Notts, forwards us a box of coloured Primroses and flowers of Daffodil Sir Watkin. The Primroses are very varied and rich in colour.

A good Wallflower is Bedford Yellow. It is dwarf, very free, rich yellow-orange in colour, and deliciously sweet. It might be used on the rockery instead of the stronger and commoner varieties we often see there.

Thyme-leaved Rhododendron (*R. Chamæcistus*) is a dwarf alpine Rhododendron that was very pretty the other day on the Broxbourne rockery. A small tuft of it against a piece of granite was bearing several of the rose-purple flowers.

Anemone fulgens græca.—An exceptionally richly-coloured Anemone is this variety. It was blooming at Broxbourne last week, and the flowers were of the richest shade of vermilion we have seen, with a splendid black blotch at the base of the segments.

Narcissus poeticus grandiflorus is a fine variety of the Poet's Narcissus. The flowers are large, pure white, set off by a bright crimson-tinted rim to the cup. This section of Narcissus is approaching its fullest perfection, and waving beds of such flowers make a picture worth seeing.

Maianthemum bifolium, known also as Convallaria, is one of the most useful subjects for shady spots we possess. Even under the dense shade of Hollies and Pines we have seen it do very well, its numerous broad, oval leaves and tiny spikes of whitish flowers being very attractive in the early spring.

The Foam Flower (*Tiarella cordifolia*) has an English name that suggests the appearance of a bed of it when in full bloom. It makes a cloud of white just as soft and fleecy as foam, the strong-tufted plants throwing up hundreds of spikes of tiny white flowers. It is a beautiful, hardy spring-blooming plant for the garden in early May.

Rhododendron Collettianum is now flowering on the rockery at Kew. It is one of the new Afghanistan species, and will be chiefly interesting on account of its dwarf habit and hardness. The flowers are small, white, and faintly fragrant. It is a charming addition to this handsome genus, and may prove of great utility in the hands of the hybridist.

Waldsteinia trifolia is an old garden plant, and we find it very useful for rockery decoration. It has a fine, close, trailing habit, and is seen to the best advantage when hanging over the face of large boulders, or, better still, old tree stumps. The fine, large, bright green leaves form a dense mass, and the pretty Buttercup-like flowers make a very attractive picture.

Rhododendrons from Lancashire.—I enclose a few varieties for your opinion. The trusses of bloom are from plants grown in a cold pit with no heat whatever.—HY. GLOVER, Wigan, Lancashire.

* * An interesting series. The best kinds sent are Duchess of Sutherland, white, tinted with pink; Lady Skelmersdale, flowers small, white flushed with brilliant rose; and Countess of Sefton, pure white. Their fragrance is very refreshing.—ED.

Myosotis Rechsteineri.—I send you a flowering plant of this. It is the sweetest thing now in bloom. It forms, as you will see, an inch-deep carpet of the most charming blue. It is a true perennial, and not a miffy plant, as *M. rupicola* is. Patches a foot across are very showy.—T. SMITH

* * A distinct and beautiful dwarf-growing Forget-me-not, with very small bright blue flowers when fully expanded. When opening the blooms are pinkish, and the contrast of the opened flowers with the buds is very pretty. Growing in a mass it must be very pleasing.—ED.

A **Hose-in-hose Primrose**.—I enclose for your inspection a few blooms of a Primrose raised some

years ago, and selected by myself out of a batch of seedlings grown here. By working up a good stock, I think it will be a good thing for spring bedding, the colour being so good.—J. H. ROSE, Lockinge Gardens.

* * A very beautiful magenta-coloured Hose-in-hose form, and well worth growing.—ED.

Destroying old bulbs.—It is a common, but wasteful practice to throw away the old bulbs of Hyacinths, &c., after they have been forced, but when planted out they generally flower the following year almost as well as those in pots. We saw the other day a batch of old Hyacinth bulbs which gave strong spikes of bloom and looked remarkably fine in the wild garden where they had as companions Tulips and other early-flowering bulbous plants.

Spring flowers at Vienna.—At the flower show held this week I noticed from M. Leichtlin's garden cut flowers of *Saxifraga speciosa*, *Narcissus poeticus grandiflorus*, *Fritillaria pallidiflora*, *F. imperialis* var. *cashmeriana*; some flowering branches of *Pyrus Maulei superba*, which were most beautiful. From the gardens of Count Schwarzenburg were sent some groups of *Allium neapolitanum* and *Scilla hyacinthoides*. In Vienna public gardens groups of *Primula cashmeriana* are now at their best.—LOUIS KROPATCH.

Saxifraga Wallacei.—In THE GARDEN, April 27 (p. 392), "D. K." is in error in naming this beautiful Saxifrage *S. Camposi*. The plant was raised by Mr. Wallace, foreman in the Dean Cemetery, Edinburgh, one of its parents being *S. Maweanana*. It was sent out and named after the raiser by Messrs. Dicksons and Co., nurserymen, Edinburgh. In "The English Flower Garden," page 255, under *S. Maweanana*, the relationship of the plant to *S. Maweanana* is clearly and correctly stated.—ROBERTSON MUNRO, Abercorn Nursery, Edinburgh.

* * I am quite as familiar with the supposed origin of this beautiful Saxifrage as the writer of the above seems to be, and, as it happens, was in Messrs. Dicksons' nursery when the stock was being worked up before being sent out. At the page quoted in "The English Flower Garden," *S. Wallacei* is certainly referred to under the heading of *S. Maweanana*, but I fail to see where the "relationship is clearly and correctly stated" in the following: "Similar to *S. Maweanana*, but even finer, is a new kind called *S. Wallacei*," and, again, "it differs from *Maweanana* in not developing the small, round buds during summer," all of which is perfectly true, but does not even hint at *Maweanana* as being one of its parents. The same, indeed, might be said about any two plants belonging to the same section of this large genus. *S. Wallacei*, however it may have found its way to the Dean Cemetery, is *S. Camposi* (Boiss.), a distinct species, cultivated for many years in gardens, and having nothing in common with *S. Maweanana* any more than it has with *S. cespitosa* (L.) or *decipiens* (Ehrh.).—D. K.

Plants at Kew.—Looking through the greenhouse at Kew the other day I was struck with the beauty, as an ordinary greenhouse plant, of a group of the very pretty red-flowered *Heuchera sanguinea*. The leaves, of a round form, closely resemble those of some of the Geraniums, and the flowers, of a pretty rosy red, very bright and telling, are produced in irregular spikes or panicles about 12 inches in height. This should make an effective basket plant, and it will also be found useful for the lower tiers of a plant stage. The colour is all too rare in greenhouse flowers at this time of the year. Close by these was a very striking group of *Cineraria cruenta*, a plant which has inconspicuous flowers individually, but very pleasing in the bulk. The flowers had little resemblance to those of the florist's *Cineraria*, which is said to be the progeny of *C. cruenta*, although hard to believe, as the habits of the plants apparently differ appreciably. The flowers, like small single Daisies, are of a soft mauve colour. It is a capital plant for conservatory decoration. Trained up under the roof of the same house are numerous climbers, but none were half so well bloomed or so effective as a couple of plants of *Tropæolum Fireball*, which had doubtless, according to the wont of these plants, been blooming all the winter, and even now bid

fair with proper attention to go on blooming for some time. I mention these few plants, because I took special care to note the attention shown them by the myriads of holiday people present, who took little heed of succulents, but admired any bit of colour.—A. D.

Aubrieta Leichtlini is one of the prettiest and brightest recent additions to our hardy plants. Its cheerful rosy-coloured flowers smother the comparatively large leaves, and make a brilliant block of colour in the outdoor garden. No one need fear to grow this dwarf growing plant, as it is very hardy, free in growth, and quite distinct from any other *Aubrieta*. We saw it very fine the other day in the Tottenham Nursery, and a first-class certificate was given to Messrs. Paul and Son for it by the Royal Horticultural Society at their last meeting.

Tulips.—Among the Tulips in flower at Kew are the following which are well worthy of notice: *T. vitellina*, apparently a *gesneriana* form, with very large, soft yellow flowers, having blunt segments; *T. præcox*, with bright red flowers and a black blotch at base. *T. præcox* is nearly allied to *T. oculis-solis*, the only substantial difference being the brown woolly bulb. *T. sylvestris*, *fragrans* and *florentina* are very similar, the two latter merely geographical forms of our wild species, the flowers yellow, greyish on the outside, the form *fragrans* being very sweet. *T. biflora*, though not beautiful, is a very useful plant for early spring. *T. elegans*, with its flaming flowers, is always attractive, and perhaps more so is *T. Greigi*, a Turkestan species, with large flame-coloured flowers of exquisite form.

Orchis undulatifolia, so named in gardens, is one of the most beautiful of the early-flowering hardy Orchids, and also one of the easiest to manage. It may be grown easily in pots, and does very well in the border, though here it increases very slowly. The flowers are large, in a short, close head, pale purplish with deeper spots, and deeply cut lip. It is figured in the *Botanical Register* (vol. v., tab. 375), and is referred to *O. tephrosanthos*, which indeed it very much resembles. We believe the name *undulatifolia* was given on account of the crispature; at any rate, we cannot detect any other distinctive mark sufficient for specific rank. However this may be, it is a most useful plant, and may be managed with ease in any garden. *O. pallens*, *provincialis*, and *pauciflora*, the last apparently only a few-flowered form of *provincialis*, are all very fine yellow-flowered species. They have been in flower for the past month in the alpine house at Kew, and they have, we are told, been very much appreciated.

Primula Sieboldi is one of the most beautiful flowers of the week. The display made by Messrs. Ryder and Son, Sale, Manchester, at the last meeting of the Royal Horticultural Society was unique in its way, and represented an unusually choice selection of the richest and most delicately coloured varieties. Mr. Ware has also a fine series of kinds in his Tottenham nursery, the finest being *Princess Beatrice*, pure white, with a shade of purple, and beautifully fringed; *Nellie Ware*, purple and white; *Pearl*, white, tinged with lilac on the back of the petals; *laciniata*, rich carmine; *Crimson King*, very dwarf, carmine; *Purple Queen*, purplish; and *grandiflora alba*, pure white, deliciously sweet scented. *P. Sieboldi*, or *cortusoides amœna*, which is the same thing, is a flower especially suited for those who have small gardens. It is easy to grow, very free, and just the plant for the enrichment of the greenhouse in early spring, while in the numerous varieties we have at command there need be no lack of both brilliant and soft colouring.

Amorphophallus virosus.—This strikingly curious *Amorphophallus* may be seen in the Victoria house at Kew. Its most singular characteristic is the spadix, which at the apex is formed into an irregular brownish purple appendix that is more like a soft slouch hat than anything we can compare it to. The funnel-shaped spathe is very smooth, the exterior surface pale green, and marked with round white spots, the inside creamy white, passing to light brownish purple, which gives way to a bright green at the margin. At a short dis-

tance it is like a huge shell, its smooth surface and arrangement giving it a distinctive aspect. This *Amorphophallus* is allied to *A. campanulatus*, but has a smaller inflorescence; it was brought from Siam about 1885. Although possessing not the slightest intrinsic beauty, it must be valued for its peculiar character.

Hardy flowers at Kew.—The Royal Gardens, Kew, are just now in their fullest spring-like beauty, and visitors will find much to interest them, especially in the alpine house, which is brimful of choice flowers in great variety. The narrow border along the herbaceous ground is one mass of Daffodil flowers, the *Tazetta* section showing immense vigour both in growth of leafage and flower-spike. There is a handsome bed of the Empress variety near the Orchid house, and a small bed of *Tulipa Greigi* near the main entrance makes a rich block of brilliant scarlet. The rockery contains many beautiful hardy alpine flowers, and the species of *Tulip* are coming on apace.

Doronicum plantagineum excelsum is the showiest of spring-blooming composites, its large rich golden yellow flowers each measuring quite 4 inches across. An excellent idea of it can be obtained from the coloured plate given in *THE GARDEN*, Nov. 14, 1885, but it is now well known. It is becoming one of the best market plants, and is likely to rival the yellow-flowered *Marguerite*, *Chrysanthemum frutescens Etoile d'Or*. Large breadths of it are grown in some nurseries, as, for instance, Mr. Ware's, where the plants are cultivated in the open and lifted and put into pots when required for the market. We can quite understand that such a showy flower would find a quick sale.

Flowers from a Dutch garden.—I forward you by this post flowers of some choice Dog's-tooth Violets, viz., the new and brightly-coloured *Erythronium sibiricum*, which when more established promises to be one of the very largest-flowered of the genus; also of the lovely *E. Hendersoni*, a new American species figured on tab. 7017 of the *Botanical Magazine*; and blooms of *E. Smithi* and *grandiflorum* (*giganteum*). I also enclose a spike of the rare *Bellevallia leucophæa*, a perfect little gem. Besides *Hyacinths* and *Tulips*, which are now of course the chief features in every Dutch bulb garden, my collection of hardy and semi-hardy bulbs comprises blooming plants of the following (specimens of which I have sent you). Foremost in gorgeous beauty are *Tulipa Greigi* and its varieties *aurea* and *carminata*, the former of a brilliant yellow, relieved by a crimson flake on the base of each petal, and the other, as its specific name implies, of a handsome crimson-scarlet. These look especially grand when the flowers are fully expanded. Second to them in splendour and handsomeness in their way are the brilliant *T. lanata*, the graceful *T. linifolia*, the slender-stemmed scarlet or yellow *T. Kolpakowskyana*, and the pretty little *T. Leichtlini*; all these are new introductions and perfectly hardy garden plants. Scarcely less brilliant is a lot of that beautiful variety of *Anemone fulgens*, known as *A. f. Aldboroughensis*, the flowers twice as large as those of the ordinary species and very broad petalled. Splendid, too, is that giant-flowered form of the Pheasant's-eye *Narcissus*, catalogued under the name of *N. poeticus grandiflorus*, being as early as ornatus, the plant attaining a height of more than 2 feet and the flowers nearly 4 inches across. My collection of Cape *Hyacinths* now includes quantities in flower of such charming varieties as the yellow *macrocarpum*, the bluish-white and very free-flowering *botryoides leucophæum*, the pale blue *commutatum*, the sky-blue *atlanticum* and *armenicum*, the broad-leaved *latifolium*, the black and white *nigricans*, and the very distinct *paradoxicum*, a large, broad-leaved plant, with a good-sized spike of nearly black flowers. Of *Fritillaries*, *tenella*, *lanceolata*, *pallidiflora*, *Moggridgei* and *contorta* are now at their best, and very handsome they look with their pendent bell-like flowers. *Arnebia echioides*, or the Prophet Flower, as it is popularly called, cannot be too highly praised; the profusion of arching cluster of yellow and black flowers which literally smother the entire

plant, and ultimately change it into one blaze of gold, render it one of the most distinct and choicest alpine plants. *Corydalis nobilis* is also a plant of great value on account of its handsome spike of yellow and black flowers and graceful foliage. *Iris caucasica*, of which I grow some six or eight varieties, is a very distinct kind, with the regular growth of a *Vanda*, the flowers being produced from the axils of the leaves, and varying in colour from creamy white to golden yellow. *Tellima affinis* has bulbs exactly resembling those of an *Achimenes*, the foliage deeply divided, and the flowers small and whitish, the entire plant only 3 inches or 4 inches high, also perfectly hardy. In a shady nook of my garden *Podophyllum Emodi* and *Trillium grandiflorum majus* are very beautiful, the latter producing much larger flowers than those of the ordinary *White Wood Lily*. Flowering in a cool frame are such gems as *Iris iberica*; *Van Houtteana*, much larger and better than its type; the pretty little *Trichonema Clusiana*, a dwarf bulb with narrow leaves and a profusion of violet, purple, or bluish white *Crocus*-like flowers; the white variety of the widely-known *Lyre Flower* (*Dielytra spectabilis*); the curious one-leaved *Scilla monophylla*, and the brilliant scarlet *Habranthus pratensis*, one of the handsomest and most free-flowering of these *Amaryllis*-like plants.—C. G. VAN TUBERGEN, Junr., *Haarlem*.

* * Very fine examples of the varieties of Dog's-tooth Violets, that named *sibiricum* being particularly good.—ED.

Rochel's Saxifrage (*S. Rocheliana coriophylla*) on a limestone ledge on the rockery at Kew is one of the prettiest sights we have seen for some time. The patch is a foot or so square, and the large white flowers so abundant that the leaves can only be seen at the edges of the tuft. It evidently loves the limestone, like the generality of the crusted section, and a ledge of soft limestone seems to be the secret of success, as it appears otherwise to have very little soil. *S. cæsia* does well in a similar position, and so does *cochlearis minor*, often called *valdensis major*, but doubtless more nearly allied to the former than the latter plant. The characters on which many species have been based narrow down very much as the plants are seen side by side in the garden.

The Giant Horsetail (*Equisetum maximum*) is certainly a noble plant, and the wonder is that one does not oftener see it in gardens. True, it is a trifle troublesome, but one must expect to pay a little for a large amount of pleasure. The troublesome part may, however, be avoided and the beauty increased by planting this noble British subject in the wild garden or woodland where it could roam at will and where its spreading whorls of slender branches would make a pretty natural picture. In shady woods, the damper the better, its establishment will give no trouble, and even in confined spots on the rock garden we have been much struck with its beauty.

The Toothworts (*Dentaria*) are at their best just now, and form the most charming groups on the rockery. *D. pinnata* is well known and easily distinguished from the others by its distinctly pinnate leaves and large bunches of pale lilac flowers. *D. digitata* is not so free, but much handsomer; the flowers are larger if anything, rich purple, and the dark green leaves, as the name implies, have five fingers, or leaflets from a common centre. *D. bulbifera* is a native species more interesting than beautiful; the stems bear bulblets at the axils of the leaves, and by these the plant may be increased to almost any extent. The two first are South European species.

Rosy-flowered Rock Cress (*Arabis blepharophylla*) is a pretty flower when grown in a cold frame. We saw a splendid panful of it the other day at Tottenham, the comparatively large rosy purple flowers hiding the leaves. Although it blooms with great profusion, few seeds are produced, and it is therefore necessary to propagate largely from cuttings. It was introduced from California about 1874, and is one of the brightest flowers we can have in the cool house in early spring.

Erythronium grandiflorum is one of the most beautiful of the Dog's-tooth Violets. There is a large bed of it in full bloom in the Tottenham Nursery, the graceful pendent flowers, which are of a cream colour, being borne from two to six and sometimes more in a raceme. They are of the greatest use as cut flowers, as there is a good length of stalk to insert in water. It thrives in a peaty soil where *Trilliums* and hardy *Cypripediums* delight to grow. We may regard it as one of the choicest introductions from North-west America.

The Gardeners' Orphan Fund.—The usual monthly meeting of the committee took place at the Caledonian Hotel on Friday, the 26th ult., Mr. George Deal presiding. It was announced that the sum of £573 12s. 9d. was standing to the credit of the fund at the bank, when it was resolved that the sum of £500 be invested, it being left in the hands of Messrs. Deal, H. K. Major and Barron to make the best investment they could. A list of special receipts received since the last meeting was handed in. Among the amounts were the sum of £8 17s. from Mr. H. Allan, gardener, Brook's Hill, Kingswear, South Devon—collecting card; from Mr. M. Dunn, of Dalkeith, a donation of £5, and the same amount from Mr. Elliott of Fulham Fields; from Mr. W. Warren, of Isleworth, a second donation of £2 2s; from Messrs. B. K. Bliss & Sons, New York, a donation of £1; and a sum of £5 from one of the entertainments given by the Moore and Burgess's Minstrels at St. James's Hall. The secretary reported that a good number of annual subscriptions were still unpaid, which it is desirable should be sent in before the next election in July. Thirteen applications were received in the interest of orphan children desirous of participating in the benefits of the fund, and of these twelve were admitted, one being held over in consequence of an informality in filling up the same. Other matters of detail in reference to the coming election were passed. Mr. John Lemon, Dyke Road, Brighton, was appointed hon. local secretary for Brighton and district. Subsequently a meeting of the Covent Garden fête committee, which includes a number of the stand-holders, was held, Mr. George Deal in the chair. It was reported that the Lady Mayoress had consented to her name being announced as one of the patrons of the fête; also that the Baroness Burdett-Coutts had consented to open the fête at 8 p.m. on May 22. All the details of the proceedings were considered, and the meeting closed with a vote of thanks to the chairman.

BOOKS RECEIVED.

"Hints on Cacti." A. Blanc and Co., Philadelphia, U.S.A.

"The Chrysanthemum Annual for 1889." By Lewis Castle, Hotham House, Merton, Surrey.

"Useful Native Plants of Australia." By J. H. Maiden, Curator of the Technical Museum of New South Wales. London: Trübner and Co., Ludgate Hill. Sydney: Turner and Henderson.

"A Treatise on Manures, or the Philosophy of Manuring." A practical handbook for the agriculturist, manufacturer, and student. By A. B. Griffiths. London: Whittaker and Co., Paternoster Square; and George Bell and Sons, York Street, Covent Garden.

Names of plants.—J. W. P.—We do not name from leaves as a rule, but yours are so distinct that no mistake can be made. 1, *Ficus religiosa*; 2, *F. Parcellii*; 3, *Anthurium Scherzerianum*; 4, *Aloeasia Lowii*; 5, *A. metallica*.—J. Salter.—1, *Glonera jasminoides*; 2, *Poirvea coccinea*; 3, *Bignonia purpurea*.—H. M., *Taunton*.—1, *Adiantum cardiochilena*; 2, *Anemidictyon Phyllitidis*; 3, *Asplenium formosum*.—Burke.—1, *Primula farinosa*; 2, *Megasea ligulata*; 3, specimen too shrivelled to identify. —Thos. R. White.—*Ismene calathina*.—W. D. S.—*Dendrobium barbatulum*.—M. M.—1, *Bletia gracilis*; 2, *Oncidium rotundifolium*.—F. Ratcliff.—*Orchid*, *Odontoglossum citrosimum album*; Fern, *Todea superba*.—G. R.—*Lycaste Harrisoniæ alba*.—Mrs. Layard.—*Ipomœa pes-capræ*.—*Orchid*.—*Maxillaria grandiflora*.

WOODS & FORESTS.

HOME-GROWN TIMBER.

IN discussing this subject in *THE GARDEN*, April 13 (p. 350), Mr. Sheppard says:—

I live in a house in which the joists and floors are made of home-grown timber, and the boards are so warped and twisted at the edges, that we had to plane them to prevent the carpets being cut through, and most of the joists stand open sufficiently wide for a penny-piece to drop through; while as to the skirtings, it is an easy matter to poke the finger between them and the floor.

It is evident from this statement that the wood has either not been thoroughly seasoned or properly matured in growth before being used—perhaps both, and this clearly accounts for the warping of the timber, but it is neither consistent nor fair to try to make it appear that it is owing to the inferior quality of the timber itself. As formerly stated by me, all wood used for particular purposes in house-building requires to be matured in growth and thoroughly seasoned previous to being used, and when this is attended to the wood of the Scotch Fir is found to be proof against warping and twisting. Many examples of this can be shown at different places here and there throughout the country, and a very good example of the superior quality of the timber of the Scotch Fir was illustrated by a châlet made from the wood of the Highland Pine, and shown by Her Majesty the Queen at the Forestry Exhibition in Edinburgh in 1884. Her Majesty likewise exhibited specimens of Pine wood in the rough with the view of showing both its size and quality. One log was stated to be 212 years old, and had lain on the surface of the ground for upwards of forty years, in consequence of which the sap-wood had decayed and turned into mould, but the heart-wood, which measured $3\frac{1}{2}$ feet in diameter, was perfectly fresh and sound, and I think this is pretty conclusive proof as to the superior quality of Scotch Pine timber when thoroughly matured. At the same exhibition the Duke of Sutherland showed a specimen of a Scotch Fir rafter from Strathspey Fir that was perfectly fresh and sound after being in use for 100 years. I have a cabinet made from Scotch Fir timber, and from the information which I can gather concerning it, it would appear to be about a century old, yet the wood and joints are as fresh and sound as ever. The late Mr. James Alexander, the senior member of Messrs. Dicksons and Co., Edinburgh, while building his new house at Redbraes, had the timbers supplied from the Scotch Pine forests in Strathspey. With regard to the durability of the matured wood of the common Silver Fir, I have known it last in a very efficient condition as flooring for upwards of thirty years; and at the Forestry Exhibition already referred to, Mr. McCorquodale, forester to the Earl of Mansfield, showed a railway sleeper of that wood that was laid as a test with other sleepers of Baltic Pine on the Caledonian Railway in 1877, and when lifted in 1884 it was found to be perfectly sound, while many of the Baltic sleepers were worn out and had to be lifted and renewed the previous year. The value and durability of home-grown timber as compared with that of foreign growth are questions of vital importance to landed proprietors, and for this reason I am the more anxious to give the experience of others as well as my own. If home-grown timber were so much inferior to that of foreign growth, as some writers would seem to imply, it is curious why all foresters of large experience and practice, such as Brown, Grigor, &c., recommend it.

I think the builder of Mr. Sheppard's house

is to blame and not the timber, for had the wood been matured in growth and thoroughly seasoned before being used, it would neither have curled up at the edges nor opened at the seams or joints in the way referred to. Writers upon such an important subject would do well to give all these points due consideration to prevent mistakes. As the Scotch Fir, however, does not always grow nor produce the same quality of timber on all soils and localities alike, perhaps Mr. Sheppard's soil and situation may be exceptionally bad or unsuitable for producing the best class of Pine wood capable of being utilised for the finer kinds of joiner's work. This in itself might in a great measure account for the inferiority of the wood complained of. I am well aware that a great deal of home-grown timber of various species of trees is often damaged to a large extent by knots in the stems, which in many cases render the wood unsuitable for particular purposes. This, however, is the fault of the cultivator, and not the fault of the trees themselves; consequently, if we are to compete with the foreigner, our aim should be to produce the largest quantity of clean-grown timber at the smallest cost.

J. B. WEBSTER.

THE PUBLIC FOOTPATH NUISANCE.

TO THE EDITOR OF THE GARDEN.

SIR,—“The Public,” as a rule, know only one side of this question—although it is one that is constantly cropping up in some much-wronged community or other. If you wish to get up much frothy sentiment, and at the same time collect all the poachers, vagabonds, and idlers into one place, stop some muddy footpath across a field or a wood, and put a barrier up at each end of it with a placard intimating that “trespassers will be prosecuted,” or any other intimation of your purpose you may think fit. The local agitator, who probably never did a neighbour a good turn in his life, and who would set his dog at anyone who dared to look over his garden wall, will then come to the front in fine form, make speeches, and “move” no end of “resolutions” against the atrocious individual who has dared to keep their public majesties from making a common of his land, invading his privacy, and destroying his property. I believe there is a society in existence called the National Footpaths Association, or something of that kind, whose objects may be praiseworthy enough in their way, but what is wanted at present is another and a counter-association to keep an eye on the other society's vagaries and protect property from wanton invasion and spoliation. I suppose, in the thickly-populated centres of England, we are more troubled with this sort of thing than anywhere else, and I can assure you the grievance is a real one. In Scotland, where the value of land is better understood, these by-ways and footpaths do not exist to anything like the same extent that they do in England, and nobody is a penny the worse for it. But good-natured English proprietors have allowed liberties to be taken by trespassers on their estates till these liberties have been claimed as “rights” and privileges, and until it has become practically impossible to stop them. Hereabouts there is hardly a field, a wood, or a covert that is not traversed in one or more directions by a thoroughfare. It is easy to see how these thoroughfares have originated. The highways and parish roads cannot always be made as the “crow flies,” and a hamlet, a village, a colliery, or a factory of any kind become an excuse for making a gap in the fence and a footpath by the nearest cut in any particular direction. Perhaps no very energetic means are taken to stop the trespass, and your “footpath” becomes public property in the end. And what do these paths mean? You cannot go to the expense of railing them off in every case, in order to keep them within bounds, and, as a rule, nobody ever thinks of keeping them in order or mending them—least of all “the public”; so that, as often as otherwise, the path becomes an

unpassable, muddy track, which pedestrians and troops of school-children broaden out day by day till it becomes as broad as the highway, Grass and crops being trodden under foot and destroyed, while bird-nesters, brambles, and other idlers ramble unrestrained as far afield as they desire.

I am not one of those who would like to see the public shut out wholly from the fields and woods, but the public have little or no conscience in the matter, and take an ell wherever they get an inch—quite regardless of the damage and mischief they do to those who live by cultivating the soil. It behoves proprietors to look into the matter, and see that the thoroughfares across their estates are, at least, so laid out as to reduce their number and extent to the lowest point possible, without incommode the public, and prevent their needless extension by rigidly stopping trespassers. Gentlemen usually throw open their parks to the public now-a-days, and are otherwise so willing to grant all reasonable facilities of access on their estates, that they need not hesitate to exercise their rights in other directions.

YORKSHIREMAN.

Repairing Grass rides.—This is a favourable time for sowing Grass seeds upon wood rides or for game cover in open corners of the woodlands. For rides the following mixture is suitable: Timothy, Tall Fescue, Meadow Foxtail, and Hard Fescue, 2 lbs. of each; Rough Cocksfoot and Smooth-stalked Meadow, 3 lbs. of each; Sweet-scented Vernal and Rough-stalked Meadow, 4 lbs. of each; Wood Meadow Grass, 7 lbs.—W.

Destroying Pine beetles.—The next few weeks will be the proper time to collect all dead wood, branches, and rubbish in the Pine forest, as the Pine beetle (*Hylurgus piniperda*) and the Pine weevil (*Curculio pini*) hibernate in such during winter. The *débris* should be collected into heaps in open places here and there and burned; in this way both insects and rubbish will be got rid of at one time.—J. W.

The Burr Oak (*Quercus macrocarpa*).—This is perhaps the most ornamental of American Oaks. Nothing can exceed the graceful beauty of these trees when not crowded or cramped in their growth, but left free to follow their own mode of development. Who has not admired these trees in American Burr Oak openings? Their large leaves are dark green above and a bright silvery white beneath, which gives the tree a singularly fine appearance when agitated by the wind. The wood is tough, close grained, and more durable than that of the White Oak, especially when exposed to frequent changes of moisture and dryness.

Age of trees for planting.—In making extensive plantations the following will be found useful ages at which to select trees: Larch, two years seedlings once transplanted; Silver, Scotch, and Spruce Firs, two years seedlings which have had one year in fairly open lines; Birch, Elm, Sycamore, Mountain Ash, Hornbeam, and Ash, two years seedlings, nursed either one or two years, according to soil; Oak, Beech, Horse and Spanish Chestnuts, planted out as seedlings, two years nursed, and tapped in the nursery. When both the soil and situation in which the plants are to be placed are good, an additional year in the nursery may prove of great advantage to them. Such as are tap-rooted in particular should have one year in tolerably good soil after being undercut. These instructions apply to trees intended for the woodlands only; such as are designed for parks, pleasure grounds, hedgerows, and screens may be put out at any required size, and afterwards protected, watered, and mulched as the necessity for such treatment arises.—B.

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London: 37, Southampton Street, Strand, W.C.

No. 912. SATURDAY, May 11, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

IN NORMANDY.

NORMANDY is always a beautiful and homely land, but never more interesting perhaps than in spring, when the Kingcups illuminate the wet patches in the lush meadows, and when the soft grey buds are swelling day by day on the Apple trees, or on the Cherries and the Pears. Now and then the train passes through woods thickly sprinkled with Primroses, sloping meadows with Cowslips thick among the Grass, while between Dieppe and Rouen the woods for miles along the railway were, in April, literally golden with millions of the common Daffodils or Lenten Lilies, the "Parrion" or "Aiult" of the French authors. Here and there one gets a glimpse of old farmhouse and water-mill gardens with every bare foot of wall covered by neatly-trained trees, Pears or Plums, and many new orchards are replanted on rising ground to replace the old ones in the valleys, where they are often composed of stunted Moss and Lichen-covered trees, not better than our own. Apples and Cherries at 30 yards apart in the Grass fields have their stems protected by brushwood guards sometimes, but a more modern notion is that of twining a ribbon-like strip of tin or zinc spirally around the stem of the tree so as to protect it from the browsing of the cattle.

At Oissell, near Rouen, in making a short detour from the little station, we fell in with a homely innkeeper at work in his garden, or rather gossiping with a friendly young soldier who was awaiting his train. After making some inquiries as to trains, our conversation was turned to gardening topics by the sight of a healthy young seedling Peach tree covered with flower-buds at four years from the stone. The officer, who knew something of the Peach industry at Montreuil, near Paris, seemed very confident in seedling Peaches being healthier and less liable to "chancere" than grafted or budded ones, and we were shown other seedling Peaches on the walls of the innkeeper's garden, in the future prosperity of which he certainly had much faith. Whether seedling or own-root Peaches will ever be as successful as own-root Roses have been proved to be, we must leave for the wise years to decide, but it is interesting to find even a Norman innkeeper alive to the value of experiment in this direction.

Leaving Oissell for St. Pierre, we thence took the diligence or coach to Les Andeleys, pretty little country towns near each other, the one remarkable as the birthplace of Touissin, the celebrated painter, and the other as the site of the famous old fortress, the Château Gaillard, built by Lion-hearted Richard in 1190, and noble even in its total ruin of to-day. Perched up on a high chalk bank above the winding Seine, it must have been a joy to see when intact and impregnable. The Carnation grows wild on its battered walls, numerous brown stalks crowned with empty seed-capsules standing out from the dense tufts of living herbage clear and sharp against the sky. The slopes around are clothed with Juniper and Sweet Brier, while the out-cropping stones are carpeted with a dwarf Pink and matted clusters of the little Sun Rose (*Helianthemum*). Amongst the coarse Grass in partial shade are tufts of the Bear's-foot Hellebore, and in full sunshine in all the beauty of royal purple and gold we saw the Pasque Flower

(*Anemone Pulsatilla*), rich and bright as jewels, half hidden by the Moss and brown herbage, amongst which it nestled high up in the light and air. Afterwards it was found growing along the roadside banks for miles, and the last plant we saw beyond Vernon was on a low wall-top near the railway—a perfect little picture of what a happy wild plant can be—not nearly so large or bearing so many (50) flowers as some cultivated specimens I saw at Cambridge the other day, but infinitely more rich and perfect in colour and form. Now and then it left the roadsides and strayed a few yards into the thin sunny woods, where *A. nemorosa* had spread its white flowers as thickly as Daisies on an unowned lawn; but, as a rule, it seemed to prefer the banks and elevated positions, fully exposed to the winds and the sunshine. Everywhere in cottage and farmhouse gardens near the road the crimson Wallflowers were strong and vivid in colour, and here and there we got a passing glimpse of the wild yellow species on old walls; but perhaps the most interesting of all the spring flowers were the double-flowered Primroses, especially lilac and white forms, which grew in great tufts in nearly all the roadside gardens we saw.

At Andeleys, one of the prettiest of garden pictures was a grassy bank covered with coloured single Primroses of various kinds intermixed with Woodruff, the exquisite blue creeping Forget-me-not (*Omphalodes*), *Aquilegia*, and *Periwinkle* in the hedge above. The Primroses were of nearly all shades between white, sulphur-yellow, and crimson, one large white form being especially attractive. The owner informed us that most of them were wild forms from the neighbourhood collected and planted in the bank a year or two ago, where they have now become at home as shown by the numerous seedlings nestling around the parent plants. In the little garden above the bank we saw great clumps of *Hepaticas*, including a plant of the double blue form nearly 12 inches in diameter, Lilies and Crown Imperials throwing up their thick and vigorous stems, and a couple of masses of *Helleborus altifolius* about 2 feet through just pushing up their glossy new leaves of bronzy green; but nothing pleased us so much as did the sloping grassy bank with its green Grass and the richly tinted Primroses gleaming out like an oasis from where we passed in the dusty street with its whitewashed houses.

The story of the Château Gaillard is, of course, well known. How Richard built it in fourteen months, and his delight when he saw it finished in its pride, and said exultingly, "My child! See my beautiful child of a year old!" It is imposing even yet, and one looks with awe as from an eyrie from its shattered loopholes to the silvery river and the town below. Romance is clustered around its walls as well as Sweet Brier and Carnations. The tall Poplars beside the river and on the little islands shimmer in the sunlight of a lovely Good Friday afternoon, enriched here and there with nest-like bosses of dark green Mistletoe, while stretching away to the right beside the road tower up the rocky ramparts of the valley, the chalky bastions which kept the great river at bay ages upon ages ago.

At Vernon we saw a delightful children's service in the old cathedral, and also the market with its country produce—eggs, butter, vegetables, and flowers—flowers such as great Pansies, double Primroses, Violets, and Wallflowers, Stocks and Carnations. Here, again, in the market the double white Primroses were fine, each bearing about fifty of its rosette-like blooms.

There are many ways of spending an Easter holiday, and there are many ways less pleasant than to be among the cultivated plains, the woods and flowers, the grey-tiled farmhouses, the cows, and the Apple trees of Normandy.
F. W. B.

ROSE GARDEN.

ROSE PROSPECTS FOR 1889.

UPON the whole these may be said to be promising. A moderately cool moist winter seems to have suited them better than a drier colder one. This may seem to run somewhat contrary to practical experience, and yet it is true in theory that moisture in the air is conservative of warmth, and the result of this winter's doings among the Roses seems to prove that it is equally true in practice.

The same rough and ready appeal to facts seems to show that Roses, even Teas, are hardier than a good many of our semi-hardy fruits, notably, Peaches, Nectarines, and Apricots, the latter being the most tender of the three. This at least is satisfactory to some of us, who have been recommending Tea Roses on walls as more profitable than Apricots or Peaches on walls. On the whole, the Roses have passed through the winter with the fewer mishaps.

Fruit trees, especially young ones and maidens and more particularly Apricots, have been hit hard and many of them killed outright. The worst cases of injury to Tea Roses, and right in the open, can hardly match these; while writing broadly, Teas on walls, fences, buildings, are safe. Besides, the loss of produce and of profit is much less in the case of Roses than in the case of fruit trees. Severe injury to fruit trees means the loss of a crop and a season at the least; it may mean much more. Frost-bites among Tea Roses may only mean the loss of a few months' time and a portion of the first blooms. Even these losses may all be neutralised within the compass of a few months by the superior quality and augmented quantity of the succeeding crops of flowers. The recuperative powers of Roses likewise far exceed those of semi-hardy fruit trees alike in regard to time and force, thus minimising the risk of loss among the Roses either through the failure of produce or of plants.

But this is hardly the season to discuss at any length the relative merits or profits of fruit or Rose culture. Both may be best according to circumstances, and present prospects, on the whole, are encouraging to the growers of either. Roses are breaking strongly, though late, and the coolness and the moisture have contributed to keep the plants clean and free of insects. Though the wind hugs the east rather too closely, or returns to it as its home quarter with a sudden fit and start as if it feared to leave it for a moment, yet even the east wind has been less harsh and austere than usual, being mellowed somewhat by its abnormal proportion of moisture. Hence probably it has happened that up to date (the last day of April) it has neither blown blight nor brought insect pests among our Roses.

This early immunity, whatever may happen afterwards, is a clear gain to our Roses, as few things tell so much in their favour as a clean start. A clean start, in fact, linked with a late one, ought to go very far indeed to command a successful and brilliant Rose season.

Root and stem suckers seem abnormally strong and active, and should be promptly removed or suppressed without a day's delay. In these preliminary operations, as well as the

examination of trees and renewal of labels, a sharp outlook must be maintained for grubs, aphides, mildew, and other insect pests. Mildew has been rather plentiful this winter and spring on Roses under glass, and may possibly appear on weakly Tea or other Roses in the open. The safest course is to pick or cut off the first leaf or branchlet affected with mildew, and thus stamp it out in embryo. If allowed to spread, neither sulphur, sulphide of potassium, nor other nostrums are of much avail.

D. T. F.

Rose notes.—If the troubles of the Rose grower should continue through the summer as they have begun, this season will be a trying one. Green-fly is already very numerous as I write on May 7, especially on the early pruned plants or those not pruned at all. It would seem that there is a double advantage in late pruning, for where there is little or no young growth, of course there is no fly. Some unpruned seedlings have the points of every young shoot covered with these insects. On the other hand, blooms may be had three weeks earlier when the Teas are left unpruned. In a sheltered corner I have *Homère*, *Marie Van Houtte*, and *Safrano* with quite prominent buds. The first Rose to flower when grown in the open is the Japan variety *Rosa rugosa*; the variety with crimson-coloured flowers is already showing prominent flower-buds. I think these Japan Roses are worth growing if only for their foliage. I do not often meet with *Devoniensis* growing luxuriantly as a standard, but I saw one the other day at Montys Court and which must be ten years old. It is trained over an umbrella-shaped wire frame 4 feet over. This case affords another proof of the advantage of not pruning weak-growing Tea Roses. All this plant has had done to it in the way of pruning has been to cut out the weak and dead wood, all the strongest shoots being annually tied down to the wires. Banksian Roses are in most places already beginning to show the colour of their flowers. In sheltered positions they are already in bloom. A wreath made of the flowers and foliage of a white variety of the Banksian Rose and which I saw at the end of last week was very pretty.—J. C. C.

Rose Climbing *Devoniensis*.—Amongst really good Roses with scanty growth this stands out conspicuous on account of its luxuriance, and it is only where unlimited space is given it that it develops its true character. Confined to a small space, and consequently severely pruned to keep it within bounds, it does not flower freely. The more this plant is pruned, the more it will grow into long, thick, fleshy wood, from which it is useless to expect many flowers. So far as my observation goes, we must go to Devonshire to see this Rose in its true character. One notable example of it I can remember seeing at Dawlish, where it was covering a large space on the wall of a villa residence. There it grew in the most luxuriant manner possible, enjoying a happy freedom of growth not often allowed it, but which it evidently ought to receive. This plant was producing a fine display of flowers, and was in the most perfect health. One glance at this Rose was sufficient to convince anyone that, to cultivate it successfully and secure a fair proportion of flowers according to the space covered, it must be planted in a good soil in a warm and sheltered position, and be allowed to grow in a free and easy manner, with only just the strongest branches nailed to the wall, and the others allowed to grow in their own way. I have tried to cultivate this Rose under glass in a house that is not heated and where there is plenty of space; but its rampant growth necessitated such severe pruning, that comparatively very few flowers were obtained from the space occupied by the plant. The size of the flowers and the exquisite fragrance that belong to the old variety are also present in this climbing one. Some years ago I saw in a garden at Exeter a grand example of the old *Devoniensis* Rose. It had been planted against the outside wall of a greenhouse, and, having put forth a shoot stronger than the rest, it was taken under the wall plate and trained inside the house,

where it throve in the most satisfactory manner, and in three or four years had covered a space of several yards. When I saw it it was in perfect health, and had during that year produced more than 200 flowers, and this just from simply affording it space and a few shreds and nails. The roots being outside were able to take care of themselves.—J.

GARDENING AT THE PARIS EXHIBITION.

WHAT was but a few weeks ago cartruts and rubbish heaps is now being rapidly transformed into neat gravel walks, green lawns, and shrubberies. Already some of the newly sown lawns are quite green and fit to be mowed, and very fine effects are produced by carrying the green lawn right up amongst the low plants at the edge of shrubberies. Some large bunches of bronze and red *Pæony* leaves with gold and silver *Euonymus* bushes looked very effective in the delicate new Grass. In the main part of the Exhibition ground in the *Champ de Mars* the lawns are at a low level flanked by a terrace, on which are planted large Palm trees about 20 feet in circumference. The most interesting portion of the Exhibition to the gardener will be the ground on the north side of the river sloping up to the *Trocadero Palace*, and which is almost entirely given up to horticultural exhibits. The lower portion parallel with the river is devoted to fruit trees. Here are hundreds of Apples, Pears, Plums, Peaches, and Apricots, trained in every conceivable fashion, and as regular as the diagrams in an illustrated catalogue. There are beds illustrating the culture of Apples, Pears, Plums, and Cherries as standards, half-standards, pyramids, and bushes; then close fences and trellises showing different ways of training, such as single, double, forked and crossed cordons, espaliers horizontal trained, vertical trained, and radiating; then illustrations of the best way of filling a fence or trellis with various-shaped trees at the most economical distances apart. There are also specimen trained trees, 5 inches or 6 inches diameter in the stem, in the form of perfect fans, tables, domes, or pyramids, exhibiting wonders in the art of training, inarching, grafting, and budding. Here we can see beautiful little Currant and Gooseberry trees on stems each 4 feet or 5 feet high, some having cup-shaped heads, some drooping, others trained to fill the low spans on a wall between fruit trees.

Then the advocates and adversaries of grafting should see the specimens illustrating the growth of grafts and buds one, two, and three years old. I was particularly struck with the vigour of a *Bigarreau* grafted on *St. Lucie Cherry* one year old. The shoot was about 1 inch in diameter, had been topped at 5 feet, and had twelve lateral branches. It evidently showed that the stock and graft agreed pretty well with each other; but then further up in the grounds can be seen grafts which do not agree so well with the stock, such as *Broom on Laburnum*, and various *Acacias* and ornamental trees. Next to the fruit trees come the ornamental deciduous trees, amongst which *Prunus triloba* and the *Forsythias* were the most noticeable in bloom. Then beds of *Magnolias*, *Azaleas*, and *Evergreens* illustrating the best and most ornamental forms of planting. The main features of these gardens have remained ever since the last exhibition, and the little lake formed by the stream meandering out from the rockery is exceedingly natural and picturesque. A great number of aquatic plants have been planted in pots in this stream and are beginning to show above water.

I had the opportunity of going with a friend to see the Japanese gardens. The Japanese told us they had lost many of their plants

coming over, chiefly the stunted Pines, so that the exhibit will not be so great as was intended; however there are some very curious forms of these dwarf trees, some of which are upwards of 100 years old and are carried about sticking to a mass of rock as a piece of furniture. The Japanese are busy making up the ground, sowing seeds, and arranging their flower-pots, and they have some hundreds of Lilies just shooting up.

The flower beds by the sides of the paths are being filled up with showy flowers such as Pansies, Wallflowers, Stocks, Anemones, Forget-me-nots, Carnations, &c., so that in a short time the whole place will be glowing with colour. I was much struck with the beauty of a little border plant growing in tufts about 6 inches high and literally smothered with its pretty flowers. It is called *Nycterinia selaginoides*, and is well worth growing in any garden.

R. J. G. READ.

Paris.

PROPAGATING.

CLEMATIS.—At the present time there are few classes of plants that are more deservedly popular than these hardy climbers. It is not only as hardy climbers that they are valuable, but as greenhouse plants for early spring-flowering that they are so distinct and effective. They may also be used in the flower garden as bedding plants with great effect. Although the same plants will suffice for a number of years, even when grown in pots, provided they are properly cared for, yet it may be advisable to propagate some of the most useful sorts. The Clematises may be propagated in several ways. They will succeed from cuttings, layers, or by root-grafting. The last-mentioned method is the most expeditious. For this mode of propagating, one-year-old seedlings of either *C. flammula* or *C. Vitalba* may be used, the latter being most preferred. If neither of these is obtainable, some of the roots from established pot plants may be taken, but these should be removed before the plants have started into active growth. Unless grafted very early in the year, it takes two seasons before the plants are of much value for flowering. The grafting may be done as soon as some good strong shoots with well developed leaves can be obtained. Plants started in a little warmth for early-flowering will provide good material. As soon as the young shoots have made a fair growth the points should be taken out, and in a few days the whole of the shoots may be cut up into short lengths and used as scions, one pair of leaves being sufficient for each graft, or where the growths are strong they may be split through, using only one eye for scion. Where the seedling stocks are used, they should be cut off just below the stem, that is, below the seed leaves. Side-grafting is the best method for working the Clematises. It is necessary to take great care that the scions do not get withered, especially when very young wood is used. Good loamy soil should be prepared beforehand and the pots made ready, so that the plants can be potted and placed in the close propagating pit without delay. They should be so potted that the lower portion of the graft is covered. They must be kept quite close until the grafts are well callused, but only a moderate bottom-heat is required, and it will be only a few days before a little air may be given. As soon as sufficiently established, they should be removed to a cooler position. Although it is advisable to keep the plants under glass for the first few months, it is a great mistake to give them much heat, as this will cause weak, spindly growth to be made, and will also be liable to encourage red spider, which if allowed to get a start will cripple the plants for the season. The plants should be potted on before they get pot-bound; 5-inch pots will be large enough for the first season. The compost should consist of rather light fibrous loam, leaf-mould, well rotted manure, and a good sprinkling of old lime rubbish, or if this is not to be had some fresh

lime may be used, but this should be mixed with the leaf-mould some time before it is required for use. This will destroy worms and other insects which are usually found in leaf-mould. The pots should be well drained and the plants potted firmly, placing them down low enough to cover the part where the stock and scion are joined. If this is done, roots will be produced from the base of the scion, and will thus assist and, perhaps, eventually succeed the stock, which, having helped the plant through its infancy, will be no longer required. Water should be used sparingly until the pots are well filled with roots, when, of course, the plants will require more, and liquid manure may be used frequently during the growing season. In tying the plants good strong sticks should be used. It is very necessary not to let the shoots get entangled, as it will be very difficult to separate them. The early-flowering varieties of the patens type, which bloom from the previous year's growth, should especially be closely attended to.

DAPHNE INDICA.—It is seldom that this beautiful plant is met with in good condition, and yet its requirements appear to be simple enough. In the gardens at Rokefield, Dorking, there are two remarkably healthy specimens. These are planted out, one in a greenhouse, the other in ainery and trained against a wall. Mr. Firmin, the gardener, tells me that these plants are on their own roots, having been struck from cuttings about nine years ago. They are planted in a compost of peat, fibrous loam and burnt refuse, with good drainage. In this they appear to be perfectly at home, for they are vigorous and healthy, and when in bloom the delicious perfume of the flowers pervades the whole house. Besides cutting a great quantity of bloom, the plants are pruned annually, that is, all the weakly growths are cut out, thus proving that no harm is done by the use of the knife. It is a mistake to suppose that this beautiful *Daphne* is injured by being cut. I may add that the plants alluded to are the white variety (*D. indica alba*), which is generally considered more delicate than *D. indica rubra*. E. A. H.

NOTES OF THE WEEK.

Heliotrope President Garfield is an excellent variety, the flowers deep violet in colour and deliciously sweet. The habit of the plant is excellent. We noted several specimens of it at Gunnersbury Park.

Orchis foliosa is flowering well in the cool Orchid house at Kew. This hardy kind is as beautiful under glass as when in a cold frame. It is strange such an easily grown and vigorous plant is not more cultivated.

Amorphophallus campanulatus.—Those who are interested in Aroids will find a remarkably fine bed of *A. campanulatus* in the Water Lily house at Kew. It resembles *A. viosus* described in THE GARDEN (page 420).

Cypripedium bellatulum improves on acquaintance. One flower we measured recently was fully 3 inches across, and the petals were 1½ inches wide. The ground colour was clear white, overlaid with large, finely coloured spots.

Cypripedium barbatum.—Mr. Eley, Hatcham, sends us a flower of this Lady's Slipper in which the right petal is an exact counterpart of the dorsal sepal, showing the same colouring and shape. It is a singular freak.

The Golden or Corstorphine Plane (from Methven's, Edinburgh) is a fine thing with its great leaves of a golden green colour—suffusion, not a splashed or variegated thing. *Pæonies* promise well for late May and early June.

The white variety of *Dielytra spectabilis* is a beautiful flower of the purest white, but otherwise an exact counterpart of the type. We have seen a variety or two in which the flowers were of a dirty, washed-out pink. This is not its true character.

Arctotis acaulis is one of the most brilliant flowers in the greenhouse at Kew. They are rich orange, about as large as those of an Ox-eye Daisy, and remarkably bright. The leaves are small, hairy, and on the under surface covered with a woolly tomentum. Such a showy flower should be often seen.

Peach trees in the Jardin des Plantes.—A curious sight here is two or three old Chinese Peach

trees generally bearing double white flowers, but some flowers are entirely of a rich deep crimson, which can be seen from a long distance amidst the white, also on a twig crowded with white flowers may be seen a single rosette of crimson. How is this to be accounted for?

Coloured Primroses.—I send you a bouquet of my new seedling Primroses, Auriculas, and Polyanthus of this year.—C. STUART, M.D., *Hillside, Chirnside, N.B.*

*** Beautiful flowers, the colours rich, varied, and striking.—Ed.

Arisæmas are especially well grown at Kew, where there is a good collection. They are placed in the small annexe to the Victoria house. *A. speciosa* is the most beautiful of all, and it is interesting to note the variation in colour of the several spathe. Some are of a pale brownish red colour, others deeper, and one is almost black, the silvery veins standing out in bold contrast.

Ornithogalum nutans is a great weed, though a very beautiful one, and where room can be spared it should be encouraged to increase. With me it comes up all over the borders just in the very places where it is least wanted, but its greenish-white flowers give a relief from the blooms of *Tulipa Greigi* near by. The flowers of *O. nutans*, which last a long time in good condition, are useful for cutting.—K.

A mixture of old-fashioned flowers we noted the other day as something uncommon, and yet extremely beautiful. The bed was composed of carmine, yellow, and other coloured Tulips, yellow Wall-flowers, Forget-me-nots, Arabis, Aubrietia, and red and white Daisies. The most elaborate and costly design could not have given greater pleasure than this simple arrangement of common flowers.

Rhododendron Nuttalli was magnificent a few days ago in the temperate house at Kew. A large specimen of it carried eighteen of the heavy trusses of noble flowers. These are white, save a yellow base to the tube, and several inches in length. A plant like this is worth a long journey to see. It is one of the finest of the Himalayan *Rhododendrons*. R. Aucklandi was also blooming well.

Flowers from Scotland.—I send you a box containing flowers of *R. Nuttalli*, *R. Veitchii*, *R. Edgworthii* fragrantissimum, *R. virgatum*, *Jovellana* (*Calceolaria*) punctata, *Solanum pschychotrifolium*, large-flowering Scabious, &c.—J. GRAHAM, *Milne Garden, Coldstream, N.B.*

*** A splendid gathering. The truss of *R. Nuttalli* had seven fully expanded flowers, the tube of each bloom measuring 5 inches long and 5 inches across the mouth. The flowers are very fragrant, and beautiful in both colour and form. The flowers of the Scabious were as fine as we have ever seen.—Ed.

The dwarf Almond (*Amygdalus nanus*) is a very pretty low-growing shrub for the front row of a border or for the rockery. It is now a mass of twiggy shoots, wreathed with pink buds and open flowers. It only grows 1½ feet or so high, and extends itself by creeping underground stems, which make their appearance here and there, often at some distance from the original plant. It never becomes so dense as to interfere with its neighbours.—J. S.

—A very effective bush in the Jardin des Plantes, Paris, is *Amygdalus nanus*, which has crimson flowers. The old Judas trees are beginning to get a purple tinge from the flowers crowding the branches.

Narcissi in 1889.—The Narcissi, on the whole, have done much better than I expected, considering the want of sun during last summer. I think we may safely assume that Narcissi thrive and can be cultivated for sale in these islands quite as well as in Holland. A few of the larger varieties of *N. incomparabilis* have not shown their true character. I enclose a few blooms of *J. B. M. Camm* and *Burbridge's* conspicuous (*Constance*), also blooms of *Leeds Duchesse of Westminster*, *incomparabilis Beauty*, and *Barri Flora Wilson*.—G. H. CAMMELL, *Hathersage, Sheffield*.

*** We agree with you that Narcissi can be cultivated quite as well in England as in Holland.—Ed.

Rhododendron Roylei.—Apropos of the two articles in THE GARDEN on Himalayan *Rhododendrons*, I do not see any mention of *R. Roylei*, an Indian species allied to *R. cinnabarinum*, according to a writer in the *Flore des Serres*, vol. v. A small bush of this, about 2½ feet high, has flowered here in the open air, there having been twenty heads of flower on the bush. The flowers are well shaped, of a delicate creamy white, with chocolate spots inside, and which, owing to the transparency of the flower, are also visible on the outside. The

whole effect is very elegant. *Azara microphylla* has also been in flower against a wall, every twig being studded on the underside with small yellow, rather inconspicuous flowers with a delicious Vanilla odour. *Phillyrea Vilmoriniana* has also every branch wreathed with delicate white flowers, which are very fragrant—perhaps more agreeable at a short distance than close at hand. It is certainly a charming object when in full flower.—R. E. C. CHAMBERS, *Crayswood Hill, Haslemere*.

Orchids from Warrington.—I enclose flowers of two Orchids—one, *Cattleya Mendeli*, with a well-fringed lip; the other, *Lælia Brysiana*, which has been very fine. One spike had five flowers.—C. J. CATT, *Grappenhall, Hayes*.

*** Very good forms. *L. Brysiana* is a well-marked variety of *purpurata*; the sepals and petals pale rose, and the lip deep purple-crimson.—Ed.

Lilium Thomsonianum is a distinct and beautiful early flower, and some plants in pots are blooming freely with Mr. Ware. Although hardy, it should be grown in a cool house to get the flowers in their best condition. They are comparatively small, pale lilac in colour, and produced on a strong upright spike. It makes an excellent and uncommon pot plant for this season of the year.

The white Buttercup (*Ranunculus amplexicaulis*) is a favourite market flower, and one of the best early spring blooming plants for the garden. It grows almost anywhere and is perfectly hardy, as may be seen from large masses of it, now a sheet of white, in the Tottenham Nursery. The flowers are about as large as a halfpenny, very similar to those of the common yellow Buttercup of the field in shape, and of the purest white, except the bunch of yellow stamens. It lasts well when cut.

Tecophylæa cyanocrocus in Holland.—It may be of some interest to state that there are now flowering in my garden a few plants of *Tecophylæa cyanocrocus*, which remained outside all winter, and did not receive any special attention or cover besides the thin layer of reeds with which we usually cover our bulbs in winter. The blue of the flowers is now exceptionally deep and brilliant, and the plants much dwarfer than when grown under glass.—C. G. VAN TUBERGEN, JUN., *Haarlem*.

A note from Gloucester.—*Berberis Darwini* has been and still is in fine bloom. How seldom one sees this in any quantity. There are at least twenty large bushes in this and an adjoining garden. The double crimson Peach and the double Pink, also the double Cherry, the very large kinds, are in bloom. The last is planted against a Holly, which is still covered with red berries, and one begins to wonder if they will ever drop. In this village the pink and a purple-crimson *Daphne*, a seedling, also the green-flowered kind, abound in cottage gardens. *Camassia Leichtlini* is beginning to bloom. So many persons say *Lilium Szovitzianum* is a difficult subject to move, that I ought to say in its favour that mine bloomed well last year, having been moved in 1887, and are now looking very happy, having only been planted from pots about eight weeks.—C. O. MILES, *Almondsbury Vicarage*.

Double-flowered Peaches.—The double-flowered Peach of China and Japan is not quite happy in our London gardens, but in the Jardin des Plantes and elsewhere near Paris it is one of the most striking of all early spring flowering trees. Late in April three trees in the Paris garden were the feature of the place as seen in company with a double-blossomed *Prunus spinosa*, with its little silvery rosettes, and Lindley's *Prunus*, or *Amygdalopsis*, a shrub of infinite softness and beauty when at its best, but often totally ruined by grafting it on to an unsuitable Plum stock. On its own roots in the Jardin des Plantes it grows and flowers quite freely, even suckers of 12 inches in height being strung with rosy buds. So also at Cambridge, the dwarf Almond (*Amygdalus nana*) suckers up in the Grass quite freely, its slender shoots strung with glowing buds as bright as those of *Primula rosea*. Undoubtedly the lovely double-flowered Peaches of China would also be delightful on the Grass if grown naturally on

their own roots instead of being grafted as is now nearly invariably the case. Even as grafted standards, however, they are very effective in the Paris gardens, and show up among the leafless and flowerless shrubs near them in a delightful way. There are several varieties of different shades of rose colour and all are beautiful. In cold or uncongenial localities they would make nice plants for walls, or they might be cultivated in pots or tubs and flowered indoors. I should be glad to hear of any nursery where these rosy double-flowered Peaches can be obtained on their own roots.—F. W. B.

Robinson's Windflower (*Anemone Robinsoniana*).—In the flower border, in the wild garden and in pots I have tried this with equal success, and find it the most beautiful and easily managed of this section. The numerous large soft-tinted flowers are now very charming, and surpass those of the old *A. nemorosa* as much as those of *japonica* surpass the blooms of *A. virginiana*. The smallest piece will grow, and this Windflower is therefore easily increased.—K.

Tulips from Holland.—We have the pleasure to send you a small box containing three varieties of early single Tulips, viz., *Jenny*, *Scarlet Pottebakker*, true; and *Queen of the Netherlands*. They belong to the show varieties, and are considered as the most distinct of the early flowering class.—ANT. ROOZEN AND SON, *Haarlem*.

* * Very fine flowers. *Queen of the Netherlands* is white, flushed with delicate pink; *Scarlet Pottebakker*, fine scarlet; and *Jenny*, rich carmine.—ED.

Narcissus Sabini and Backhousei.—I am quite willing to admit Mr. Burbidge's contention in THE GARDEN, May 4 (p. 407), that in my "Handbook of Amaryllideæ" I have not worked to scale in separating in a distinct paragraph N. *Backhousei* (Hort. Barr.) from N. *Sabini* (Lindl.). I thought at the time when I drew up the descriptions that N. *Backhousei* had in the perianth segments more of the colouring of typical pseudo-Narcissus, and *Sabini* that of bicolor, but many months ago Mr. Dewar challenged this, and quite convinced me that the two were not worth individualising—at any rate as we use names botanically. The large series of Pyrenean hybrids now in flower in the herbaceous ground at Kew is most instructive. Lindley wrote the name "*Sabini*" not "*Sabinei*," and according to established usage the original authority should be followed. There is a well-known *Rosa Sabini*, a widely spread British form, and we always spell the name without the "e."—J. G. BAKER.

The Chinese Water Lily Tree (*Magnolia Yulan*, or *M. conspicua* of English gardens) is one of the most beautiful and effective of all flowering shrubs in the gardens of the Champs Elysée. It is lovely, whether as a distant mass of blossoms among other shrubs or as seen near at hand, when every one of its 500 upturned chalice can be seen. Of late years it seems to have been somewhat neglected in our London gardens, although there exist here and there fine old examples, which flower well during a favourable spring. It used to be one of the features of Rollisson's old nursery at Tooting, and fine examples may still be seen at Gunnersbury House and elsewhere. It would seem to be a subject well worthy of pot or tub culture for conservatory decoration early in the year, all its great flowers require being protected from spring frosts and no artificial heat nor special culture. So grown it would be an addition to the *Pæonies* and coloured cut-leaved *Maples* now so popular and useful during the early months of the year.—F. W. B.

Tulips at Kew are just now very beautiful, more particularly the species or garden varieties as distinct from the florist's kinds. The flowers of these species are in every way more handsome than those of the florist's varieties. They are showier, more vividly coloured, and of better form. The first to flower was the pretty dwarf *T. Biebersteini*, which is only a small form of *sylvestris* from

South Russia, and useful for the rockery on account of its earliness. *T. Kaufmanniana* is a very lovely species, and promises in its variableness to give us in the course of time some striking forms. The flower on the outside is bright carmine, with a bright yellow centre; above this carmine streaked with white. There is also a yellow form. *Kolpakowskyana* is also variable, bright cherry red, with black eye or yellow flamed red, or pure yellow with black eye.

Flowers from Exeter.—By parcel post we have sent you a few Parrot Tulips from a bed of these in our nursery. Considering their richness of colouring and fantastic shapes, we are surprised that they are not more largely grown than at present. They are always interesting, and very effective in beds; while they come in after *Hyacinths*, *Daffodils*, and early Tulips are gone, which is a great consideration. We also send a spray of *Choisya ternata* (the Mexican Orange Flower). This has stood through many winters in our Exminster nursery, four miles below Exeter. In some seasons the leaves become slightly seared by the frosty east winds, but this year the foliage is perfect and healthy, and the bushes are bristling with bloom. There is a dense bushy row of it 6 feet high, the same through, and about 75 feet in length. As a sweet-scented, ornamental-foliaged, flowering shrub it has few equals, and we see no reason why it should not be hardy enough for the open ground in any of the southern and western counties, or even the midlands.—ROBERT VEITCH AND SON, *Exeter*.

Orchid flowers for church decoration.—A grand treat was given to visitors to Streatham on Sunday last, May 5, the anniversary of the opening of the Church of the Sacred Heart. The church was beautifully and tastefully decorated with a profusion of Orchid blooms from The Woodlands collection, sent by the kindness of Mr. R. Measures. Although I have at various times seen decorations of this kind completely spoiled through bad taste and bad arrangement, such was not the case on the present occasion. The arrangement was elegant in conception, proving conclusively how well Orchid blooms are adapted for this purpose. The altar was decorated with a rich profusion of cut blooms of Orchids in great variety, whilst the space around was filled with a collection of plants in pots, amongst which I noticed quantities of *Cattleyas*, *Odontoglossums*, and *Oncidiums*; these were tastefully grouped with Ferns and Palms, and the effect was charming. The grounds of The Woodlands were afterwards thrown open to visitors, and were largely patronised. Notwithstanding the enormous quantity of cut blooms and pot plants in the church, there was little perceptible difference in the grand display which is usually to be seen there.—G.

Shrubs in flower at Cork.—Amongst the many shrubs now in flower here I will mention a few that are not so often seen as they should be, as there are many gardens in the warmer parts of England where shrubs that are not considered hardy would do equally as well as here. *Aster agrophyllus* is now in flower. The under sides of the leaves are silvery and the upper a dark green, and when moved by the wind the two colours render the shrub most attractive. *Correa ventricosa*, *C. alba*, and *C. viridis* have been in flower for several months. These will grow in fibrous peat and loam with sand, and prove most interesting to all lovers of shrubs. *Grevillea rosmarinifolia* is valuable, not so much for the beauty of its flowers as from its continuing in bloom so long. *Choisya ternata* is now in full flower in several aspects, and everywhere seems perfectly hardy; the flowers are as sweet-scented as those of the Orange, which they resemble both in colour and perfume. It may be struck from cuttings put in in autumn and kept in a close cold frame, and will grow in any good garden soil. *Griselinia littoralis* and *G. macrophylla* are both now very full of flower. The flowers are not very showy, being of a light green colour, but with the darker shining leaves they make this shrub attractive and valuable. The old *Azalea indica alba* surrounded with *Azalea amena* makes a very

fine clump here, and is now in fine flower. When not injured by high winds and heavy rains these last much longer in bloom outside than under glass. *Camellias*, both as bushes and on walls, have been in flower for several months. Even when not in bloom *Camellias* are valuable as Evergreens. *Olearias* are now covered with their white star-like flowers, and should be grown by everyone. *Staphylea colchica* is now in full beauty, and such a free and sweet flowering shrub should be much more grown than it is.—W. O., *Fota, Cork*.

Phillyrea Vilmoriniana.—This has been noted from time to time in THE GARDEN as a beautiful evergreen shrub, but, in addition to this, the flowers are borne in such profusion as to cause it to occupy a prominent position among shrubs that bloom at this season of the year. The flowers, which are small and white, are arranged in dense axillary clusters along a foot or more of the shoots, even into the old wood, so that when fully expanded they form quite a wreath of blossom, and in this state somewhat resemble those of the South African Winter Sweet (*Toxicophlæa spectabilis*). As a rule the flowers are not borne towards the extreme points of the shoots, for they usually commence at 6 inches or thereabouts from the upper part. The fragrance of the blossoms is so pronounced as to be perceptible for some little distance during sunshine. The fact of this *Phillyrea* being so free-flowering further enhances its value as a most desirable hardy shrub. Some fine plants are now in full beauty in the collection of *Phillyreas* at Kew.

Bulbs at Kew.—During recent years a great deal has been done at Kew to render the gardens more attractive during the spring months by planting the numerous flower beds with *Hyacinths* and other bulbs. The beds on either side of the broad walk leading from the main entrance are planted with *Hyacinths* and Tulips alternately, with a band of *Crocuses* round each bed. Although the bloom of the *Crocuses* is quite over, the bright green foliage gives a finish to the beds. Most of the beds are planted with two sorts, shades of the same colour; for example, *Hyacinths* Charles Dickens and *Grand Lilas*, dark and light blue, are used in the same bed, and Robert Steiger and *giganteus* in another bed are also very noticeable. Tulips are planted in the same way with equally good results. In other parts of the garden, beds of *Narcissi* of various kinds are very beautiful. Noticeable amongst them are *Emperor* and *Empress*. The bulbs of these are all lifted as soon as the foliage dies down, and stored away till the season for planting again comes round. Bulbs of *Hyacinths* and Tulips also treated in this way do equally as well as the imported ones; in fact some old bulbs of Tulips have this year flowered better than those newly imported.—G.

Cereus C. J. T. Peacock is in flower in the Cactus house at Kew, and it is at once apparent that it is one of the most brilliant kinds of its class. A coloured plate of *Cereus C. M. Hovey* appeared in THE GARDEN of August 13, 1881, and in the accompanying article there is a note upon the hybrid C. J. T. Peacock. It was named in compliment to the gentleman whose name it bears, and at his death recently the stock was distributed, having been held by him until then. It was raised in the Sudbury House collection, and bloomed for the first time in 1881, so that it is not a new plant, although never seen outside Mr. Peacock's garden. The habit partakes of that of a *Phyllocactus*, and the splendid flowers are fully 8 inches across when expanded and of gorgeous colouring. There are few plants in which such brilliant tints are mingled as in the *Cactuses*, and this *Cereus* is one of the brightest examples of all. We have a rich scarlet colour in the narrow sepals, and in the broad handsome petals this is intensified by a dazzling violet shade of peculiar brilliancy, especially when a ray of sun lights up the flower. It is seldom we have seen a bloom of more striking or distinctive colouring. The acquisition of such hybrids as these cannot fail to bring the *Cactuses* into more general cultivation; there is an idea that they are curious, but nothing more.

ALDINGBOURNE HOUSE.

In a flat, but fertile district, which lies between the Downs and the sea, and about five miles from the ancient town of Chichester, is Aldingbourne House, the old, but pretty residence of Mr. W. W. Hasler. Very little of the walls of the house can be seen, so completely are they wreathed with beautiful creepers or hidden by clustering masses of wall shrubs. The engraving faithfully portrays the house as it is seen from the lawn, but art can never fully show the beauty which here abounds upon and around the house. No photograph could convey a true idea of the Fuchsias as they grow here upon the walls. The Fuchsias have attained to a large height, and annually put forth branches which are permitted to grow out naturally and become perfect wands, from which depend countless

ness and harsh appearance of the walls the whole year through. Even those who cover a house with Ivy or the Virginian Creeper produce simply monotony where beauty and variety could easily have been had by using some of the beautiful things adapted for that purpose, but which are quite excluded from many gardens owing either to a mistaken notion of what ornamental gardening is or from an inability to grasp its full scope. We see but few climbing plants in gardens, yet the Honeysuckles, the wild scrambling native Roses, and the Woodbine make pictures that might be equalled and excelled in gardens by a freer use in a like manner of similar plants from other countries. If all the bare walls of English houses were covered as at Aldingbourne it would be a great improvement.

An old, but spacious conservatory adjoins the

head of leafage upon a tall portly stem. Aldingbourne is no exception to the other old Sussex places in respect to its kitchen garden; in fact, the one here in earlier days had the reputation of being the best in the district. The sites of these old kitchen gardens are generally the best that could have been chosen, and impress one with the amount of consideration that was generally brought to bear upon the laying out of places in years gone by. A. H.

FLOWER GARDEN.

DAFFODILS IN ENGLAND.

"C," in THE GARDEN, April 27 (p. 393), amply corroborates the fact which I have long maintained, viz., that the Daffodil can be better



Aldingbourne House. Engraved for THE GARDEN from a photograph by Messrs. J. Russell and Sons, Chichester.

thousands of blossoms throughout the whole season. A large Magnolia is well shown in the engraving, and there are several other fine specimens which grow with a vigour and flower with a profusion rarely equalled. Beneath some of the lower windows cluster rich masses of Myrtle, which, like many other things in this favoured spot, is perfectly hardy. The Escallonias, with their glossy green leaves, were masses of rosy blossoms. They are never healthier than when within reach of the sea air, of which they have plenty at Aldingbourne.

Upon this creeper-adorned house scarcely an inch of vacant space can be found, yet this, the prettiest feature of Aldingbourne, is one which gives incalculable pleasure, interest, and beauty for very little trouble. It is surprising that so many who build houses can tolerate the bald-

house, and is filled chiefly with Camellias planted out. The plants are healthy and vigorous, and the quantity of flowers produced annually is enormous. A pleasant breadth of lawn spreads before the front of the house and merges into park-like meadows, whose pasture is rich and betokens great fertility. Several groves of young evergreen Oaks are flourishing, and promise soon to lend additional interest. If anyone is seeking for a tree that may be planted near the sea with the certainty of thriving, the numerous evergreen Oaks about this part of Sussex testify to their suitability for sea-side cultivation. In a shrubbery border which terminates the lawn is a fine *Dracæna australis* (referred to in THE GARDEN, April 13, p. 329) which has stood unprotected and has come unharmed through the last six years. It now raises a noble

grown in the British Islands than in Holland or anywhere else in the world. I think I might go a little further and add that the Tulip may be also much better grown at home than abroad. I have seen Mr. Walker's bulb grounds at Ham and Whitton since "C." wrote, and can substantiate the remarks he has penned as to the health, vigorous growth, variety, and beauty of Mr. Walker's flowers. I should say nothing so fine has ever been before seen in any part of the world in the way of Daffodil and Tulip culture, and the collection as it now exists proves beyond a doubt that we have been bringing "coals to Newcastle."

Anyone doubting the suitability of the English soil and climate for Tulips and Narcissi should lose no time in getting a peep at Mr. Walker's collections, and he will come away

happier and wiser for the journey. The great breadth of the Imperial Daffodils, such as Emperor and Empress, were nearly cleared of flowers, but a break of 20,000 *N. bicolor grandis* in its budding beauty of earliest blossoming was a sight to see and something to think of afterwards. The long lines of Tulips looked like gorgeous Eastern carpets spread out in the sunshine, and the flower gatherers and heaps of fresh flowers in the foreground of a soft and beautiful English landscape made up a picture fair to see beneath an April sky. But beautiful as are the flowers at Ham, valuable as are those countless thousands of brown bulbs in the light rich soil, there lie buried there the seeds or germs of a great national industry, and the proof positive that we can grow many if not all our flower roots at home instead of purchasing them from abroad. It has not been an easy struggle perhaps, but energy, capital, and a great love for flowers, together with a good soil and climate, have produced wonderful results.

F. W. BURBIDGE.

NOTES ON HARDY PLANTS.

Valeriana Phu aurea.—This has certainly been an attractive plant for over a month, for it not only grows in winter, but the severest frosts seem to have no effect upon it. Still there is a good reason why most people discard it when they have fairly made its acquaintance. As early as the month of April it becomes of an almost normal green colour, and there is no more beauty about the plant until the following winter. During a period of six weeks its foliage will remain, but afterwards the plant is worse than useless—it is an eyesore. Those who have grown this plant for its yellow leaves might make a most profitable exchange of it for several varieties of *Hemerocallis*, especially *fulva* and some of the larger and early-leaving sorts. All are quite yellow in their young state, and they are quite as early as the yellow Valerian. They do not get green nearly so soon, and even then they are of a lively apple-green. Of course there will follow in due time a crop of most desirable flowers, and the Day Lilies have a neat and almost tropical effect. I do not mean the variegated forms, but the types, which are all both early and yellow.

White Daffodils.—There is in England at least one place where these may be said to be growing in abundance in a sort of wild or naturalised way, and though I am not at liberty to state the locality or owner's name, I am enabled to furnish facts likely to prove useful and interesting. Some flowers have been sent to me. They are those of cernuus, splendidly grown, and almost double the size of those we usually see of this kind in gardens. I have also received some bulbs with the leaves on them; they show that they have grown at a great depth—7 inches or 8 inches. The leaves are as remarkable for size and vigour as the flowers, some of them being 18 inches long. The owner says: "I enclose specimens of white Daffodils of a sort that has been here for centuries—judging from dates, I think ever since 1500 or 1600. They grow all about in the (dry) moat sides and garden of our old Norman castle along with other varieties and several coloured Primroses of very old date, all having escaped from an Elizabethan garden, where they are abundant, and were brought down here, I fancy, about the time of the Commonwealth or Charles I." I should be most willing to ask, and I am sure the owner would be willing to give, any further information of a practical character in reference to this ancient home of white Daffodils.

A white *Ficaria* given me by a German friend and found in the Swiss Alps is both pretty and useful. It began to flower in February, and it usually goes on blooming for several months. I have grown it three years; it is very different in habit to our Pilewort, making dense lively green tufts 6 inches high. The flowers are white, each an inch across, and freely produced. Possibly it may be a white form of *F. ranunculoides*, but if so, its habit is much changed. If the *Ficaria* flowers did not sleep

so many hours in the daytime, the plants would be more useful; they, however, enjoy an immunity from slugs, though grown in damp places. I have all kinds of slugs here, but none ever touch *Ficarias* and *Calthas*.

Adonis pyrenaica.—Nearly two years ago, Mr. Wolley Dod sent me some newly-imported plants. Some were in fair condition; others had very little root indeed. No doubt they were as good as the plants of this kind usually are when they come direct from the collector. As the roots often fail to start unless carefully treated, and too often reach the planter before they have fairly begun to grow, these facts may account for many losses. I tested all the roots in various ways and soils, and took note of every one. Two of them put directly into the open border have fared the worst; those in pots, "long toms," with various soils—as fibrous loam, fine peat, and peat and loam—have done better. A number were put in a sand bed in full sunshine and kept moist; they quickly made new roots in plenty, and were then potted into ordinary stuff; these have done the best. It is another proof to my mind that nearly all dried-up plants that have been collected, and had their roots much mutilated, are better for a preliminary treatment in sand. It is the only really safe plan that I know.

Saxifraga longifolia.—Newly-collected rosettes of good size have come to hand with nothing but a short stick-like root-stock 2 inches long and entirely fibreless. These are simply pushed, like a drawing-board pin, into a bed of sand, fully exposed and kept moist. It is pleasing to see how soon a mass of roots is formed at this time of year.

Pyrola rotundifolia.—By the kindness of Mr. Wolley Dod I was put in possession of a nice lot of wild plants. It is always hard to get this *Pyrola* without breaking the roots a great deal. It is now six or eight weeks since the plants were taken under cultural treatment, and they are all growing vigorously and the flowers are opening as if the plants had not been moved. Coming from a habitat where they would get sea water, Mr. Dod suggested that the water given them should be made slightly saline; this was done occasionally, and I believe it proved helpful. The plants, potted in loam and sand with a liberal admixture of rotten Sphagnum rubbed fine, were half plunged in sand in a moist, but airy, cold frame.

Hesperochiron pumilum.—I took this little gem in hand with great doubt as to its usefulness in the open garden. I, however, fully exposed it plunged in sand in a 5-inch pot, and it has come forth double its size of last summer. It has not a single scar on its foliage, which is more than can be said for very many other reputed hardy things.

Hellebore species.—I believe it is generally conceded that these are grown nowhere better than at Glasnevin. Climatic conditions are favourable no doubt, but as Mr. Moore has been so kind as to send me some specimen roots, I noted one fact of treatment which made a strong impression on my mind. I saw by the roots that they had been either regularly and heavily mulched with strong, but rich soil, or they had been periodically lifted and divided and then set deeper. On two species I found a portion of the rhizomatose stems as much as a foot below the verdant stems or surface line, with indications that the surface had either been raised or the plants lowered several times. We may consider this an important part of the treatment of Hellebores, including the niger section, which I am sure is better for deep planting. In the hot summer of 1887 I lifted young stock, taking care of all the roots, and put them 3 inches deeper, to the certain benefit of the plants; the latter were watered well both before and after the operation. To have top-dressed them would not have answered my purpose so well, and the exceptional hot season favoured the carrying out of an experiment I had long wished to make. Never afterwards did the foliage flag; the plants flowered well the following winter, and last winter they were the only specimens that did really well. I ought to add that I

think I have an advantage in the kind of manure I employ, viz., refuse from camel and alpaca hair. I find it a splendid manure, and besides it improves the texture of stiff land.

Woodville, Kirkstall.

J. Wood.

CARNATIONS.

THE coloured plate of two French Carnations in THE GARDEN (April 13) reminds me that the council of the Royal Horticultural Society has promised us a trial of Carnations in the Chiswick Gardens next year, when it is hoped that not only the beautiful varieties illustrated, but all the finest forms, especially those which are hardy, robust, and of striking colours, will be seen at their best in friendly rivalry. In the article accompanying the plate "A. H." says that English Carnation raisers have rather concentrated their efforts upon the production of striped and flaked flowers. If that be so, how is it that we have in commerce so many very beautiful selfs of English raising? "A. H." incorrectly assumes that in raising even from flaked varieties the produce will inevitably be all flaked or striped. That is a grave error. Some of the best selfs of the day have come out of such parentage, just as I have had numerous flaked and bizarre flowers come from pure selfs. Nature has her methods of working which may seem to us to be strange and inscrutable, but certainly she does many things in flower production which are the very opposite to our anticipations. I shall bloom nearly 2000 seedling Carnations this year, and expect that fully two-thirds of the plants will produce white, rose, carmine, salmon, red, crimson, purple, plum, or similar hues of colour, and possibly some absolutely new. I am not working in any way for show flowers—only for fine hardy border varieties. Then I regard his statement that many have been content to grope along in flower gardening without Roses and Carnations is an exaggeration. A few—a very few—people may have been so foolish, but just now there are not to be found in the whole kingdom two more popular hardy garden flowers than the Rose and the Carnation. "A. H." warns us against employing seedling plants for flower garden decoration. That rather leads to the conclusion that "A. H.'s" experience of seedlings has been limited to the common cheap French or German strains. I have grown these and found in them indeed a marvellous wealth of flowers, very full and double, but not large, and often of indefinite hues or markings. For those who have to furnish a quantity of cut flowers for different purposes, these forms, whether the flowers be of self colour, whether striped or edged like Picotees, are wonderfully useful, and for their perfume are highly appreciated. But English raised seedlings of good strains give, beyond abundance of bloom in great variety, also fine flowers, borne on stout stems and of good double quality. Of course, it may not be possible to determine colours from seedlings, as is the case with propagated plants, but they do produce wonderful heads of bloom. To get these fine heads I like sowing seed early in the autumn in frames or shallow boxes, dibbling the plants up into other frames for the winter, and then getting them out into the open ground in the spring. By the summer of the following year they each make a big clump, and will carry huge heads of bloom.

Reverting to the proposed Chiswick trial, which should secure a big entry, I believe it will comprise not more than three plants of each variety, and if these should be planted in clumps or blocks, rather than in the usual stereotyped rows, a very much better effect will result. I hope the trial will include classes for all kinds of colours, such as are found in Carnations, especially of selfs, although many of the fancy or bizarre forms are very pleasing when in good clumps. As, presumably, all the plants sent will be strong-rooted layers of the present year, it is obvious that only by making clumps of these in threes can any considerable heads of bloom be produced. Classes for whites, yellows, roses, carmines or pinks, salmons, plums, purples or violets, scarlets, crimsons, &c., with some for scarlet, purple, and crimson fancies or bizarres, would probably suffice to secure representatives of all

kinds best fitted for outdoor culture and garden decoration. Some iron stakes, to which are attached stout wire supports for the flowers, would be better than having each stem tied up singly, as the loose support would enable the flowers to hang gracefully and avoid stiffness. Probably there is no greater obstacle in the way of general Carnation culture than is the necessity for having the flower-stems tied up to sticks, unless there be at disposal some simple form of wire support, which will enable the flowers to be kept off the ground with little trouble.

A. D.

Primula Sieboldi.—The note regarding this beautiful Primrose and its numerous varieties in *THE GARDEN*, April 13 (p. 335), reminds me how readily they can be increased by root cuttings. Where any established plants are shifted during the winter, if some of the principal roots are taken off, cut up into lengths of about an inch, and dibbled into pans or boxes of sandy soil at such a depth that the top of the root is just below the surface of the soil, they will push up little tufts of foliage during the spring, and form fair-sized crowns before winter. As they are increased so readily in this way, and are so beautiful when in bloom, it is a matter for surprise that they are not grown much more than is the case at present, especially for the embellishment of the greenhouse at this season.—T.

The Toothwort (*Lactaria squamaria*).—That this little-known native plant is one of great beauty was never so clearly brought home to me as one day last week, when hundreds of the curious and showy flowers were at their best beneath the old Elm trees growing on the chalk formation. Many of the plants were 1 foot in height, with thick succulent stems half an inch in diameter, and thickly studded with their handsome and pretty purple-blue flowers, deeply margined with a rich deep pink. When seen side by side, as at the Royal Horticultural Society's meeting on the 23rd of April last, with the rare *L. clandestina*, our native wildling looked showy and grand, it being fully twice the height of its foreign friend. The flowers of *L. squamaria* were bright and stately; whereas those of *L. clandestina* were sparsely produced on short stalks, and of a dirty washed-out mixture of purple and blue. Far more interesting in every way is our native species, one that justly merits attention for its distinct and pretty flowers, and a plant that, could we cultivate it, would soon become a general favourite. I hope that it may be found capable of cultivation, and I fancy that the same method as that which I practise with the Broomrapes (*Orobanchaceae*) will be successful in the case of the Toothwort.—A. D. WEBSTER.

Colour in Primroses.—There is much truth in what Mr. Engleheart writes in *THE GARDEN*, April 13 (p. 332), and I uphold especially his strong condemnation of the slaty tones being infused into the garden Primrose or any other flower. This intolerable ashy grey—an objectionable nondescript colour—is spoiling the self Auricula, the Cyclamen, and even the Carnation is not free from it, as in one stand of blooms shown by a well-known florist last season I noticed a flower wholly of this uninviting colour. It is strange to account for taste, but a man or woman must have a peculiar idea of colouring to see beauty in such a shade, especially when it is blended with a kind of purple or crimson. The result is a crude mixture every sensitive artist would shun. The purples, magentas, and shades of the same, as we see them in the Primrose, are seldom beautiful. We love self flowers, and admire most the brilliant rose, the crimson, and true lake tints, such as we see in Mr. Dean's collection. In a small garden I was in lately there was a splendid tuft of a true rose Primrose, the brightest and most beautiful thing in a well stocked garden; but a dirty purple, dull magenta, or a leaden colour of this kind would have made no effect, but rather have proved an eyesore. There is one more point in the Primrose to protest against. It is foreign to the flower, an innovation that should not be tolerated; we refer to the raising of varieties in which the edges of the flowers are cut into by a streak of

white, or sometimes the body of the bloom is shot with white lines, and occasionally the markings take the form of small spots. This is as much against true taste as the importing of dirty purples, &c., into the bloom. We judge the Primrose as a garden flower, and weak or "spotty" colours in the beds or borders have no chance. When the plants are grown in pots and the flowers come close under the eye, their faults are still more apparent.—T. W.

Calceolarias in the flower garden.—All who have grown Calceolarias for any length of time and extensively in the flower garden know that the plants very often die off suddenly. This is sometimes termed disease, but I think it is very often caused by the plants not being established before the warm and dry summer weather sets in. I have remedied the defect by planting them about the end of April or not later than the first week in May, and now we have no blanks at any time. In many cases the Calceolarias are not put out until the warm weather is at hand, and they have no time to root before it takes effect, the result being that they wither. Coolness at the root suits them at all times, and where they can be established early, failure will be unknown.—J. MUIR.

Double Primroses.—These are so seldom seen grown in quantity in private gardens, that it is very evident that they do not always do well. I have made many attempts to get up a good stock, but have always failed. The first hot and dry summer that came after I thought I had overcome all difficulties very much reduced the number of plants. The lilac-coloured variety is, I find, the least difficult to keep, and next to this the one which has purplish-crimson flowers. This sort with me thrives in any good garden soil and increases more readily than any other. The variety in question bears full, neatly-formed flowers. Another variety which I have has flowers of a brighter shade of red, and what would generally be called a double crimson also does fairly well, but the flowers are not very full. The double yellow and double white I find very difficult to keep alive during a dry summer. That double Primroses can be successfully grown with very little trouble there is abundant evidence. In a garden not many miles from here, where they thrive and flower most luxuriantly, and are used as edging plants to some isolated flower beds, all the attention they get is every third or fourth year they are taken up and divided, and this is done as soon as they go out of flower. It is owing to the plants being taken up and divided in the spring instead of in the autumn that the grower attributes his success. It must, however, be understood that the soil and situation of this garden are favourable to the Primroses. The soil is deep and the bottom cool; the situation of the garden is level with, if not below, a small sheet of water skirting one part of it. Those who have failed in increasing these plants should, however, try the plan of transplanting them in the spring and breaking up the old stools into very small pieces.—J. C. C., Taunton.

Hepaticas.—All the plants of these I cultivate in pots I am now dividing, as they have gone out of bloom. I turn the plants out of the pots, shake the soil from the roots, and then divide carefully, taking off all the crowns that have a few roots attached to them; they are then placed round the sides of 4-inch pots, placing four in a pot, and plunged in a bed of Cocoa fibre. The compost I use is yellow loam, sand, and finely-sifted Cocoa fibre. In a year or fifteen months the plants are then strong enough to be potted singly in small pots and again plunged in the Cocoa fibre bed. I rarely lose a divided plant. But I take care not to reduce the parent plant too much; I generally leave it with four good crowns, and it soon begins to throw up side growths. The Hepatica roots deeply, and I give the plants long-tom pots because of their greater depth. I have this season flowered one single blue which I got from the Continent under the name of *cerulea lævigata*. It is of a bright and pleasing shade of lilac-blue, and comes intermediate between the ordinary single blue and H. Barlowi, which, as far

as my experience goes, is the deepest coloured of all the blues. But that the blue varieties vary from seed there can be no doubt, though they produce seedlings very sparingly. A few years ago, I planted out under a wall with an east aspect a plant each of all the varieties I had; all have done well but the double blue. The tufts of the double red, single white, and single blue are very large, and they throw up great quantities of flowers. For two years past I have not seen a single self-sown seedling, though I endeavour to assist the development of progeny by placing some fine soil about the plants, so that if seed is ripened and falls there may be something for it to germinate in. I find I can succeed best with the double blue grown in pots; it seems to be a little delicate, and to require special care in growing it.—R. D.

THE FLOWERS OF SIBERIA.

SIBERIA is by no means the cold and dreary waste many suppose it to be, and although some northern portions may be colder in winter, there is an immense tract of country, extending from the Ural Mountains on the one hand to the Pacific on the other, which has a temperature in summer 6° higher than the mean summer temperature of England. Tobolsk is 4° warmer than London, and the mean summer temperature of twelve Siberian cities and towns is a fraction over 65°. Cold and scathing as the winters may be, there is a delightful summer temperature, and the hungry mosquito makes up in summer for all lost time, being even more rabad than in the tropical forests and seaside jungles. Seeing that Siberia has such a delightful spring and summer, it need not surprise us to find a writer in the *Century* describing its flowers in an enthusiastic way. He says that—

To the traveller who crosses the Urals for the first time in June nothing is more surprising than the fervent heat of Siberian sunshine and the extraordinary beauty and profusion of Siberian flowers. Although we had been partly prepared, by our voyage up the Kama, for the experience which awaited us on the other side of the mountains, we were fairly astonished upon the threshold of Western Siberia by the scenery, the weather, and the flora. In the fertile, blossoming country presented to us as we rode swiftly eastward into the province of Tobolsk, there was absolutely nothing even remotely to suggest an arctic region. If we had been blindfolded and transported to it suddenly in the middle of a sunny afternoon, we could never have guessed to what part of the world we had been taken. The sky was as clear and blue and the air as soft as the sky and air of California; the trees were all in full leaf; birds were singing over the flowery meadows and in the clumps of Birches by the roadside; there was a drowsy hum of bees and a faint fragrance of flowers and verdure in the air; and the sunshine was as warm and bright as that of a June afternoon in the most favoured part of the temperate zone.

The country through which we passed between the post stations of Cheremishkaya and Sugatskaya was a rich, open, farming region, resembling somewhat that part of Western New York which lies between Rochester and Buffalo. There were no extensive forests, but the gently rolling plain was diversified here and there by small patches of woodland, or groves of Birch and Poplar, and was sometimes cultivated as far as the eye could reach. Extensive stretches of growing Wheat and Rye alternated with wide fields of black ploughed land not yet sown, and occasionally we crossed great expanses of prairie, whose velvety greensward was sprinkled with Dandelions, Buttercups, and Primroses, and dotted in the distance with grazing cattle and sheep. Sometimes, for miles together, the road ran through unfenced, but cultivated land, where men and women in bright-coloured dresses were ploughing, harrowing, or weeding young grain; sometimes we plunged into a dense cool forest, from the depths of which we could hear the soft notes of shy cuckoos, and then we came out into a great sea of meadow blue with Forget-me-nots, where field sparrows and warblers were filling all the air with joyous melody. Flowers met the eye everywhere in great variety and in almost incredible profusion. Never had we seen the earth so carpeted with them even in California. The roadside was bright with wild Roses, Violets, Buttercups, Primroses, Marsh Marigolds, yellow Peas, Irises, and Tartar Honeysuckles; the woods were whitened here and there by soft clouds of wild Cherry blossoms, and the meadows were literally great floral seas of colour.

In some places the beautiful Rose-like flowers of the Golden Trollius covered hundreds of acres with an almost unbroken sheet of vivid yellow; while a few miles farther on, the steppe to the very horizon was a blue ocean of Forget-me-nots. I do not mean simply that the ground was sprinkled with them, nor merely that they grew in great abundance; I mean that the Grass everywhere was completely hidden by them, so that the plain looked as if a sheet of blue gauze had been thrown over it, or as if it were a great expanse of tranquil water reflecting a pale blue sky. More than once these Forget-me-not plains, when seen afar, resembled water so closely as to deceive us both.

AURICULAS.

THOSE who are this season cultivating Auriculas in a frame or unheated structure, depending only upon such solar warmth as is vouchsafed, must this season look for a head of bloom in May instead of April. We have as yet scarcely experienced a genial sunny day during the present month. Heavy moisture-laden clouds and dense mist have hung about for days, and the wind—almost always in the north—has been generally cold, and at times piercingly so. A severer time for Auriculas has not, I think, been known for some years past. I endeavoured to get a few plants into flower by the 23rd of April, and had to keep the house very close and exclude air, with the result that the flowering time was a little advanced, but at the expense of the plants being drawn. The self varieties invariably lead the way. The pips expand more readily than do those of the edged varieties; these and the finer types are always slow in opening, and the more force there is in the plants the longer is the time required to fully expand their pips. I have a plant of Prince of Greens (green edge) that has been six weeks in opening, and even now the flowers are only half opened. Happy are they who can command a little fire heat, and the assistance of artificial heat now appears to be absolutely necessary if a grower is to be able to show in anything like form during the third and fourth weeks in April. But this makes of the exhibition Auricula a hothouse plant, and places nearly all the leading prizes in the hands of those that have large collections.

When air can be given with safety to the house or frame it should be admitted on the side opposite to that from which the wind comes if it is in the east or north. But in the case of a southerly wind it is best to allow the air to circulate freely among the plants without allowing it to blow directly upon them. During the time the weather is so dull, moist, and cold, water should be given with care, and only when it is really required. I know two growers of Auriculas who are at issue in the matter of watering. One I am sure keeps his plants much too moist, for even in the dullest weather the soil in the pots is saturated beyond the requirements of the plants. The other goes to the other extreme to some extent, but he gets the best head of bloom. During the present weather the soil in the pots in my cold house dries but slowly, and it is necessary to look over the plants with the watering pot about twice a week.

The pots should be kept cleansed, for it detracts greatly from the cheerful appearance of a collection if the outsides of the pots are covered with green. The display is also enhanced if the trusses of bloom are supported by means of a neat stake. While there is a good deal said on behalf of the practice in the north, that the stem of an exhibition Auricula should be stout enough and rigid enough to keep the truss of bloom in an erect position without the aid of a support, yet it must be admitted that when the plants are so supported their effectiveness is greatly enhanced.

The double varieties, always late in development, are sadly in arrear this season, and the flowering season will be a very late one. The plants are very strong; they have run much to foliage, and the development of flower-stems is late in consequence. I notice that a Scotch firm has recently sent you some flowers of the old double dark Auricula. I have seedlings of this colour that I think will be found to greatly outdistance the old type, and I hope to

have an opportunity of submitting them to public notice during the next few weeks. R. D.

FLOWER GARDEN NOTES.

WALLFLOWERS.—A market gardener, famous for his stock of Wallflowers, and who grows a score of acres of them, last year gave me plants, and though we have always had a fine lot of such flowers, never before had we so rich a display. The plants are dwarf and covered with flowers, and the more they are cut, the more freely are others produced. The strain is the result of years of selection, the dwarfest and freest-flowering types being always reserved for seed-bearing, and by this means only the present perfection of plants has been attained. Next to the care in selection, my donor attributes his success to early sowing, not later than the middle of the present month being the best time to sow. The plants have thus plenty of time to get strong and vigorous, and so are able to withstand the severest winter. A few of the plants are perfect globular bushes, and I have taken cuttings of these, and hope in time to have the entire stock of this type only.

APENNINE WINDFLOWER.—The beautiful blue *Anemone apennina* has this season continued so long in flower that all who have to do spring bedding ought, I think, to include it in their list for next year's display. If planted in a cool spot and partially shaded from the sun, I have no doubt but that it would bloom as continuously as other spring flowers.

PRIMULA ROSEA.—How magnificent would a large bed of this plant look, but how difficult it is to obtain. It is too delicate to stand with safety our winters in the open borders, and frequent transplantations seriously hinder its increase. It is now flowering freely in the open borders, and has withstood the severity of last winter by the aid of a coating of Cocoa fibre. I think a better and safer plan to treat it would be to pot into far-sized pots and plunge these in the borders for flowering early in April. Take in the plants at the end of October and winter them in cold frames. Propagation is best done by division as soon as flowering is over.

DORONICUMS.—The several varieties of these are not nearly so common as their hardiness and early and free-flowering qualities would warrant. At the present time they are quite invaluable, as they wonderfully light up the otherwise somewhat bare herbaceous borders. The finest varieties are *austriacum*, *dentatum*, and *pardalichianes*, all of the easiest possible culture, and propagated by division of roots. They are considered somewhat common, but flowers of any sort are acceptable till the good herbaceous plants come into bloom.

CREeping FORGET-ME-NOT (*Omphalodes verna*).—As an extra early spring-flowering plant for planting under the shade of trees or on dry banks this is unequalled. A bank of the plant here has been a mass of blue for several weeks past. The position is due south, but shaded with trees, and so dry that nothing else will grow well, yet this plant does perfectly, and flowers as profusely as do Violets in the most favourable positions. The plant requires no assistance in respect of propagation, for the roots ramble in every direction, and when once established are as difficult to eradicate as ground Elder or Couch Grass, and precaution is therefore needed to keep the plants within their appointed bounds.

AUBRIETIAS.—The rockwork is undoubtedly the proper position for these. We have plants both on rockwork and in beds, and whilst in the beds the flowers are barely visible till close to them, on the rockwork they show up well some distance away. Moreover, the plants thrive best on rockwork, and cling either to rocks or tree stems as naturally as do any of the Sedums or Saxifrages. They can be made to do good duty as front line plants on herbaceous borders, and when so used, two or three boulders should be placed on the soil for the plant to trail over. The deep blue variety *Campbelli* is the most beautiful, and, except for variety's sake,

the only kind worth growing. Propagation is readily accomplished by division. Small pieces taken off now and dibbled in firmly on a north border will make large plants by autumn, at which season they should be planted where they are intended to flower. I have seen the plant used with excellent effect as a carpet for Hyacinth and Tulip beds, and when these had done flowering the plants were transferred to the rockwork where they made a grand display the following spring.

DWARF IRISES.—We have but two varieties, *Iris pumila* and *I. cristata*. The growth of neither exceeds 5 inches in height, but the flowers are as fine and as numerous as on plants of much larger growth, and flowering so early as the end of April, makes them all the more valuable. The flowers of *cristata* are of a pale blue, the uppermost petals variegated with orange and deeper blue spots. They are of good substance, and continue in good form from ten to fourteen days. The variety *pumila* is of the same height and habit of growth, but flowers most freely, and not infrequently two or three times in the year. I have seen it in as good flower early in October as in May, with this difference, that whilst the flowers in April and May are rather a deep blue or purple, in autumn they are several shades lighter, being, in fact, what one would describe as light blue. Both the varieties are excellent for planting in the front part of herbaceous borders, and their increase is best accomplished by division of the roots, which may be performed at any time without damage to the plants.

GENERAL WORK.—To bed out all kinds of flowers that will stand 2° or 3° of frost, which includes all *Violas*, *Calceolarias*, *Verbenas*, and most varieties of *Pelargoniums*; the planting of the less hardy kinds to follow after the 20th, after which date it will be safe to risk out all kinds except those very tender, such as *Coleuses* and *Alternantheras*. There is yet plenty of time for the propagation of the latter, and these late-struck plants not unfrequently do the best. Annuals of all kinds should be planted out in showery weather. Intermediate Stocks, Asters, Zinnias, *Phlox Drummondii*, and Indian Pinks are the favourites here, and consequently we take pains to have them in quantity, and as good as rich soil can make them. The plants are raised under glass, and are transferred from the seed bed with all the roots that it is possible to secure, and they are planted with the same care as the most precious bedding plants; consequently failure is all but unknown. W. W.

Hybrid Primula.—The hybrid *Primula* which was exhibited by me at the last meeting of the Royal Horticultural Society, and which the floral committee desired to see again, was obtained by crossing alpine *Auricula* *Beatrice* with *Primula ciliata* *purpurea*. I raised five plants, but the one exhibited is the only one that has flowered. The habit of the seed parent is retained; the effect of the pollen parent has been to give an enlarged flower of a blue shade. It is doubtful whether it is of any real value, but it is interesting as showing what might be done in the way of obtaining new forms. The committee will have to wait until next year before they see it again; the plant was small and had but three flowers, and they are now over. My aim was to get a decided blue *Primula* of the ciliata type, and I think I have made a slight advance in that direction. I think one danger that besets hybridisers who make such crosses is producing an inferior type of alpine *Auricula*, and not being courageous enough to throw away any of the progeny which might be denominated rubbish.—R. DEAN, *Eating, W.*

Hyacinths on Grass.—The bedraggled appearance of Hyacinths in beds and borders after heavy rains, when contrasted with the freshness of those growing in turf, shows the great advantage of the latter method of cultivation. Even staking the spikes does not save the flowers from being splashed with soil when rain falls heavily on the beds, and it makes the flowers look stiff and formal. Bold groups planted in sunny sheltered nooks on the greensward seem quite at home, and informal arrangements in such places give far more pleasure

than great displays in formal beds. Before the bulbs are planted, the turf should be thinly skimmed off to prevent it from growing too rapidly at first after it is replaced. The soil should be well prepared for the bulbs, giving them an equal chance of success with those planted in beds. When the bulbs are being planted, a small stick should be stuck in with each to indicate its position, and then the turf can be replaced, breaking it up into small pieces and working it between and around the sticks so as to leave small open spaces where the crowns may come through without being crippled. All may then be rolled over, and in spring the result will be very different and the appearance far more beautiful than if the bulbs were planted in the ordinary way. These remarks will apply equally well to nearly all the so-called Dutch bulbs, but while many of these are used in this way, Hyacinths are rarely treated so. A catalogue plate of "Our Hyacinth Beds," issued by a leading firm not long ago, serves to show how inappropriate formal beds set close together are for such things.—J. C. TALLACK, *Livermere Park*.

Saxifraga Camposi.—The excellent illustration of this Rockfoil given in *THE GARDEN*, April 27 (p. 392), well shows its good habit and free-flowering character. Eight or nine years ago, I bought a dozen little plants of it in an Edinburgh nursery. They were planted out in ordinary kitchen garden soil in the borders, and soon spread out until they were tufts each 2 feet and 3 feet across. These have been divided several times, hundreds of them planted elsewhere and many given away. I state this to indicate how easily it is increased, how quickly it grows, and how well it is adapted to clothe quickly bare and unsightly places, of which there is no scarcity in many gardens. If planted on the edge of elevated margins, it will droop over gracefully to the extent of 2 feet or more. The foliage is always green and pleasing.—J. MUIR.

Lily of the Valley in the open ground.—When forced under glass at mid-winter and in the early spring months Lily of the Valley is considered valuable, but we hear little of it as grown in beds, borders, and woods in the open, and yet in all of those positions it never fails to produce abundance of its pale green leaves and pure white fragrant flowers. It is just coming into flower at the present time, and we are agreeably reminded of its presence immediately we go near it. If all who grow it would give attention to its flowering in the open, their delight would not be less great than when it blooms at Christmas. Lily of the Valley is one of those subjects of which there can never be too much, and it possesses the advantage of succeeding admirably in odd corners and partially shaded positions where the majority of flowers of a choice character refuse to grow.—J. MUIR.

Primula species.—Mr. Douglas had in his collection of hardy Primulas at the Auricula show last week two somewhat rare and beautiful gems, which were greatly admired. *Primula obtusifolia* gives us an entirely new colour in the family, for the flowers are of a deep rosy violet. Yet the pips, borne in scapes and a little pendulous, are as large as those of an ordinary sized Polyanthus. The plant seems to be almost intermediate between *P. rosea* and *P. japonica*. It is a lovely thing, and I should like to see it utilised, if possible, by the hybridiser. *Primula Reidi* is, perhaps, better known, and yet it looks less like a *Primula* than almost any other species. The plant resembles some dwarf form of *Campanula*, as the flowers, which are pure white, are bell-shaped and borne on short stems, whilst the foliage is very compact and hirsute, being also slightly lobed. A very charming form in another collection was *Primula Nelsoni*, of the pubescens type, having a pure white eye and a ground of a distinctly reddish hue. The true *P. pubescens* in Mr. Paul's group showed a deep rosy-purple hue, which had a striking effect. From curiosity, and finding that the nomenclature of the old white *nivea* seemed to be exceedingly varied, I went through all the collections in which this variety was found and noted the various appellations under which it was shown. Mr. Douglas had

it as *P. villosa nivea*, Mr. Harper as *P. viscosa* major, though really not different from the other. Mr. Paul staged it as *P. viscosa alba*, Mr. Ryder as *P. nivalis*, Mr. Ware as *P. viscosa nivalis*. Mr. Ware had also the true *P. viscosa nivea* major, a very fine form. Naturally this diverse nomenclature is very mystifying to purchasers. If it be really a white form of *pubescens*, why not universally term it *pubescens alba*?—A. D.

ONOPORDON ARABICUM.

THE public gardens of the city of Paris have for some years past been ornamented by a very handsome fine-foliaged plant which, although easily grown, is rarely seen elsewhere. The plant alluded to is a large kind of Thistle, of



Onopordon arabicum.

pyramidal growth, which attains a height of from 8 feet to nearly 10 feet, and produces a singular effect with its white, woolly, spiny and richly-cut leaves. It is known by the name of *Onopordon arabicum*, and is a native of the mountainous parts of Arabia. It has also been met with on the mountains of Greece, in the south of Portugal, and in some other localities in the region of the Mediterranean coast. It was introduced, probably by accident, at Buenos Ayres, in South America, where, according to the English traveller Tweedie, it occurs here and

there in the fields. The stem, which, as we have already stated, is sometimes nearly 10 feet high, is erect, and does not branch much, the closely-set leaves and flower-stalks forming a pyramidal column of peculiar appearance (see illustration). The leaves are large (the radical leaves very large and lying flat on the ground), the stem leaves very much undulated, toothed and spiny, covered on both sides with thick white down, and decurrent with continuous sinuated wings.

The flowers are produced in lateral and terminal heads, forming a long, narrow panicle; florets of a violet-rose colour. The plant continues to bloom from June to August; the flowers, however, are only secondary to its handsome habit and white foliage, which constitute its chief attraction. Another form known as *Onopordon Alexandrinum*, which appears to be a natural hybrid between the present subject and the *Onopordon elongatum* of Lamark, is also a very ornamental plant, although seldom cultivated. To these might be added two other Eastern species, namely, *Onopordon græcum* (Gouan) and *O. leptolepis* (D. C.) (the former a native of Greece and the latter found in Persia by M. Beranger), as worthy of cultivation, at least in pleasure-grounds and gardens of large size. We would recommend that all these plants should be grown as isolated specimens, in order that they may attain the largest development of which they are capable. When grown in masses or in small groups of threes, as one often sees them in the public gardens at Paris, they seem to us to have an artificial aspect which does not afford a proper idea of their really effective value.

The culture of these ornamental Thistles is of the simplest, as they may be grown like any ordinary biennials. In order, however, to ensure having very handsome and vigorous plants, the seed should be sown in spring, and some of the seedlings should be pricked out singly for good in positions in the garden or pleasure-ground where the plants will be most effective; for instance, as isolated specimens on Grass, or near a flower-knot or a group of Evergreens, whose dark-hued foliage will finely relieve the white woolly leaves of the *Onopordon*. In planting the seedlings out permanently, care should be taken to put plenty of manure in the hole in which each young plant is set. During the first year the plants produce broad, spreading, undulated leaves, which even then are ornamental after the manner or fashion of the foliage of the *Acanthuses*, *Silybum Marianum*, or *Salvia patula*. As soon as the winter is over the plant assumes a new form, the stem starting into growth with the commencement of spring vegetation and soon exhibiting the handsome pyramidal development which we have described. *Onopordon arabicum* dies at the end of the summer after it has ripened its seeds. This fine plant might also be advantageously grown in formally laid-out gardens, either as the centre-piece of a circular flower-bed or planted at regular intervals in the flower borders, in the same way as Hollyhocks and Dahlias.—*Revue Horticole*.

Daffodils in Ireland.—Mr. Burbidge's article on above in *THE GARDEN*, April 27 (p. 391), is very interesting. About the Countess of Desmond he says: "A shapely and graceful variety, of a clear bright citron or lemon colour." Can it be that the Narcissus committee had the wrong plant under consideration a fortnight ago, for then it was unanimously labelled as "unworthy of culture?" Certainly the flowers shown bore out the verdict.—A. D. WEBSTER.

Myosotis palustris semperflorens.—This is certainly the best of the Forget-me-nots. It is the earliest to bloom, and will keep on flowering till

quite late in the year. The individual flowers are large and freely borne. The plant grows freely, especially in peat. Four small bits which were put in at the foot of a Rhododendron last spring have now developed into a mass, which covers at least a yard of ground, and is now a perfect sheet of blue. Given a fair start by the water-side, it will hold its own with almost anything, and give no further trouble.—J. C. T.

KITCHEN GARDEN.

A LATE SEASON.

On all sides we hear complaints of the lateness of the season, and, what is far more to be regretted, the unfavourableness of the weather for all gardening operations. In many instances where the seeds were sown or the plants put out early, the former have failed to germinate satisfactorily, or else the seedlings and small plants generally make no appreciable progress, slugs and worms doing much as they please with them. Peas are especially slow in growth, and birds as well as slugs are clearing them off wholesale, but Broad Beans are in a more thriving state. Slugs, birds, worms, and fleas effectually clear the ground of Turnip and Radish seedlings, while worms are drawing the tiny Onions into the ground in all directions, the cottagers hereabouts being much vexed at the havoc among their crops. Carrots are not much interfered with, but Lettuces seem most attractive to slugs. Those who risked their seeds of Broccoli, Savoys, and other winter vegetables by sowing early have lost the greater portion of their plants, and altogether the outlook is not at all cheerful. We do not have two fine days in succession; thunderstorms are frequent, hailstorms alternate with cold rain, and cold north-west or westerly winds prevail. We want warmth and sunshine badly, and I have no doubt a few days or weeks of these will soon change all for the better. In any case the season will be a late one, and a few vegetables, notably Peas, will not be plentiful in this district till July.

The most regrettable circumstance in connection with this state of affairs is the bad state of the ground for the reception and the lateness of the planting of Potatoes. This may not be so marked in the case of light free-working soils, but where the ground is naturally heavy and retentive of moisture, much of the planting has either been done while yet the soil was unfit to trample upon, or, at the present time (April 29), yet remains to be completed. Those who believe in planting as early in March as the state of the ground and the weather permit, and have carried their theory into practice, ought this season to have the best of it, for it is very certain the ground was in much better condition then than at any time since. I do not believe in early planting as a rule, but, fortunately, I was tempted by the comparatively dry and free working state of a large breadth of ground to plant late Potatoes extensively rather earlier than usual, and others, too, will have a similar opportunity of comparing the two systems. Those who must perforce plant late on lumpy ground—and these are in a majority in this district—cannot reasonably anticipate securing good average crops. Potatoes require a finely divided soil, and very rarely turn out satisfactorily when it is otherwise. Rather than plant on ground lately dug and which will not break down freely, I prefer to dig among late Broccoli and plant in close succession to the breadths of midseason crops, the ground in each case being fairly dry and breaking down well if caught before it has time to dry. Where Potatoes are put out on lumpy ground, rather more time ought to be expended

in “hacking,” or heavily hoeing among the rows. If this is done after the lumps have been first thoroughly baked or dried by sunshine and wind and then moistened by rain, all will crumble to pieces and a fairly free root-run will be provided for the tuber-bearing roots.

A free use of the hoe among all advancing crops acts most beneficially in several ways, and is more necessary this season than usual. Weeds, it is almost needless to add, thrive in spite of the weather and are most abundant, but surface hoeings are not needed to keep these down only, as they prove equally as destructive to slugs as to weeds, more especially as regards checking their increase. Lumpy ground, or any that has been trampled on or worked when in a very wet state, is the first to lose moisture in dry weather, in many instances cracking badly. Breaking down these lumps and surface-hoeing are the surest preventives of this, as a fine or loose surface is the best calculated to retain what heat the ground absorbs from the sun, and with it much of the moisture that would otherwise be evaporated. It should also be borne in mind that frequent surface hoeings have a most stimulating effect upon advancing crops, especially tiny seedlings, these deriving much benefit from the fertilising influences of the atmosphere as well as from the warmth of the sun. A very light surfacing of some kind of special manure or soot applied during showery weather and stirred in with the flat hoe is also necessary on poor ground, this materially hastening the growth of Onions, Carrots, Turnips, Spinach, Cabbage, Lettuce, and other vegetables and salading.

Onions sown at this late date will not, as a rule, mature sufficiently to be of any real service unless the ground is extra firm and the summer very hot, but much may be done in the way of transplanting the young seedlings in showery weather to wherever blanks may occur. The case is very different with Carrots, Turnips, Beet, Salsify and such like, May sowings not unfrequently turning out better than those made much earlier. Instead, therefore, of being contented with very patchy beds throughout the season, the wiser plan will be to sow either the whole of the ground at once, or else to sow more seed where the worst blanks appear. Amateurs complain of their failure to raise a sufficiency of Broccoli, Cauliflowers, Borecole, and Savoys to stock their gardens but the remedy is simple enough. All they have to do is to sow the remainder of their packets, or else to procure and sow fresh seed thinly on open borders, and if good care is taken first of the seed and subsequently of the seedlings, the chances are that abundance of strong plants will be ready for their final quarters quite as soon as the ground is fit for their reception.

Last spring there was a scarcity of green vegetables, but it is only the early raised kinds that are scarce this season, those that have stood through the winter being plentiful enough. All suffered considerably from cold winds and frosts, the former quite browning the foliage of Brussels Sprouts, Broccoli, and Borecole. Broccoli were later in hearting in than usual, a great glut at the present time being the consequence, but they will hold out till Cauliflowers are available. Spinach is also abundant now, and spring Cabbages with us in April were never better.

W. IGGULDEN.

Seakale Lily White.—This excellent kind deserves more notice from cultivators of this much esteemed vegetable. It differs from the type in having the leaves green instead of a purplish colour; consequently when forced, the shoots are quite

white, and being equally as robust as the older variety, if only for appearance sake it should soon replace it. Late supplies of Seakale, when brought on with but a slight covering of fermenting material, are apt to come considerably coloured, and although the common loses, to some extent, this tint when cooked, it does not present such a nice appearance as the Lily White when placed upon the table.—A. B.

KITCHEN GARDEN NOTES.

TOMATOES.

DULL, sunless weather so long continued has not been favourable to the production of heavy and early crops of Tomatoes, the growth being much too sappy and long-jointed. Tomatoes require a light, sunny position and rather more air than is usually given to Melons and Cucumbers, but if they must be grown in the same house it is advisable to avoid using manure, and to apply water very sparingly until a fair crop of fruit is set. Keeping plants on the dry side at the roots effectually checks rank growth, and the plants are more fruitful accordingly. When we get more sunshine a freer circulation of air will obviate this necessity for keeping the plants dry at the roots, and there will also be less need to artificially impregnate the flowers. When once a good crop is set the plants ought to receive much more water at the roots, liquid manure of some kind being also frequently applied. Any of the special manures advertised, if used in moderation, are as effective and less objectionable as regards smell than farmyard drainings. A top-dressing of good loamy soil is also good for plants in pots and boxes, as well as those in limited beds or ridges of soil. None of the plants should be topped till their limit is reached, but all side shoots ought to be kept closely pinched out, the only exceptions being where there is room for extra main shoots to be laid in. It is useless to attempt to grow Tomatoes in a shady position. When shaded by other plants, such as Melons, Cucumbers, Grape Vines, and Peaches, the Tomatoes form spindly growth and the bunches of flowers dwindle away. Any plants, therefore, in pots that may now be overgrown or shaded in any way ought to be shifted to a lighter position. We annually transfer a considerable number to vacant spots between Peach and Nectarine trees, both on the back wall and front trellises, and more are also introduced into somewhat cooler houses. The former being stood on the borders soon root out into them, and the plants being allowed to extend according to the space to be covered, a long succession of fruit is obtained, or a crop lasting say from the end of May to late in November.

TOMATOES IN COOL HOUSES.

Where fairly strong plants are available, many owners of cool plant houses would do well to shift them into 12-inch or larger pots, or boxes of some kind, using a fairly good loamy compost, and allowing plenty of room for subsequent top-dressings. The plants being disposed thinly, or say 18 inches or more apart along the fronts of the houses, trained thinly up the roof at least 12 inches from the glass and confined to one stem, do not unduly shade anything that may be grown underneath. Exceptionally heavy crops may be grown in this manner, both the handsome round-fruited varieties, such as Perfection, Hackwood Park, Ham Green Favourite, and Dedham Favourite, and any belonging to the large red section, which includes Open Air and Earliest of All, setting equally well in an airy house or ordinary greenhouse temperature. Should the outdoor crops prove a failure, those grown in a cool or only slightly heated house will be still more appreciated, and in any case will commence to ripen considerably in advance of the former. Amateurs, or those with a limited amount of house room at their disposal, might, if so inclined, grow at least six plants much as I have just advised, or the plants could be supported by stakes and grown on the central stages. Home-grown fruits will generally be found fresher and superior in quality to those bought in shops, and for this reason alone the attempt should be made to grow as many as possible. A few plants, if need be, could be dur-

chased from those who advertise them, and supposing these are received from a distance without much soil about the roots, they ought to be recovered somewhat from the check given before they are placed in a cool house. It is advisable to place them singly in 4-inch pots, or rather larger sizes, any light loamy soil being suitable, and to keep them in a close warm frame or a heated house, watering carefully at the outset and shading from bright sunshine. When the roots have taken possession of the fresh soil, transfer the plants to a shelf in a cool house, and before they become badly root-bound, shift them into their fruiting pots or boxes, as the case may be. Novices are apt to over-water newly-shifted plants, this having the effect of souring the fresh soil, and also causing the plants to change from a healthy green colour to a sickly hue. Supposing the plants are thoroughly moist at the roots, as they ought to be when shifted, and the fresh soil used also fairly moist, no water should be given for three or four days. At first the old balls should be examined occasionally, and enough water given to keep them in a moist state. From these the roots will soon spread into the new soil, and from that time the plants should be examined daily and watered whenever necessary. If the plants after they have been shifted look unhealthy, they are either too wet or too dry, but directly the roots find their way into the fresh compost, a vigorous top growth results. The cooler the house and the duller the weather the greater the need for very careful watering, but when the pots or boxes are crowded with roots and a good crop of fruit is set, it is frequently necessary to heavily water two or three times during a hot day. Once a day is usually often enough to water strong plants in boxes.

CELERY.

No greater mistake than keeping the young plants crowded in seed-pans or boxes can be made in Celery culture. Supposing the early and successional or main crop plants are raised in heat, they ought to be early transferred to shelves in a cooler house, and eventually pricked out while yet strong and dwarf. If extra early Celery is needed, the plants should now be well established in large boxes, from which they can be moved with a good ball of soil and roots to the trenches from the middle to the end of this month, being first, however, hardened off in a cold frame or pit. White varieties are the best for extra early crops and also for successional or ordinarily early supplies, and of these there are now several good and reliable selections, including White Gem, Superb White, and Sandringham Dwarf White, but it is unwise in most instances to grow any of these extensively, or for the main and late crops, as they are neither so solid nor so hardy as the best red and pink-stemmed varieties. We have always had good reason to be satisfied with Major Clarke's Solid Red, or its synonym, Leicester Red, and other good varieties are Sulham Prize, Standard-bearer, and Incomparable Crimson, the two last named keeping the longest. Shallow frames are of the greatest service in preparing a few hundreds or thousands of plants. These should be set on a hard level bottom, in each being placed a firm layer 4 inches deep of short partially decayed manure or old hot-bed material, surfacing this over with about 2 inches of finely sifted soil. Into this the plants may at once be dibbled out 4 inches apart each way, and after being duly watered, the lights should be put on and kept rather close for a few days. Shading should be given in bright weather and the plants occasionally lightly syringed. Before the plants become drawn disperse with the shading, give abundance of air, and eventually remove the lights. By the time the plants cover the beds, the trenches ought to be ready for their reception, and if the work of transplanting is not unduly postponed, all can be moved off the hard bottom with a good square of manure and roots to each, and not flag from the effects of removal. Celery well repays for this extra trouble, but very good crops can be had without much aid from glass. The plants may be pricked out in rough frames and beds formed as just advised on a hard bottom, and mats or some other temporary protection and shade afforded for

a few days. Market growers raise large numbers of plants thinly on shallow hotbeds, and these not being coddled in any way can either be pricked out without protection, or, better still, can be put out direct into the trenches. The latter is the simplest plan of growing main crop and late Celery, and each time I have tried it the results have been most satisfactory.

HARICOT BEANS.

In this country, Haricot Beans, this being the popular term for the dried white seed of either dwarf or climbing French Beans, are not very generally used, but in some establishments the cooks use a considerable quantity both in soups and as a vegetable. They can be bought very cheaply, but home-grown seed is sometimes preferred, and as the plants are easily cultivated, nothing but want of room prevents the requisite quantity of seed being grown. I have tried both running and dwarf-growing white-seeded Kidney Beans, and give the preference to Carter's Longsword, this being a serviceable dwarf variety, and capable of producing a heavy and early-maturing crop of seed. This or any other dwarf white-seeded variety that may be substituted should be sown now on fairly good ground, the position being well exposed to the full sunshine, thinly in drills drawn 2 feet apart, and the plants eventually thinned to a distance of not less than 9 inches apart. It is advisable to lightly mould up the stems, and if these are further assisted by a few stakes, there will be a better prospect of the crop maturing in a bad season. The Giant, or running white Haricot, is fairly profitable, but I prefer the old Caseknife or Sabre, these being more productive and having larger seeds. The seed should be sown on fairly good ground and in an open position, in single rows 5 feet apart, the plants being finally thinned to about 12 inches apart, and each receiving a stake from 5 feet to 6 feet in height. No green pods should be gathered from any Beans grown for the purpose of bearing seed, the aim being rather to secure an abundance of early pods in order that the harvesting may be completed before frosts and cold wet weather intervene. W. I.

ORCHIDS.

W. H. GOWER.

ODONTOGLOSSUM CITROSMUM.

This beautiful species has been in our gardens nearly fifty years, but it is only within the last few years that we may be said to have seen it in anything like the beauty it displays in its natural habitats. I myself well remember the time when to have a plant with two spikes, each bearing about six flowers, was considered worthy of note. I must confess that such a plant did not appear very grand, and I always turned from it with a feeling of dissatisfaction. Roezl, in describing the plant, says:—

For several days' march we observed the branches of the Oak trees loaded with plants of this species, whose pendulous spikes were a yard long, adorned with white and lilac flowers, which perfumed the air with their delightful fragrance.

For the last two or three years I have seen this species in beautiful condition in The Woodlands collection at Streatham, and during the past week both in the collections at Cambridge Lodge at Camberwell as well as at The Woodlands, Streatham. The plants are superb; in the latter place there were over 100 spikes, each 1 yard long, and bearing from three to four dozen blooms, the plants hanging from the roof at such a distance as to bring the lovely flowers to a proper elevation. The atmosphere was redolent with the delicate and grateful perfume yielded by their flowers. Such a sight, so graceful and so sweet, is perfectly enchanting.

This *Odontoglossum* was first named *Cuitlauzina pendula* by La Llave, its original discoverer. It is also named *Odontoglossum pendulum* by

Bateman, who figured it in his monograph of this genus; but although it differs in several small points from the typical *Odontoglossum*, it still must remain a worthy ornament of this genus, and under the present Lindleyan name we have already given a coloured representation of two forms of the plant in THE GARDEN, Nov. 10, 1883 (p. 414).

In a cultural sense as well as botanically this species, however, differs from its congeners, as it is found at a lower elevation than the majority, and, therefore, it requires a higher temperature to grow it, and it, moreover, requires a long and decided season of rest. The system adopted at The Woodlands is to grow it in well-drained pots and in rough peat fibre with a little *Sphagnum Moss*. During the growing season the plants are kept in the temperature of the Cattleya house and supplied with an abundance of water both to the roots and in the atmosphere. During this time they are subjected to as much sunshine as possible and a free ventilation; indeed, want of ventilation is too often the cause of all Orchids thriving in an inferior manner. During the month of September the water supply is considerably reduced until none is given. The plants should then be kept dry and cool until the flower-spikes appear in the following spring, when a little more heat should be given and water supplied as the spikes increase in length. In the winter months it may happen that the bulbs begin to shrivel, and when this is the case it should be taken as a sign that the resting has been severe and thorough, and care taken to prevent any ill-effects by the plants suffering any further. To this end water should be carefully supplied once or twice. This will have the effect of plumping up the shrivelled bulbs. No more should be given, and the plants may again be subjected to the dry treatment. If they are in pots they should be suspended from the rafters when the spikes appear, by which means the flowers are developed in a proper and natural manner.

Lælia flammea.—This beautiful Veitchian hybrid is now flowering in The Woodlands collection at Streatham. It is a cross between *L. cinnabarina* and *L. Pilcheri*, the latter itself a hybrid. In habit the plant somewhat resembles the first-named parent, and the colour throughout is deep orange-yellow; lip same colour, streaked with red-purple. The one fault of this fine plant is the curled and closed appearance of its lip. It thrives well with the other *Lælias* and *Cattleyas*.

Vanda tricolor and *V. suavis*.—This section of the Orchid family I have all along predicted would again become popular, and this I am beginning to see fulfilled, for these in quantity and in numerous varieties are now very beautiful in three places, *i.e.*, in Mr. Sander's nursery at St. Albans, in Mr. Measures' at Streatham, and also in his brother's garden at Camberwell. The spikes are very numerous, and the air is redolent with the delightful aromatic odour given off by their beautiful flowers. If one wishes to enjoy the gems of the Orchid family he must grow *Vandas*.—W. H. G.

Dendrobies in the Clapton Nurseries.—Many fine species are usually to be found here during the flowering season, and many kinds are now over, but at present very beautiful are *D. primulinum giganteum*, which smells of Cowslips, the lip being of a soft yellow with a few streaks of purplish lilac at the base; *D. Findleyanum*, a free-flowering Burmese variety, produces flowers mostly in pairs, although sometimes they are borne three in a cluster; the sepals and petals are white tinged with lilac; lip yellow with a white border; *D. crassinode* is now a well-known species, and produces endless varieties; *D. superbum*, which has borne the names in gardens and also in books of *D. macrophyllum* and *D. macranthum*, is a majestic species, which is known as the Rhubarb-scented

Dendrobe on account of the odour of Turkey Rhubarb emitted by the flowers. The blooms, each some 3 inches or 4 inches across, are of a rich purplish magenta colour, saving the base of the lip, which is deep reddish purple. The variety of *D. superbum* named *eusmum*, which is distinguished from the typical plant by its shorter and rounder flowers, which are almost destitute of the medicine-like perfume yielded by the type, was also in bloom. These and many other kinds serve to make a grand display in Mr. Low's establishment.—G.

Dendrobium dixanthum.—This pretty plant, which was first sent home by the Rev. Mr. Parish, from Moulmein, some twenty-five years ago, has for a long time been scarce, but Mr. Sander has imported it largely, and it is now flowering profusely in his establishment at St. Albans. The flowers, which, as its name implies, are of two shades of yellow, are borne two to six together on short spikes. It is said to grow on the tops of lofty trees, in company with *D. albo-sanguineum*, and its time of flowering in its native country is the summer months, so that Mr. Sander's plants are blooming prematurely.

Dendrobium transparens.—An old species and one that has been much neglected during the past twenty years, but which is now deservedly obtaining recognition again, perhaps on account of the better varieties which have recently been imported. Of this I recently noted a fine large flowering example in the Cambridge Lodge collection. It was laden with flowers, each about an inch and a half across; the sepals and petals are creamy-white, suffused with rosy-lilac; lip similar in colour, with the addition of two purplish stains near the base. It grows in Northern India at some 5000 feet elevation, and although known to botanists for a very long time, it has not been in cultivation more than forty years. It thrives under similar treatment to that given to *D. Devonianum*, and is a species which I would commend to everyone possessed of a plant stove.—W. H. G.

Cypripedium Mastersianum.—This extremely rare species, introduced from the Indian Islands, appears to have been sent to Kew, and I recently noted a good form of it in bloom in Mr. Measures' collection at Camberwell. The leaves are deep green tessellated with pale green, and indeed appear to be very similar to those of *C. Curtisi*, recently introduced by Mr. Sander, of St. Albans. The flower is large and different from that of any other variety that I know in this now large and varied family. The dorsal sepal is bright emerald-green in the centre, broadly bordered with a band of creamy yellowish white; the petals are reddish brown at the base, and on the upper margin are numerous small purplish wart-spots; the pouch-like lip is large, much inflated, and of a bronzy-carmine. The flower is wonderfully distinct, but it appears to me like a natural hybrid.—W. H. G.

Lælia elegans.—A superbly delicate and beautiful flower of this species comes to me from the Arddarroch collection. Mr. Fraser says it is very near to the variety *Wolstenholmiæ*, and in the colour and peculiar markings of that form it certainly is, though they are more delicate. I really do not think *Wolstenholmiæ* is an *elegans* at all; it has a purpurata-shaped lip, but in the flower now before me the lip is that of true *elegans*, the front lobe being beautifully lobed and undulate at the edge, and wholly rich, deep magenta-purple. It is a charming form, the flower measuring 7 inches across, the petals being broader than in the majority of the light-flowered forms of this species.—W. H. G.

Schomburgkia tibicinis.—This, although first sent home to us upwards of half a century ago, was seldom seen in flower in my early days amongst Orchids. No better proof can be given of the mastery which has been obtained over this apparently difficult species by our present growers than to frequently see it blooming in our collections. This *Schomburgkia* has a long spike which at the top bears a large head of blooms, which are very beautiful and last long in perfection. In the examples before me the flowers are each upwards of 3 inches across; the petals are much narrower than

the sepals and more undulated, but all are of a rich rosy purple on the inner side; the upper portion is reddish brown. It is now in flower with Mr. Tautz at Shepherd's Bush.

Vanda Bensoni.—I recently noted numerous plants of this species flowering in the Messrs. Low's nursery at Clapton, where I am glad to find a considerable quantity of these plants (*Vandas* and *Aerides*) are annually imported. The present species is not a large grower nor a very showy kind, but its alliance would seem to be with *V. Roxburghi*. These plants are growing in company with a splendid lot of *Angraecum sesquipedale*, and I do not think the Messrs. Low let the temperature of the houses fall much below 60°.—W. H. G.

Cœlogyne tomentosa.—This is a species with a long pendent spike, the main stem and the pedicels of the blooms being coated with a short woolly tomentum. The sepals and petals are almost terra-cotta colour, the lip on the outside being creamy white, inside citron-yellow, and bearing along the surface, from front to the base, three raised frilled lines of brown, and from the front to the commencement of the throat an outer one on either side. The side lobes are brown, streaked with forked lines of white. It is now flowering in the Studley House collection.

Odontoglossum citrosomum.—In a letter from Mr. Fraser, gardener at Arddarroch, N.B., he says, "I have a plant of this species bearing from one growth seventy-five flowers, one spike carrying fifty flowers, and the other twenty-five. Have you ever seen fifty flowers on one spike?" This I certainly never have; it must be very beautiful. Thirty-six flowers are the most I have yet seen on a spike, and this was at The Woodlands, Streatham, where there were many hundreds of spikes. This species has been introduced to cultivation now for fifty years, and it may be truly said we are only now beginning to know it.—W. H. G.

Dendrobium Dearei.—A fine importation of this lovely species has been received by Mr. Sander, of St. Albans, and a number of the plants are now in hanging baskets over tanks of water in which is flourishing a collection of *Nymphæas*, and other aquatic plants are doing well, so that Mr. Sanders appears to recognise for the requirements of this species a thoroughly moist atmosphere and bright light. I have before recommended this species to growers for market, for I am sure it is the very best Orchid to grow. Its flowers, being pure white with a faint tinge of pale green in the lip, are of sufficient size to be used singly, and as they will last nearly three months on the plant, ample time for all to be sold is allowed.—W. H. G.

Cattleya Lawrenceana.—Although found nearly fifty years ago, it is only during the last four years that this plant has been in our gardens; consequently we have not grown it sufficiently well to enable it to make a display like *C. Mossiæ*, *C. Trianae* and many others of which we possess large quantities and well-established examples. I was taken by surprise the other day when I saw upwards of 250 flowers, all expanded and in great beauty in The Woodlands collection. The large flowers, which are rosy purple in the sepals and petals and purple and maroon in the lip, present a magnificent appearance, and I cannot but think that its first discoverer's knowledge of Orchids must have been limited when he passed it over under the impression that it was simply *C. Mossiæ*. This is by far the finest display of this species which I have yet seen, and proves how grand the plant will become when it is fully established. It, however, requires a warm house.—W. H. G.

Bletia hyacinthina.—Mr. Douglas is, no doubt, quite right in his supposition that this Orchid thrives best in a little heat, or at least that it will under such treatment far outlive both in wealth of bloom and vigour of growth specimens planted out of doors. For all that it is perfectly hardy, as several persons besides myself have proved. How far north it will stand the winter, I do not now know, but it would be interesting to learn from some of the readers of THE GARDEN. My plants were grown in Carnarvonshire near the sea

coast, and where such shrubs as *Fuchsia Riccartoni* and *Hydrangea hortensis* stood unscathed during the severest winters. They always in autumn received a thick dressing of decayed manure, which no doubt warded off frost to a great extent. This *Bletia* flowered very satisfactorily, although the foliage was strong and healthy and the *Cyclamen*-like bulbs kept increasing in size. Has anyone been successful in the culture of *Disa grandiflora* out of doors? It seems far more tender than the *Bletia*, but this is only speaking from my own experience.—A. D. WEBSTER.

Burlingtonia fragrans.—I recently noted a very large and exquisitely pencilled flower of this plant. In a wild state *Burlingtonia fragrans* is said to grow upon the topmost branches of the native Cedar tree (*Cedrela*) in Brazil, and its fragrance is diffused far and wide. This fragrance resembles that of the common Hawthorn, whilst the flowers are large, pure white, saving a stain of yellow in the lip, about which in the plant here noted are numerous pencillings of crimson. It is a beautiful species, dwarf in habit, and one which thrives best on a block or in a shallow basket, whilst the temperature of the *Cattleya* house suits it best.—G.

GARDEN FLORA.

PLATE 700.

SACCOLABIUM BELLINUM.*

THE species here illustrated belongs to a section of the genus which has long been known to cultivation, represented by such species as *S. calceolare* and *S. bigibbum*, but which had not sufficient beauty to attract the attention of Orchid growers, and they consequently did not receive much attention. These species, however, were well represented in the Tooting nurseries of the Messrs. Rolliason ten years ago, but since the dispersion of that collection I have very seldom seen them. The present species is of more recent introduction, is possessed of more beauty, and is really well deserving a place in every collection. The plant is a native of Burmah, a part of India which appears to be full of rich and rare Orchid novelties. Although a small-growing plant, it is one of the most exquisite products of that rich land, and one which has captivated the heart of the horticultural public. I have seen it in fine condition with Mr. Measures at Camberwell, Mr. Tautz at Shepherd's Bush, Sir Trevor Lawrence at Dorking, Baron Schroeder at Egham, and Mr. Williams at Holloway, as well as in other places. Amongst all the plants, however, there is but little difference in the colour of the flowers; some have slightly darker markings, and that is all. The plant is dwarf in growth, and should therefore be planted in a small shallow basket, with some rough peat and *Sphagnum Moss* placed round about its roots, and but a little even of this. It requires ample drainage, and should be supplied with abundance of moisture both to the roots and in the atmosphere during the growing season; whilst during the winter months it must be kept moderately moist and never be allowed to become perfectly dry. It should be kept close to the glass in order to obtain the greatest possible amount of light, but in such a position as to enable it to be shaded during the hottest part of the day. The stem is short and erect, bearing two-ranked alternate leaves, which are somewhat fleshy in texture, strap-shaped, and pale soft green. The peduncle is short, and bears a corymbose head of flowers, which are very

* Drawn for THE GARDEN in Mr. Philbrick's garden at Bickley by H. G. Moon, June 15, 1888. Lithographed and printed by Guillaume Severeys.



beautiful; sepals and petals spreading, each about $1\frac{1}{2}$ inches across, and nearly equal, ground colour pale yellow, transversely spotted and blotched with rich deep brown, in some varieties approaching to black; lip cup-shaped, about 1 inch long. The interior of the cup is yellow, bearing also a few fair-sized purple spots; the front lobe is somewhat triangular, and bears a large cushion-like appendage composed of short woolly hairs. It blooms during spring and the early summer months, and continues a long time in full beauty. W. H. G.

TREES AND SHRUBS.

VARIETIES OF WEIGELA.

IN a recent number of THE GARDEN (p. 369) mention is made of several varieties of Weigelas, a class of plants in which I am very much interested, and after flowering a great many varieties a selection of a few of the best, as far as my experience extends, would include the following: Of white-flowered varieties there are two very distinct from each other, one being *W. candida*, which I believe is of continental origin, and now generally grown to the exclusion of the older *W. hortensis nivea*. *W. candida* is a free, somewhat upright-habited bush, that not only flowers very profusely, but which also keeps up a scattered succession of blossoms nearly throughout the summer months. The flowers when in the bud state are tinged with green, but when fully expanded they change to pure white. The leaves of this variety are longer and somewhat narrower than those of the others, so that it can be easily picked out by the foliage alone. The older *W. hortensis nivea* differs in such a marked manner from the preceding, that if possible a place should be found for both. This, which is, I believe, a direct importation from Japan, is of a loose, somewhat spreading style of growth, with large rugose leaves, while the pure white flowers are very freely borne. It is far more particular in its requirements than *W. candida*, but when it succeeds it forms a beautiful flowering shrub. A noticeable fact connected with their propagation is that while *W. candida* is one of the easiest of all to root from cuttings, on the other hand, *W. hortensis nivea* is the most difficult. Of dark-coloured kinds, *Pecheur filis* is, as stated in the article in question, a very desirable variety, not so dark certainly as either *Edouard André* or *Jean Mace*, but these last two are somewhat dull in colour. *Dr. Baillon*, that bears a great profusion of deep claret-coloured blossoms, is one of the best of that shade, while a very distinct *Weigela* is *Emile Gallé*. This is a free, vigorous growing *Weigela*, but very different in habit from the others, as the minor branches are slender and far more numerous; consequently it forms a bush of a more dense, compact character than most of them. It is remarkably free-flowering, and when covered with blossoms will be at once picked out from all its associates, the colour of the flower being a clear bright crimson. *P. Duchartre*, which is somewhat upright in habit, has pale, almost yellowish green foliage and amaranth-red blossoms. A variety, whose name would suggest that its flowers were white, is *W. amabilis alba*, but they are really of a delicate pinkish shade, very pretty under some conditions, but not nearly so valuable as those of a more pronounced hue. *Grœnewegeni*, a fine showy kind, has many of the flowers striped, a character more marked in *Van Houttei*, the blooms of which are striped with white and deep rose in varying proportions. If I had but space for one *Weigela*, I should be disposed to grow only *W. A. Carrière*,

apparently a seedling from the old *W. rosea*, but very much superior to it, the blossoms being much larger and of a brighter hue. The habit of the plant is all that can be desired, so that it has become very popular within the last few years. It was put into commerce about eleven years ago, but, of course, some time elapsed before it was generally known. For this variety we are indebted to that celebrated hybridist, M. Lemoine, of Nancy. *W. Looymansii aurea* stands in the very front rank of shrubs in which the foliage is of a golden hue, for when well exposed to the sun it becomes during the summer of a deep rich golden colour, which is retained till the leaves drop. It must not be planted where at all shaded, as it is only in full sunshine that the rich colour of its foliage is thoroughly brought out. I obtained half-a-dozen variegated-leaved varieties from the Continent a couple of years ago, but have now discarded them all, except one under the name of *W. Sieboldi argenteo-marginata*, a good, clearly-marked variety, and a better grower than *W. variegata nana*. Some of them were furnished with enormously long names out of all proportion to their merits; indeed, my experience of *Weigelas* is that a distinct name does not always mean a distinct variety. Generally speaking, the *Weigelas* are not particular as to soil, for they will thrive better than many other plants where it is dry and sandy, but of course they are seen under far happier conditions when the roots are more favourably situated. With regard to pruning, it is carried out by Nature to a great extent, as the old exhausted shoots die, and stout, vigorous ones are pushed up to take their places. Still, for all that, it often benefits the plant to trim out some of the thin, weak wood in the centre. In addition to their value as flowering shrubs in the open ground, some of the stronger *Weigelas* are well adapted for furnishing a fence or paling, for though they lose their leaves during the winter, throughout the summer they are very attractive. Though but little grown for the purpose, some of the varieties are very handsome when flowered under glass and employed for the embellishment of the greenhouse or conservatory. For this purpose they should be lifted in autumn, just before the leaves fall, and potted at once, or they may be kept in pots from one year to another. The propagation of *Weigelas* is not at all difficult, as in many cases some of the minor shoots, having made roots of their own, can be taken off without injury at any time during the winter, or a branch or two can be easily layered, while cuttings will strike, especially those formed of the young growing shoots put into a close frame during the summer months. In many places seed is ripened in quantity from which young plants can be readily raised, but of course the progeny will be somewhat variable. T.

The double-flowered Deutzia (*D. crenata* fl.-pl.).—This *Deutzia* flowers naturally so much later in the season than *D. gracilis*, that as a matter of course it cannot be induced to bloom even when forced as early as its smaller relative. Still, for all that, it is very valuable for greenhouse decoration at the present time, as good-sized bushes full of flowers are very pretty, and they retain their beauty a considerable time. There are a couple of distinct forms of this *Deutzia*, one in which the flowers are pure white, and the other with the outside of the blooms especially tinged with pink. A good white form is *candidissima*, between which and the newer *Pride of Rochester* there appears to be little, if any, difference. As outdoor shrubs, too, these *Deutzias* are wonderfully pretty, and the fact that they do not bloom till the major portion of spring-flowering shrubs are past their best is an additional point in their favour. They are thoroughly hardy and by

no means particular in their requirements, though the finest display is, of course, obtained from plants favourably situated. These *Deutzias* strike readily enough from cuttings, and their dense mass of fibrous roots stands them in good stead when potted up for forcing.—H. P.

TREE NOTES FROM HOLWOOD PARK.

IN continuing my notes on the old and remarkable trees at Holwood, particular attention may be directed to the numerous fine specimens of the Highland Pine (*Pinus sylvestris*), many of which, but specially such as at present ornament the ramparts of the Roman camp, were planted about one hundred years ago, or when Pitt owned the Holwood property (1785 to 1801). The planting of the camp, which there can be little doubt was done under the immediate superintendence of the owner, has been executed in a most praiseworthy manner, great care having evidently been bestowed on the arrangement of the various clumps, so that as natural an appearance as possible might be presented, but particularly so when viewed from the centre of the area enclosed by the ramparts. The camp is of vast extent, the area of ground enclosed being about one hundred acres. That it is of Roman origin there can be little doubt, but for what purpose such stupendous fortifications were cast up is a matter of some conjecture. But to return to our subject. The trees, principally Highland and Cluster Pines and Lebanon Cedars, have been arranged in masses of five, seven, and nine, but sometimes, though seldom, in twos and threes. Single specimens have also been used, and with telling effect, in the planting of the grounds. What is most remarkable, however, about the planting of these clumps is that the trees have in nearly every instance been arranged so as to represent some geometrical figure, such as an oval, a circle, or a triangle, and in several instances the trees thus formally planted are now of such uniform stem growth, that the shapes of the figures are at the present day almost quite perfect. Immediately to the right of the remains of the Roman road leading from the well, known as Cæsar's well, is a clump of Scotch Firs, seven in number, and planted in the shape of an oval. These trees are of about equal height—68 feet—and the largest girths at 3 feet and 5 feet from the ground 6 feet 10 inches and 6 feet 7 inches respectively, while the distance apart at which they stand is 9 feet. Further along towards Holwood House, another clump of seven trees, and planted in circular form, is to be seen, the individual specimens of which stand at the short distance of 5 ft. apart. The largest tree of this clump girths 7 feet 3 inches and 6 feet 7 inches in size of stem at 3 feet and 5 feet from ground level. Many such instances of formal planting of the Highland Pine on the ramparts of the Roman camp might be recorded, but enough have already been given to show the rather unusual way in which these historic remains were rendered beautiful by tree planting. The trees used in ornamenting the ramparts of the camp were, as before stated, the Highland and Cluster Pines and Lebanon Cedar; indeed, in judging from the numbers of these dotted about, they would seem to have been the favourite Conifers of Pitt. Growing in the shrubbery at Holwood House are several giant specimens of the Highland Pine, one of the largest girthing $10\frac{1}{2}$ feet at a yard from the ground, and rising with a clean and straight stem for fully 80 feet.

ENGLISH ELM.—This stately tree is represented by several very large specimens, a good example of which is growing within 200 yards of Holwood House, the well-rounded stem girthing $12\frac{1}{2}$ feet at a yard from the ground level, while the height is 83 feet, and the greatest spread of branches 69 feet. Another of almost similar dimensions is growing within a few yards of the garden wall at Hollydale, but in a somewhat obscure position, which is to be regretted. At 3 feet the stem measures exactly 12 feet in circumference, and it contains 213 feet of what from exterior appearance seems to be valuable clean timber. The stem taper of this handsome and unusually large

Elm is inconsiderable, the girth at 12 feet being little less than is recorded for it at 3 feet, while the ponderous limbs into which it divides at 30 feet up would of themselves form trees of no mean proportions. On the chalk formation the Elm does remarkably well, growing to a great size, and producing a large quantity of clean and valuable timber.

THE SCOTCH OR MOUNTAIN ELM (*Ulmus montana*) is but sparsely represented, that is, trees of large size, although, everything considered, it is fairly well suited for chalk or limestone districts. One of the largest trees of this kind is filling a rather conspicuous position to the south of Holwood House and close to the public path. It is 72 feet in height, has a branch spread of 66 feet, girths 12 feet at a yard from the ground, and contains 162 feet of wood. Usually in specimens of the Scotch Elm the stem is short and tortuous and with a great inclination to send out numerous shoots from the base, but not so the tree in question, for the butt is well formed and straight, while but few shoots have been emitted. Although the English Elm (*Ulmus campestris*) produces a much greater quantity of timber than does the Scotch form, yet the wood of the latter is infinitely commercially superior.

LORD WEYMOUTH'S PINE (*Pinus Strobus*) is an excellent subject for chalky soils, and this is clearly indicated by the several fine specimens to be found in various parts of the country. Few trees of this kind on the Holwood property have attained to unusually large dimensions. Yet many specimens of 70 feet in height, and with a corresponding girth of stem are to be met with, and whose rapidity of growth and healthy well-developed foliage clearly point out that this North American Fir is quite at home in these isles. When we consider how valuable a timber-producing tree the Weymouth Pine is, how rapid of growth, how easy of culture, and withal how distinct and beautiful, the wonder is that it is not more extensively cultivated on this side of the Atlantic. It is becoming a rare tree in its native wilds, the demand for the beautifully grained and easily worked wood being far in excess of the supply.

THE HOLLY is everywhere abundant at Holwood, and there thrives with unusual luxuriance, and puts on its best form even under what might be considered disadvantageous circumstances. In the grounds at Keston the remains of perhaps the largest Holly that I have ever seen exist, and one which in its heyday must have been an object of great admiration. At 3 feet and 5 feet from the ground level the stem of this fine old tree girths 9 feet 4 inches and 9 feet 2 inches respectively, and the branches have a spread of 33 feet. The stem, which is mantled with Ivy, has suffered somewhat severely from the effects of the wind, or may be from a neighbouring tree or branch falling upon it, the top being completely broken off, as well as many of the larger branches. It is, nevertheless, in perfect health, as is clearly indicated by the bright healthy foliage, which is by no means sparsely produced, and will no doubt survive in its present shattered condition for many years to come.

THE WHITE POPLAR (*Populus alba*), or its somewhat distinct form, the Grey Poplar (*P. canescens*), is represented by some unusually fine trees, particularly those growing in the grounds at Hollydale. One of the largest is growing in loamy soil, with a substratum of roughish gravel, and measures in girth of stem at 3 feet and 5 feet from the ground 8 feet 10 inches and 8 feet 9 inches, and contains 97 feet of clean wood. As an ornamental tree the White Poplar is well worthy the attention of planters, its ample proportions, rapidity of growth, and great hardihood being a few extra recommendations. To be seen at its best, the White Poplar wants an open situation where its leaves can be frequently disturbed by the wind, for then and not till then is the white cottony down of the undersides properly revealed. Ofttimes have I thought that this pretty and distinct tree does not receive a tithe of the attention that its merits entitle it to.

A. D. W.

Hedera Rægneriana for covering tree stems.—I lately saw this Ivy planted at the base of

tall growing trees, such as Planes and Sycamores, and well it answered the purpose. The leaf-stalks are short, although the leaves themselves are large. Trees with their stems covered in this manner are specially attractive during the winter months. Specimen trees which have their branches near to the ground do not need to have the stems covered, neither would it be a success, as the Ivy would receive but little sun during the summer. In the case of trees, however, which are devoid of branches the best part of the way up the stem, the Ivy will obtain sufficient light to enable it to flourish.—M.

THE FURZE in bloom.—This common British shrub is very beautiful when in flower, and many a dry and sandy bank where little else would exist, much less thrive, is now rendered very conspicuous by reason of the bright golden blossoms of the Furze. The double-flowered variety is even more showy than the typical form, and seems to keep up a scattered succession of bloom for a longer period than the other. While seedlings of the common Furze occur almost everywhere, it is necessary to increase the double-flowered kind by means of cuttings, which should be inserted during the autumn months either in a sheltered border or in a cold frame. This last is the best, as the cuttings are thereby protected from the hard drying winds of winter and early spring, which often cause many cuttings to perish that are inserted in the open ground.—T.

Spiræa Thunbergi.—This, which is certainly one of the best of the *Spiræas*, is the earliest of all to unfold its blossoms, and that alone is one great point in its favour, as flowering shrubs are very few in number at the time when Thunberg's *Spiræa* is at its best. It is a very slender, but densely-branched species, with long arching shoots clothed with bright green lanceolate leaves. The individual blooms are somewhat like those of the Hawthorn, but smaller, and are borne in such profusion that the principal shoots are clothed with them for the greater part of their length. As the young leaves make their appearance simultaneously with the blossoms, a very pretty effect is produced by the mass of pure white flowers associated with the delicate green leaves. Besides this the foliage remains of a good colour throughout the season; indeed, it is at times almost sub-evergreen in character. Very few hardy shrubs can be forced into bloom early in the season so easily as can this *Spiræa*, but it is not much used for this purpose, probably owing to the fact that when treated in this way the blossoms do not last long in perfection. Where it is forced the shoots strike root very readily if given the same treatment as cuttings of *Fuchsias*, *Verbenas*, and similar subjects.—H. P.

Prunus triloba.—This Chinese Plum is one of the most desirable wall shrubs we possess, for when on a south or west aspect it is early in the spring quite a mass of coral-red buds, to be shortly followed by bright pink rosette-like blossoms. Though recommended as a wall shrub this *Prunus* is perfectly hardy, but the blooms expand so early in the season that they are liable to be injured by late spring frosts, and consequently the protection of a wall is necessary in order to ensure a display of blossoms. Still for all that it is well worth planting in the open ground, for in the majority of seasons it might reasonably be expected to flower well there. Few subjects again are better for forcing early into bloom than this Chinese Plum, and if brought on gradually the flowers last for a considerable time. It is a plant grown to a very limited extent, being, as a rule, met with only in a few of the principal nurseries, though from the beauty of its blossoms one would expect it to be a stock plant. The usual method of propagating this Plum is by grafting on to the Sloe, the suckers of which are very frequently a great trouble, so much so that I would prefer a good plant on its own roots before half a dozen of these grafted specimens. There is another extremely pretty member of the Plum family with blossoms even more double than those of *P. triloba*. I allude to *P. sinensis flore-pleno*, an extremely pretty little shrub, with slender branches that are completely

clothed with small rosette-like blossoms. There are of this a couple of distinct forms, one in which the blossoms are pure white, and the other in which they are flushed with pink. It can be forced just as readily as *Prunus triloba*, or it may be employed for covering very low walls. As in the case of the preceding kind, if grafted on to some vigorous stock the suckers will always prove a nuisance. In a catalogue of one of the large French nurseries I see that plants on their own roots are quoted at a higher price than those which are grafted.—T.

THE YELLOW ROOT (*Xanthorrhiza apiifolia*).—This is a singular under-shrub that flowers very profusely during the early spring months, and though it cannot by any means be called showy, it is certainly very interesting. Its popular name is derived from the colour of the large creeping roots, which push up suckers in various directions. From the number of suckers thus produced the plant usually forms a mass or clump generally less than a yard in height. The flowers make their appearance just as the young leaves commence to expand, so that they are in no way hidden by the foliage. They are borne in erect, branched racemes, and are small, star-shaped, and of a livid purple colour. This shrub is a native of North America, whence it was introduced during the latter half of the last century. It will succeed as an under shrub in partially shaded spots, and on that account is sometimes of service to the planter.—T.

CANADIAN RHODODENDRON (*Rhodora canadensis*).—This North American shrub bears a very great resemblance to the various hardy Azaleas, but it is especially noteworthy from the fact that it flowers before the earliest Azalea, represented by the little-known *A. rhombica*, unfolds its blossoms. It forms a rather upright growing shrub, with slender branches and a profusion of rosy purple blossoms, that are produced before the expansion of the foliage. As happens in the case of many other early-flowering subjects, the blossoms of this are sometimes injured by late spring frosts. This *Rhodora* is a native of the swampy districts of Canada, so that it is thoroughly hardy in this country, where it requires much the same treatment as its allies the Azaleas and *Rhododendrons*. This shrub usually grows from 3 feet to 4 feet high. Besides the name of *Rhodora canadensis* it is also known under that of *Rhododendron Rhodora*.—T.

SHORT NOTES.—TREES AND SHRUBS.

Spiræa confusa is a pretty shrub. At a distance the flowers appear in every respect like those of the May or Hawthorn. Is it quite hardy out of doors in this country?—A. D. W.

THE SNOWDROP TREE (*Halesia tetraptera*).—We have here a wide-spreading specimen of this pretty tree about 15 feet in height. It is deciduous, and when the leaves are off it does not show any peculiarities: but in May and June, when every branch and twig are clothed with the little silvery pendent Snowdrop-like flowers, it is highly attractive. It is suitable for the embellishment of both large and small gardens.—J. MUIR, Margam, S. Wales.

Euonymus japonicus aureo-marginatus.—Where neat low-growing specimens of hardy shrubs with golden foliage are in request, this *Euonymus* is capital. Alongside paths, bushes 3 feet and 4 feet high, round in form, and kept closely cut, prove what a useful subject this *Euonymus* is. It grows equally well as a specimen on the lawn, as a shrubby plant, or as a wall climber.—E. M.

Berberis Darwini.—This is one of the best of all the Evergreen *Berberis*. We have several specimens of it each 12 feet high and as much in diameter, and at the present time they are quite clothed with deep yellow flowers, which in richness and profusion are unequalled by those of any other shrub. Other plants about 2 feet high are equally tree-flowering, but they lack as yet the attractive character of their giant neighbours. I see this *Berberis* is recommended as a covert plant for game. I think this is a mistake, as it is too upright in growth to be congenial to either pheasants or beaters.—J. MUIR, Margam.

THE white-flowered *Mezereon* (*Daphne Mezereum album*) may well be classed as one of our

prettiest spring-flowering shrubs. At present, and for the last fortnight, the bushes have been simply clouds of white, the stout twigs being wreathed for in some instances 9 inches or 10 inches with the chaste and pretty snow-white flowers. The normal plant, *D. Mezereum*, is the best associate for the latter that I know of, the wealth of pinky-purple flowers being just what is wanted to show off the pure white blooms of the variety.—A. D. W.

STOVE AND GREENHOUSE.

WORK IN PLANT HOUSES.

GREENHOUSE.—AZALEAS.—As the plants which have flowered late go out of bloom, the seed capsules should be immediately picked off. If they are left on for even a week or two there is a waste of strength. The plants should at the same time be closely looked over to see that they are free from thrips, which soon increase. Fumigation with tobacco or some of the preparations made from it is the readiest way to destroy the living insects, but it will not kill the eggs, which in a very short time come to life and will necessitate a repetition of the fumigating. Dipping in or syringing with tobacco water is a much more effectual and a safer remedy, although it is slower; if the work is well done so as to wet the whole of the leaves and the liquid is allowed to dry on, it will destroy the eggs as well as the living insects. It is a good plan to dissolve about two ounces of Gishurst compound in the tobacco water, as it corrects the oily nature of the liquid and thereby helps it to stick to the leaves. In addition to this, if red spider is present the Gishurst will kill it, which the tobacco water alone will not. The plants should then be put in a house or pit where they will have a genial growing temperature, either by the use of a little fire-heat in dull weather or by carefully husbanding the sun's rays. In the southern parts of the country the latter will suffice; in the north it will not for plants that have flowered late, except in summers that are more than usually bright and hot. If the plants, in addition to being kept free from thrips, were regularly treated in the manner here advised until their growth was completed and the flower-buds were plump and prominent, there would be fewer complaints about Azaleas being weak and stunted and failing to flower well. Plants that are forced so as to have them in bloom early in the winter usually have a chance of making their growth correspondingly early, and consequently do not suffer in the same way by being placed out of doors towards the end of summer.

HEATHS.—The winter and spring-flowering varieties of Heaths that are generally used in the shape of small plants should, as they go out of flower, have their strongest branches cut in. The shortening requires to be proportionate to the character of growth which the different kinds make. In most cases about one-third of the length made by the leading shoots last summer may be removed. If this is not done the plants get disproportionately tall and become bare at the bottom. After a little new growth has been made, any that require more root-room should have a shift. Ordinary peat (not too close and hard in texture), such as is used for the majority of hard-wooded greenhouse plants, is better for these Heaths than the hard black material often employed, and which is only suitable for the hardest-wooded, slowest-growing varieties. See that the plants are free from mildew, which often attacks Heaths of this description through their being kept whilst in bloom in conservatories and other places where the temperature is higher and the atmosphere moister than they like. Any of the spring and summer-flowering varieties that need a shift and that still remain unpotted should at once be attended to, as the time during which they can be most safely moved is passing away. A closer atmosphere that contains a little more moisture than is good for Heaths at ordinary times and a thin shade in bright weather are the conditions best suited to newly-potted plants for three or four weeks after they are moved. Now that the time of cold parching winds is getting past, the general stock may have air given more freely. In

calm weather the lights may be opened so as to let the air come directly on the plants without any bad effects. As the ventricosas and other profuse flowering sorts go out of bloom, the seed-vessels should be immediately picked off. The formation of seed has a much more weakening effect on Heaths, in common with other plants, than has the flowering.

NERINES.—These plants will now have their leaves fully matured, and the soil will therefore not require to be kept so moist as when the growth was progressing; but care must be taken that the roots do not get too dry until later on when the foliage begins to die off. The plants should have an airy place in a cold pit or greenhouse where they will get a full amount of light. It is essential to give plenty of light from the time the leaves begin to form until they lose their vitality.

VALLOTAS.—There are no bulbous plants that give a better return for the little room and attention they require than Vallotas. The plants will now be in full growth, and should have all the light and sun that can be given them, so that the leaves do not get scorched, which, unless the glass is bad, will not occur. Manure water in moderate quantity and not too strong will assist the growth until the leaves have attained their full size.

CAMELLIAS.—Plants that commenced to bloom in autumn, and that after blooming have had a little warmth, will now have formed their flower-buds. From this time and during the next month is the season in which their future flowering can be regulated. If the flowers are wanted during October and November the plants must be kept under glass until the buds have attained considerable size. At the same time a watchful eye is necessary to see that this is not over-done, as if during the summer they get too forward nothing that can be done will prevent their coming in prematurely. Plants that have bloomed will now be in full growth. Those that have attained considerable size and that are at all under-potted should be regularly supplied with manure water until the buds have begun to form, after which assistance in this way has little effect. Plenty of water to the roots, with a moderately moist atmosphere, frequent syringing over-head, and a little shade in bright weather are the conditions most favourable to stout growth. Where the flowers are gathered without any wood or leaves, plants that are strong and healthy generally set many more buds than it is advisable should remain, and as soon as they get large enough, those that can be spared should be removed. Where the plants are troubled with scale, particularly the white kind, the stock should be gone over several times while the growth is being made, as if this is left until autumn, when the growth is finished and the buds formed, the insects will have greatly increased.

CHRYSANTHEMUMS.—Cuttings that have been struck without heat during the winter, if not already moved into larger pots, should now have a shift. Six-inch pots are the proper size for them. When this work is deferred too long the roots get matted, and the growth becomes stunted for want of the necessary sustenance, and when this occurs it is useless to expect the plants to be ever equal to those that have been kept growing without a check. Chrysanthemums are gross-feeding subjects, and like the soil to be fairly enriched from the first. If the loam in which they are to be grown is of a holding nature, a little leaf-mould in addition to rotten manure and sand will help them. Timely attention must be given to stopping, so as to induce the plants to branch out low enough; this applies to those that are to be grown in bush form, which for ordinary decorations, or for the production of flowers to cut in quantity, is the best. Where the intention is to devote a portion of the stock to the production of exceptionally large blooms, it is necessary to select the kinds that are best adapted for the purpose, and which, as a rule, will not carry many flowers that are fully developed. But, except where the object is to exhibit, the fewer of this description that are grown the better. Two or three blooms are a poor return for growing a plant twelve months; and where

large flowers, good enough for ordinary use, are wanted, there are plants of varieties that will carry eight or ten blooms. To obtain this number the plants should be stopped so as to secure three shoots of equal strength, each of which should bear three flowers. See that the stock is quite free from aphides, as if these are present they will soon do irreparable injury. For the leaves to have the substance in them necessary to their lasting until the plants flower, the latter must through their early stages have all the light that can be given them; without this the foliage will be too thin and soft to last.

HYDRANGEAS.—The common kind and *H. paniculata grandiflora* are two of the best plants that are used for forcing. The mass of bloom they produce in proportion to the size of the plants is in excess of that which most things will give, in addition to which, through their costing little, they may be stood in places where there would be hesitation in putting such as are of more value. *H. paniculata grandiflora* produces its flowers much purer under glass than out-of-doors. Where the plants have been brought on slowly the flowers will now be in good condition, and will last longer than when hurried into bloom with more heat. Where the common sort is grown from spring-struck cuttings, these should be put in at once, or they will not have time to acquire sufficient size and strength before autumn. Plants that have been forced will generally afford sufficient cuttings to raise all the stock that will be required. The cuttings are best struck singly in small pots. T. B.

Planting Agapanthus umbellatus.—I lately saw several plants of this *Agapanthus* growing at the base of some tall Camellias, which were planted out in a late vinery. The *Agapanthus* seemed quite at home in this position, the leaves being of good colour. I was told by the gardener in charge that the plants flower freely. They were planted between the stems of the Camellias and the trellis path, and made a pretty fringe along the side of the path. A strong loamy soil suits the *Agapanthus*.—E. M.

Allium neapolitanum.—Anyone having a piece of spare ground would do well to grow this *Allium*, as it associates well with other plants for effect in the conservatory at this season. The ground should be well prepared and the bulbs planted out in lines. When they have become thoroughly ripened they should be lifted and laid in the sun to dry. If a succession of bloom is needed, pot at different times during autumn and winter, putting eight or ten bulbs in a 7-inch pot. Without much forcing the bulbs will soon throw up their lovely pure white flowers. The scent is not pleasant, but unless the flowers are handled it is scarcely noticeable. This *Allium* is largely grown in South Europe, and great quantities of cut blooms are sent to the London market.—F. G.

Schizanthus retusus.—This, one of the prettiest and most interesting of spring-flowering annuals for the greenhouse, gives a change from the Primulas, Cinerarias, &c., with which conservatories are usually overdone at this time of the year. It seems to be very rarely grown, and as the cultivation is easy, this neglect is not easily accounted for. The peculiar form of the flowers and their brilliant colours always arrest attention. Imagine a butterfly with brilliant carmine wings, about half the size of those of an admiral, and a very bright orange-coloured body, streaked with brown and tipped with carmine, and this will give a very good idea of the flower. The resemblance to a butterfly is not so easily seen when the flowers are on the plant, as then the body is elevated above the wings, but when they are cut and turned upside down the resemblance is almost perfect. As the display of flowers is rather fleeting in hot weather, the seeds should be sown early enough in autumn to have the plants in bloom during March and April. I choose the end of August for sowing and use 5-inch or 6-inch pots, flowering the plants in these. Any fairly light and rich soil will grow this *Schizanthus* well and the seedlings should be thinned to three or four, according to the size of the pots used. The

plants will carry spikes bearing from thirty to forty flowers each, the blooming season lasting about two months. A little artificial heat will be an advantage to them during winter, but too much should not be used or the plants will become drawn and worthless. The flowers are thinly borne on erect spikes which grow about 2 feet high, and each flower has a slender, but strong and wire-like foot-stalk. As cut flowers, either singly or on the spike, they last well when placed in a cool room.—J. C. TALLACK, *Livermere Park*.

Crassula jasminea.—This plant was almost unknown till a few years ago, when some of the market growers directed their attention to it, the result being seen in the shape of dense, bushy little specimens which were one mass of bloom. It is certainly a very useful plant for the greenhouse at this season, each shoot being terminated by a cluster of white flowers. This *Crassula* is a near ally of the old *Crassula*, or *Kalosanthes coccinea*, and the individual flowers are very much like those of that plant in shape, but the habit of the plant is altogether different. Both, however, remain in flower for a considerable period, and both are plants of very easy culture, for cuttings strike without difficulty provided they are not overwatered, as from their succulent nature they soon decay if kept too wet.—H. P.

Seedling Bouvardias.—As my name has been mentioned as one of the raisers of seedling Bouvardias, it may be interesting to know that some few years ago I succeeded in hybridising and raising a batch of seven seedlings, from which I selected Dazzler as the best, this being very compact and most profuse in flowering. The others were very good, but similar to those in cultivation. Following the steps of the late Mr. George Parsons, I have always taken a delight in trying to hybridise the most useful of florists' flowers, and in this one particular case, the tube of the Bouvardia being very long and narrow and the pistil very short, it required a great deal of perseverance to obtain any seed. I mention this to show that it was not by accident that the seeds were produced, and it is my belief that it can only be done naturally by insects having a very long proboscis, similar to that of the humming-bird moth.—W. BALCHIN, *Hassocks*.

Kennedya rubicunda.—This *Kennedya* is now in full bloom, and, like two or three allied kinds, will, under favourable conditions, maintain a succession of flowers for months together. It is a most desirable quick-growing climber, with deep green trifoliate leaves and clusters of dark red, Pea-shaped blossoms. Some profusely laden branches of it were exhibited at the first April meeting of the Royal Horticultural Society by Mr. Ross from that home of rare and beautiful plants, Pendell Court. Another very handsome species is *K. Marryattiana*, of which a coloured plate was given in Vol. XXVIII. of THE GARDEN. Of this there is a fine specimen in the greenhouse (No. 4) at Kew, and which has been for some years and for months together a very beautiful object, by reason of the great profusion of its large, deep scarlet-coloured blossoms. The leaves are of a silky character. *K. coccinea*, which has bright scarlet-coloured flowers, is another desirable species, while the strong growing *K. nigricans* is less showy than any of the preceding. In this the flowers are of a dark purple colour with a yellowish blotch. All the *Kennedyas* are very effective when employed as roof or rafter plants in the greenhouse. They are seen under most favourable conditions when the principal shoots are secured to the rafter or other support, and the slender side branches allowed to hang therefrom. All the *Kennedyas* will strike from cuttings formed of the young growing shoots during the spring months. The best cuttings are furnished by the somewhat weak shoots rather than by the very strong ones, and if dibbled firmly into well-drained pots of very sandy peat, they do not take long to root if placed in a close propagating frame kept at an intermediate temperature. When struck they must be hardened off, and after that potted singly into small pots. Whether it is intended to keep the plants in pots or to plant them out, the principal consideration is to

use good open compost that will not readily turn sour and to secure efficient drainage, for the *Kennedyas* are very impatient of stagnant moisture. Where it is desired to limit the space covered by a specimen, it may be pruned back hard after flowering; it will then break out again freely. A method of increase, other than by means of cuttings, is often available, as seeds are frequently obtained, and when fresh they quickly germinate and grow away freely. Seedlings do not flower in such a small state as plants from cuttings, but this does not detract in any way from their value when required for covering a roof.—H. P.

FERNS.

W. H. GOWER.

ADIANTUMS FOR HANGING BASKETS.

MAIDEN-HAIR FERNS, as the various species of this genus are called, are a distinct family.

(*Asplenium* *Adiantum-nigrum*), and not the British Maiden-hair Fern. This species is widely distributed over the world, and taking into consideration its wide range of climate, it exhibits but little difference in its general contour, although as a matter of course the various forms are distinct when compared with each other. It is a plant which does not thrive well in the outdoor fernery, but this even, I imagine, is somewhat due to the neglect of planters, who, because the plant is rare in such positions and always admired, place it in bare exposed spots, in order that it may be readily seen, and the consequence is that it soon puts on a miserable appearance and eventually dies. It should, however, be located in a warm sheltered nook, where one has to look for it, and I believe if this were more frequently done the plant could be established in outdoor ferneries.



Adiantum Capillus-veneris in a hanging basket.

They are distributed over the whole globe, but occur most abundantly in the Tropics, even our own island boasting of one species, which, however, is local, but it is found wild in Cornwall, and I believe also in Devonshire, in the Isle of Man, and also in Ireland. I have never seen nor heard of it being found in Scotland. I recently was told that a friend had collected it in Yorkshire, but upon investigating the matter closely, I found it was the Black Spleenwort

If such gems as these are not worth looking for they are not worth having. As a proof of my statement, I know of a plant of this species which has established itself low down on a wall within a hundred yards of me, and to my knowledge it has been there for twelve years. It gets rather brown during the winter months, but brightens up and sends forth young fronds in the spring. Curiously enough, its spores do not appear to ripen. This is not in accordance

with its habit in the greenhouse, where, as may be seen by our illustration, it forms a magnificent specimen as a basket plant, and in such a position its spores ripen and are scattered far and wide, the walls usually becoming densely covered with young plants. In the genus *Adiantum* there are some few kinds which are specially suited for this kind of culture, and as hanging baskets when properly furnished are very ornamental in a plant house, I give below a few of the most suitable *Adiantums* for the purpose. There has been great neglect shown for this style of adornment, but in the majority of cases this has arisen from the use of the wrong plants, and, again, from the neglect of these baskets (either properly or improperly filled), which has led to them becoming eyesores instead of sources of pleasure. I am sure that such a specimen as we here depict shows well how suitable Maiden-hair Ferns are for baskets. For the production of handsome specimens in hanging baskets a certain amount of preparation is necessary, and the plan which I have adopted is as follows: I select a wire basket of fair proportions, not of too open a mesh. The pattern I care nothing for, as I hope soon to smother all traces of that in brilliant verdure. The inside should be well lined with Sphagnum Moss, and next this should come some peat fibre, then the drainage should be placed in position, and for the sake of lightness for pots or baskets which are to hang, I always use charcoal, covering it with a layer of Sphagnum Moss, which, as it lasts for a very much longer time than any other material, maintains the drainage in working order. In planting I prefer to put a few small plants in various parts on the surface, as in this manner a greater display is sooner effected than by simply putting one large plant in the centre, and the rhizomes the sooner reach the sides and run over and about the Moss. Of course, there are exceptions to this rule, such as a plant which makes an upright caudex and whose fronds spread around in a vasiform manner; such a one would not be improved by the addition of several examples. The soil should consist of about equal parts of good fibrous peat, light turfy loam, and an addition of sharp sand. Nodules of charcoal, pieces of old mortar or such like material may be added in order to keep the soil open. Nothing more will be required, saving the necessary supply of water, and it is to neglect in this matter that so many basket plants present a miserable appearance. I would advise a ready and simple plan of taking the baskets down to examine them, for I am positive that the want of this has ruined some of the most beautiful baskets of Ferns. When the plants have become established I advocate the system of dipping instead of watering them where they remain. When the baskets are dipped the soil becomes more evenly saturated, but if watered in the usual way the centre becomes dry and hard, and when once it arrives at this state no amount of watering will wet it, the result being that the centre of the basket becomes bare and unsightly. The following kinds are all beautiful as basket kinds. I have grown them all myself, and can safely say they are sufficiently distinct to be all grown in proximity:—

A. CAPILLUS-VENERIS, of which our illustration shows a magnificent specimen, is usually called the common Maiden-hair, but this term, I take it, arises from the fact that it was upon this species the genus was founded by Linnaeus, and hence it becomes the typical plant. It is plentiful in the south of Europe and also in tropical countries, but although found at considerable elevations in tropical countries, I do not think it is found much above the sea level in Europe. The rhizome is creeping, and this should be allowed to ramble freely on the surface of

the soil, never buried. The fronds are somewhat triangular in outline, each from 6 inches to 1 foot long, and in some cases even more; the stem is jet black; the barren pinnæ are toothed on the edge, the fertile ones usually entire, whilst the colour is bright green.

A. ASSIMILE.—This is a much ill-used Fern, grown especially by amateurs in pots, where it does not appear to great advantage, but as a basket plant it is truly beautiful. It appears to be a common Fern both in Australia and New Zealand, and it is said to vary much, but although introduced now upwards of sixty years to our gardens, I have never observed it to vary much under cultivation, neither do I believe it does unless another kind, *A. æthiopicum*, is mixed with it. The plant in question being a native of New Zealand, thrives well in a greenhouse fernery. It is not so well adapted for cutting from as the British kinds, as its fronds are somewhat delicate and fragile. The fronds when cut should be submerged in water all night before being used. The fronds are a foot or more long, the stem and rachis chestnut-brown; the pinnæ, when barren, are somewhat wedge-shaped at the base with entire edges, but when fertile they are crenate; the colour is vivid green.

A. CAUDATUM.—A beautiful plant of quite another aspect, and which can only be grown in the stove, where as a pot plant it is very fine, but it is superb when grown in a basket; the fronds are a foot or more long, erect, and gracefully arched; the stem is deep chestnut-brown and hairy, the apex being naked, and bearing young plants at the ends. It is a native of various parts of India, &c.

A. CONCINNUM.—This is a beautiful and now plentiful plant, peculiarly suitable for basket culture. It is widely distributed in America and in the West Indian Islands, being a very common plant in Jamaica, from whence I have frequently received it. The fronds are drooping, each from 1 foot to 18 inches long.

A. FEEI, a Mexican plant, has fronds each from a foot to 3 feet in length, and forms a superb object in the stove.

A. LUNULATUM.—This is a pretty stove Fern from India, &c., but being deciduous in the winter it is too frequently thrown out for dead, and thus it has so long continued a scarce plant; the fronds are tufted, the stem wiry, and of a deep reddish brown. The fronds are to some extent naked at the end, where they become proliferous and should be pegged to the side of the basket so that a good mass may be formed. During the winter months when dormant it should be kept just moist.

A. DOLABRIFORME.—This is a beautiful and somewhat rare Fern. In general outline it resembles *A. lunulatum*, but it is stronger and larger in all its parts, and moreover it is an evergreen plant. It comes from the East Indies and requires stove treatment.

A. RHIZOPHORUM.—This is usually ranked as a form of *A. caudatum*, in which, however, I cannot agree, for the form I have grown came from the Mauritius, and bore not the slightest resemblance to *caudatum* except in being proliferous at the apex. The fronds are pendent, the stem deep reddish brown and quite smooth. The pinnæ have the lower edge straight, not rounded, as in *caudatum*, and the upper edge is deeply lobed; the tailed portion of the frond is also furnished with small, obtuse pinnæ, not naked as in *caudatum*. The colour of the plant is deep green, and the pinnæ are quite smooth. It requires stove heat.

A. DIGITATUM.—This is a grand, and I think at present still a rare species in cultivation. By some it is said to be deciduous, but I did not have it sufficiently long to speak confidently on this point. This stem is polished jet black; the fronds are each some 2 feet or 3 feet long, the pinnæ numerous and deeply lobed; sori numerous on the upper portion; colour a rich deep green. This plant I take it is the most handsome of the large-fronded set of basket kinds, and it is well deserving more extended cultivation.

A fine *Adiantum Williamsi*.—I enclose a photograph of this splendid *Adiantum*. I got this plant

two years ago in a 5-inch pot. It now measures 6 feet across. I find it does best in an intermediate house, and potted in a mixture of loam, leaf-mould, and part of an old Mushroom bed. This is one of the finest *Adiantums* for cutting. It is also valuable as an exhibition plant. — WILLIAM SORLEY, *Craigieburn, Moffat*.

Pteris cretica nobilis.—This is a pretty crested variety of *P. cretica*, and was certificated by the Royal Horticultural Society Feb. 14, 1888. Small plants show the crested character remarkably well, judging from a number of examples in the Edmonton Nursery.

***Cheilanthes fragrans* (G. Simpson)**.—1. The frond sent as gathered in Afghanistan I cannot make to be anything different to *Cheilanthes fragrans*, a widespread species, found in the Mediterranean region, in Spain, Portugal, and Switzerland, whilst it is found in the Canary Islands and Madeira, and various other places. No. 2 is a very pretty form of *Cheilanthes tenuifolia*. You say it was gathered in the Sylhet Mountains, but it is a different form of the plant to the one in cultivation. No. 3, *Nipholobolus heteractis*, a pretty, strong growing species. It was introduced by me in a living state some few years ago from Assam, but it has not become so generally grown as it deserves. No. 4 is *Asplenium alternans* from the same district, a pretty little Fern with fronds resembling those of *Ceterach officinarum*, but it lacks the rough chaffy scales with which that species is clothed, and, moreover, its veins are plain and straight, not reticulated, as in *Ceterach*. By the above descriptions you will perceive that none of the species sent you by your friend are new, but all are exceedingly pretty, and therefore you should sow spores of them. You will find stiff loam the best to sow them on, and now is the very best time to do so. I have little hopes of your being successful with No. 3, but give it a fair trial with the others. — W. H. G.

FRUIT GARDEN.

HARDY FRUIT NOTES.

FRUIT prospects, thanks to a slow, late, genial spring, have greatly improved, and blossoms of all kinds, from the Peach downward, are more perfect than many growers anticipated. The blossoms on the tips of extension-trained Peaches are rather small and imperfect, but, judging from present appearances, there will be a good set of fruit. The trees, moreover, are remarkably clean and free from aphides, a very important matter at all times, especially so in late seasons when sharp attacks of these mean loss not only of the early shoots, but of time which cannot be redeemed. A correspondent advises syringing trees in or barely out of flower with water at a temperature of 80°, but prevention being better than cure, and that at a most critical stage, repeated washing, not only of trees, but of walls with soapsuds prior to the bursting of the flower-buds will be found much safer practice. We have used soapsuds now for some years, never allowing a drop to run to waste, and it is to this cheap insecticide and stimulant that I attribute the disappearance of black and green aphides. Moss and Lichen from the trees and walls. We now know for a fact that thousands and tens of thousands of young Peach trees have been killed back to the base buds, and many of them completely ruined upon open quarters in the nurseries, and yet the winter has not been severe. To what defect then must this great loss be attributed? Well, to imperfectly matured wood, and this accounts for the tips of wall trees which carried leaves until Christmas producing infertile flowers. As these flowers are of no use, and unripe shoots do not form a lasting framework, the question requiring an immediate answer is this: Faithful to our creed, must we allow the knife to remain in the sheath, or shorten back to strong breaks from sound wood? Although

a rigid extension trainer, my first point is ripe wood; therefore, if I cannot secure an average of 2 feet, or 3 feet I must borrow from my restrictive neighbour by cutting off the weak, unpromising tips; and now with an abundance of young fruit swelling from the triple buds is the time to run over any trees which look least promising.

Disbudding upon Peach and Apricot walls will now be the most important operation, but having quite recently discussed this matter, all I have to say here may be summed up in a few lines. Disbudding should not be commenced until the fruit is large enough to force off the remains of the decaying flowers, and then this piecemeal operation should be commenced, continued, and ended when the weather is mild and favourable to a free and rapid flow of sap. The tops of the most vigorous trees containing many foreright shoots claim first attention, then the lower parts, and last of all trees which have been root-lifted, transplanted, or which from other causes show signs of weakness. By deferring the removal of the shoots and leaves, weak, but otherwise healthy trees gain rapidly in strength, whilst others inclined to a gross habit may be kept in subjection by disbudding and pinching. Any practical man who knows how to train a tree can see at a glance which shoots must sooner or later come away; first, those which grow at right angles from the face of the branch, next the shoots which start from the lower sides, and last of all, really and truly the most difficult part, the pinching or entire removal of a given number of the growths from the upper sides. As a great number of the best placed fruits are found at the base of these upper side shoots and a few leaves give shelter from frost and parching sun, I generally pinch mine, leaving intact a good one at the base, and others 6 inches apart quite up to the terminal. These in due course are still further reduced, and all that have been pinched, as thinning is carried on, are taken away with the fruit. Some Peaches bear fruit upon spurs, but they must be natural spurs, not spurs formed by pinching, and then even I do not care for these, especially in the open air, as the finest Peaches are obtained from clean well-ripened shoots. Apricots in this locality, I believe, have produced a thin and irregular blossom; consequently that important matter, the early thinning of clusters of fruit, will not be heavy. I do not object to a thin blossom, provided there is enough for a crop, as bold, single flowers almost invariably set well and swell to the largest size. But be the crops heavy or light or a complete failure, pinching and disbudding must not be neglected. Apricot trees should be well washed with the hose or engine, and perspiring rapidly, those on south walls should also be mulched with fresh stable litter and copiously watered. As grub will soon put in an appearance and hand-picking is the only means of saving the crop, all curled or folded leaves must be pinched or removed as they appear.

W. C.

Well-kept Apples.—The very finely preserved collection of Apples shown by Messrs. Veitch and Sons at the Drill Hall on the 23rd ult. did but render more potent the wish that our home growers of Apples had thousands of barrels of such fine samples to put upon the market now. Generally, the whole of the samples were well preserved, but some specially were firm and fresh, resembling December rather than April fruits. That these were the product of dwarf nursery trees rather goes to show that such methods of culture when more widely applied in orchards or large gardens will produce fruit which keep well, not only because so well matured, but also because so little exposed to rough usage. To have such Apples now in quan-

tity, of course trees must be planted in quantity, and it may well be a question with planters whether it be best to lay down all the area of some extensive field with dwarf trees only, somewhat densely planted, or whether lines of standard trees shall be planted at wide intervals with several rows of dwarfs between them. It does seem as if a combination of the two methods of culture would prove the most satisfactory, because whilst the tall trees might help to shelter the dwarfs, the diverse methods might also serve best to produce regular cropping. Of varieties noted in the collection specially fine and well preserved were Betty Geeson, Niton House, somewhat resembling the last named, Annie Elizabeth, Northern Greening, Bismarck, rich in colour; Baumann's Reinet, Prince Albert, Dumelow's Seedling, Lord Derby, Washington, Alfriston, and Ribston Pippin. There is great merit in the production of such fine fruits as these were, and there is not less of merit in thus so admirably preserving them.—A. D.

PEACH CULTURE IN THE OPEN AIR.

THE season for disbudding or thinning the young growths is close at hand. Though the winter has not been a severe one, the spring is backward, and this has to be taken into account in commencing disbudding. Usually the end of April is the best time to begin, and in cold districts it is better to delay the work a little than to chill the young fruits by a too early removal of the protection afforded by the foliage. At the same time where the shoots are much crowded, the work should not be delayed so long as to rob of the necessary support the shoots intended to remain. It has been said that a good breadth of foliage is an advantage to a tree in encouraging root action. To a certain extent this is true if there is space to fill up on the wall and the leaves have a chance of attaining their full development, but not otherwise. Disbudding is best done by degrees. Begin with the most vigorous trees first by the removal of the foreright shoots. In cases where the removal of a foreright shoot will expose a young fruit, it may be wise to pinch it back to three or four leaves, and leave it for a time till the weather has become settled and genial in June. The majority of fruit growers when disbudding select young shoots for laying in on either side of the branch indiscriminately, being content to take the best shoot wherever it may be found; but there is some advantage in what is known as the Hamiltonian system, the principal feature of which is to leave all the young wood on the upper side of the branches. It is simple and easily impressed upon a young hand, and there is less danger of overcrowding the young wood. Besides, in a general way, the young shoots on the upper side of a branch are better nurtured, the sap flowing upwards with greater freedom than downwards or even horizontally. There may not be a great deal in it so far as regards the upper part of the tree, but it is a benefit to the lower branches, which are the most difficult to keep in good order. The disbudding and thinning should be finished by the middle of June, and there should, when completed, be one healthy shoot at the base of each of this year's fruiting branches, and another at the end as a leader to draw up the sap to supply the fruits, as without the leading shoot at the end the fruits would shrivel and fall off without attaining full size. In addition to the two shoots named, there may in the case of long branches be a shoot in the middle, or even two, if there is space on the wall to be filled up.

One of the most important points in Peach culture on walls is the destruction of aphides, or rather the prevention of their effecting a lodgment. It is far easier and cheaper to keep them away than to destroy them when they are entrenched among curled-up foliage. Most of the unsatisfactory Peach trees in the country owe their unfortunate condition to lack of promptitude in dealing with insect pests. The black aphid is the most difficult to destroy, but a persistent use of tobacco powder, if begun early enough, will cure even the worst cases. When the days lengthen and the nights become mild and genial, the engine

should be brought into use, and all the soapsuds saved up for the Peach trees. A dash of paraffin or tobacco liquor is an improvement should there be any suspicion of insects. Soft soap, at the rate of 1 oz. to a gallon of water, may take the place of the soapsuds where the latter are not immediately available.

The Peach, when the trees are healthy, is a free setter, and where the fruits are numerous, thinning should begin early and be finished in good time in the open air, as a healthy tree well nourished at the roots does not often cast off its fruit in stoning. It is difficult to say what should constitute a crop of fruit, as so much depends upon the condition of the tree, but really fine fruits, 1 foot apart all over the tree, are more valuable than a greater number, numerically, of inferior size and quality. Giving support in the shape of liquid manure or a mulch of rich compost at the right moment is of great value in enabling a heavily laden tree to carry its load without serious injury to its future, but at the same time it is better and wiser not to overcrop. And in fitting the burden to the tree there is scope for the display of judgment. The young wood should be tied or nailed to the wall in good time. When this work is neglected the branches are liable to be broken by winds, and they unduly shade the fruits and weaken the other parts of the tree. I like to begin tying in as soon as the shoots are 6 inches or 7 inches long; this keeps them safe from winds, and another tie later in the season will make all secure. Keep the wood close to the face of the warm wall and give the necessary exposure to colour and mature the fruit.

In a dry season very few Peach trees are sufficiently supplied with water, either at the roots or over the branches. A good deal depends upon the formation of the border, but where the roots are as near the surface as they ought to be, it is next to impossible to over-water them in a dry summer.

E. H.

SETTING GRAPES WITH THE SYRINGE.

FEW practices have excited greater difference of opinion than the wisdom or otherwise of setting Grapes with the syringe. Some even go so far as to say that it cannot, in fact never has been done. This is rather too strong in view of the statements to the contrary of many able cultivators. Grapes in bloom may be syringed and set freely in spite of and not in consequence of the syringing. And it is absolutely certain that they often set with the greatest freedom and swell most satisfactorily afterwards where neither syringing nor other special treatment is adopted to carry them safely through these critical stages. On the other hand, it must be admitted that often where most pains are taken to set Grapes failure is the more conspicuous. Neither is this half so mysterious as it may seem at first sight. Vines in robust health and under skilful treatment of root and top mostly set and swell freely, a few miffy-setting varieties excepted. Trouble in setting mostly comes of enfeeblement through over-cropping or torpid root action, and it is difficult to see how overhead syringing when in bloom can either remedy the cause or prove a cure for such crippled energies or exhausted constitution. On the other hand, imperfect setting may at times result from an excess of vigour. This is, however, more common among stone fruits than Grape Vines. The tree leans so much to its growing side, that mere vigour of bough or extension of wood gains such a power over fertility as to cause the fruit to drop or refuse to swell. Grapes or other fruit under such conditions are not starved off, but flooded into impotent setting and swelling through an excess of vital force and a prodigality of food. Could these youthful bunches be held on until their specific gravity enabled them to exact specific contributions each for itself from the full tide of life passing by them, they would be safe for setting, swelling, and maturity. Will the syringe help them to do this? It seems extremely doubtful. Would it not rather hinder them? Methinks even "T. B.," if he admits that Grapes may be flooded off as well as starved off from setting, would hardly advocate showers from the syringe without,

as supplementary to the full flood-tide of vital sap within.

No doubt "T. B." and others have apparently succeeded in setting Grapes with the syringe. No one who reads his clear statement (p. 357) can doubt that he does it with more force than most other cultivators. But I use the words "apparently succeeded" advisedly, for the reason already given, and also that the majority of Muscats set their crops without the syringe; and that in some situations and in some soils they cannot be induced to set freely by the use of all known means to force them to do so, including a vigorous use of the syringe. Soils, sites, subsoils, have more to do with free and shy setting than the syringe. I have known cases where the same cultivators, whose Muscats, Alicantes, and other Grapes set as thickly and as surely as Hamburgs in one locality, entirely failed to obtain a full crop of shy-setting varieties fifty or a hundred miles away. The skill was not only the same, but greater; treatment identical or better; but the soil, the site, the accidents of the locality marred previous success, and sometimes converted it into failure.

As few things can be worse than an unsatisfactory setting of Grapes, readers who suffer from it can lose but little by trying "T. B.'s" syringe and syringing—that is, his thorough method—instead of dewing them over. Syringing should, however, be used cautiously at first in each new locality, and not as a certain panacea for imperfect setting; for, unfortunately, the causes of the latter are too subtle, numerous, potent, and deep to be reached and mastered by a shower from a syringe.

HORTUS.

PEACH WOOD DYING BACK.

CAN any reader of THE GARDEN say what is the cause of the young or fruiting wood of Peach trees dying back to the base of the shoots? The house is a large unheated one, with five trees in it, three on trellises and two on the back wall facing south. The border is entirely inside. The soil in which the trees are planted appears to be good strong loam. I have only lately come to the place, so cannot give a very good description of the border. The trees looked healthy enough in November, but instead of the buds swelling they withered and died. They have been well attended to with water since I have had the management of them. I may mention that when I came here there were pyramid trees growing in the same border as that in which the Peach trees now are. Would that damage the roots of Peach trees sufficiently to cause the wood to die back?—A. WATSON, *Letton Hall Gardens, Thetford*.

* * Here we have an instance of the penny-wise-and-pound-foolish idea of trying to grow Peaches in unheated houses where detailed management is not of the highest order. All may go well for years; indeed, under very clever management of the trees and borders, full crops may be obtained annually for a quarter of a century, but in this particular case, the cold wet summer of 1888, combined with other causes, has brought them into a very bad condition. The shoots having died back to the base, an unusual occurrence in cold houses even, we may readily infer that the wood of the past year was badly ripened. Other conditions, however, being fairly satisfactory, immaturity alone, whilst destroying all chance of a crop of fruit from imperfect flowers, should not have caused the young wood to die back to the point from which it emanated. Lifting the pyramids might injure the roots of the trained trees, but, so far from causing decay, this rough-and-ready method of cutting off the supplies would most likely act in a converse way, and, provided they were not ruthlessly mutilated, it would tend to hardening and ripening. Although the querist has known the trees since last November and has actually lifted the pyramids, he says he knows very little about the border, but, having been digging and delving, surely he must have formed a pretty correct opinion of its depth and quality, the depth of drainage, the condition and whereabouts of the roots, whether wet or too dry, working in good compost, or, as I suspect,

pumping up poison from a cold crude subsoil. If his employers are unable to throw any light upon the past year's management, an intelligent gardener, who has had charge since November and has pruned the trees, should know whether they were properly disbudded and trained last year, also whether they were too gross and required root-lifting. Lifting the pyramids offered a fine opportunity for root-pruning; indeed, it is difficult to understand how this operation can have been overlooked, especially when everyone knows this is the best, if not the only mode of reducing soft sappy wood in cold houses to subjection. As it is now too late to interfere with the roots and querist wishes the assistance of experts who have not seen the trees, and can glean very little from his letter, my advice may be wide of the mark; nevertheless, it is as follows: Cut out all decaying and faulty shoots, rearrange those left, disbud well, keep the foliage clean and train thinly. Do not let the roots feel the want of water, but the trees being infertile and more likely gross than weak, avoid feeding. Syringe copiously twice on fine bright days, once only when the weather is dull, give air early on fine mornings, increase it as the temperature rises above 70°, and shut up in time to touch 80° with solar heat and plenty of atmospheric moisture. Keep the young growths regularly tied down to the trellis, allowing a width of 6 inches for each, remove all laterals just above the first leaf and pinch the points out of very strong shoots before they have time to rob their weaker neighbours. As the season advances, say after midsummer, give plenty of air at 6 a.m., increase it to the full at 8, and shut up about 5 in the afternoon. When the trees have finished their growth and the flower-buds become prominent, syringe in the morning, but relax in the afternoon, confining atmospheric moisture to damping the walls and floors, that is if the trees are clean and still shut up with plenty of sun heat. If all goes on well, the house may be left with full air on by night and day through September. The trees may have an occasional washing with the hose or engine, and the roots, as a matter of course must be kept well watered. About this time examine the borders, and in the event of the roots having got away, the growths too strong, or the compost defective, lift carefully and relay the roots in new sustaining loam and lime rubble resting on ample drainage. The best time to lift and relay Peaches is when the foliage is fairly ripe, but before it begins to fall. All the weakest and most promising roots should be preserved and kept moist; the strongest may be shortened. The compost, 2 feet in depth, should be made very firm, beating or treading when dry, of course, to within 9 inches of the finishing surface, when the roots must be neatly spread out, covered with 3 inches of soil and thoroughly watered home with water at a temperature of 80°. When this has passed downwards, make up the border, mulch lightly to keep in moisture, also to receive and give it off after damping and light syringing. When the leaves begin to fall cut out any superfluous shoots, resume liberal ventilation, and keep dry through the winter.—W. C.

SHORT NOTES.—FRUIT.

Syringing Vines in bloom.—Will T. Baines kindly inform me the latest hour in the morning at which he has syringed his Vines, and if searching has ever followed?—S. SCOTT, *Rathmore, Belfast*.

Hawke's Champagne Rhubarb is one of the best flavoured of all the Rhubarbs. The stalks are very rich crimson in colour, comparatively thin, and not coarse. They are juicy and luscious when used for pies or preserves.

Bees as fruit fertilisers.—The latter end of March and early part of April last were very sunless, and the trees in our cool Peach house being in full flower at that time we did not think their chances of setting a crop very favourable, so we tried our old plan of turning a hive of bees in, and they worked so hard during the slightest sunshine, that, as you will observe from the twigs enclosed, we have secured ten times more fruits than we require.—J. MUIR, *Margam*.

* * A very fine set. On one branch measuring 4 in.

long 14 fruits had set, and the others sent were equally as fruitful.—ED.

Mulching fruit trees.—Many do not attempt this until the atmosphere is excessively hot and the soil dust-dry from the effects of a July sun. In order to derive the full benefits from mulching, the manure should be put over the roots before May is over. Then the virtues of the manure are generally washed down to the roots, and the moisture is retained in the soil to such an extent that should dry weather follow, the new wood, foliage, and fruit will become fully developed.—J. MUIR.

FRUIT PROSPECTS.

WITH the exception of Apricots, that seem to have suffered most through the unusual length rather than the abnormal severity of the winter, fruits promise an average crop in the open air. Owing chiefly to the late and sunless summer and autumn of 1888, the winter found the wood of Apricots in a green and succulent condition. The consequence is that it is very much crippled where not wholly killed. Even the older branches are more severely cankered off than usual, so that in many cases nice trees have been severely cut into or wholly wrecked. Even where the young wood has escaped canker or destruction, large portions of it are without bloom, and the portions that were fairly clothed have been cleared of much of it. From all these causes it goes almost without saying that Apricots are a scant crop, even assuming that all the bloom may set and swell into fruit, and be free from the final thinnings by late April and May frosts. But our gloomy outlook hardly extends beyond Apricots. The next thinnest crops seen by me are among Pears, but these promise something like half a crop, which proves at times from the superior size of the individual fruits to be almost better than a full crop. Peaches, Nectarines, and Plums are showing well, and though the wood was green on the two former, still the blooms look like setting, being bright in colour and vigorous for their size. Plums, unless where the buds were cleared off by birds, are still more promising. Apples are all that could be desired. Growers who suffered most from maggots last year were most anxious about the crop for this season; but so far as a full blossoming can ensure a full crop of Apples, that is already attained. Raspberries also promise well in length and strength of cane, though the buds are thinner than usual, while Currants and Gooseberries can hardly be called a full average show.

Strawberries vary much in appearance, some having suffered much, others little, and yet others not at all through climatal severities. The younger plantations, as was notably the case last season, have wintered best; but with genial weather we shall probably have something like an average yield of these favourite fruits. Frequent dressings of soot and lime at this season prove most useful in clearing off the slugs, that are so destructive during June, unless they are destroyed early in the season. After several soot and lime dressings, a clean surfacing on which the ripe fruit may lie should be applied.—D. T. F.

— Though it is to be hoped that those who predict that the fruit crops this year will be heavy may not be disappointed, I still venture to think that they are trusting to appearances that are more superficial than reliable. In the southern counties, when the leaves fell last autumn, fruit buds of all kinds were sufficiently plentiful, but they were not of the character to satisfy those who have marked the different result that full, plump, well-matured buds give from those which follow when the buds are thin and puny, such as a wet, sunless summer like the last invariably produces. The bloom so far, as it has opened at the time this is written (the end of April), comprising Apricot, Peach, and Plum, is just such as might be expected from insufficiently matured buds, being small and weak, and when examined much of it is found to be deformed. Though there has so far been no frost to interfere with it, I shall be agreeably surprised if enough for a crop sets. Trees and shrubs of most sorts, as well as the fruit-bearing kinds, have been more than usually active all through the winter—a condition that does not favour the production of bloom.

Many sorts of flowering shrubs and trees will evidently be much less attractive this spring than they generally are, and we may well be thankful that the winter has passed without any excess of cold. Had there been anything approaching that of the memorable winter of 1860-61, the consequences would doubtless have been alike disastrous.

Apple and Pear bloom, in common with that of the fruits that come in earlier, is unusually backward, and on that account some who write on the subject seem to think that there is a better chance of a crop. But this idea is not supported by facts. I admit that the bloom is less likely to be destroyed by frost when it is late than when it opens too early; but, on the other hand, when it is unseasonably late, the changes are against a crop—at least, I have noted this in different parts of England. Medium-sized trees of Apples and Pears that, through being root-pruned made comparatively little wood, and that consequently set their buds earlier and matured them better, will carry a crop when trees in a less fruitful condition will fail.—T. BAINES.

LATE APPLES.

THE following incident will serve to show the value of home-grown late Apples, and to what extent they would be appreciated were they better known and obtainable at the present time of the year. A friend of mine, a few days since, happening to have, when in an hotel in Worcester, a few Dumelow's Seedling or Wellington Apples, a fruiting branch of which is here presented, gave them to the waitress at the bar. A few days afterwards, upon going to the same hotel, the manageress asked him the name of the Apple and whether he had any to dispose of, remarking that she never saw an Apple cook like it, and that she would give anything for a bushel of the same sort. "We can get Apples," she continued, "but they are as dry as chips." My friend could satisfy his questioner as to the name of the Apples, but where to obtain them at this season was more than he could tell her. It is this lack of information amongst consumers as to the merits of our best Apples and the want of system and enterprise prevailing among our fruit-growers which retard the fruit-growing industry in this country. The public want to be made familiar with the names of the best Apples, so that when they hear of the Wellington they will immediately know it is one of the best spring Apples. The Blenheim is becoming generally known now and will always command its price, because its name carried its reputation as one of the very best English Apples. Why should not the Wellington become as popular? As a late Apple it is A 1, remaining firm and juicy as long as any variety I am acquainted with, and it is, moreover, a handsome Apple of fair size.

The storage difficulty, which is often advanced as a great obstacle connected with late Apples, might surely be overcome by exercising a little forethought. If the fruits were sorted at the time of gathering and the best packed in barrels or bins, they would keep in barns, granaries, or out-houses, where, by covering, frost could be excluded and no further attention would be required until wanted for sale. Pitting, in the same manner as Potatoes are kept, has been tried and found to answer very well. Why should not this method be improved upon and adopted for keeping late Apples? If carefully stored they need no picking over; in fact, such operations are harmful. What is wanted is a dry site, the provision of proper ventilation, pitting the fruit when they are perfectly dry, and admitting only sound ones. Stored in this manner, Apples will keep perfectly well and turn out plump and sound in the spring. If Apple-growing is to be made to pay, every chance of profit

must be seized upon. By far the greatest share of attention is being given to early varieties, of which Ecklinville Seedling is a type. Thousands of trees of this and similar kinds have been planted within the last few years in this country, as the fruit can be gathered early and at that time fetch good prices; but, as a natural

home-grown sorts stand any chance of sale at anything like a paying figure. After Christmas, however, the quality of the American fruit deteriorates very much, being of a softer nature and not possessing the weight and keeping qualities of some of our best late kinds. I think if growers would deviate a little from the beaten track of disposing of their Apples at any price as soon as gathered, one of the most profitable branches of Apple-growing would be found. The demand for good sound fruit exists all through the early part of the season—in fact, until green Gooseberries are plentiful, good samples of Wellingtons or Mère de Ménage would, I feel sure, fetch remunerative prices at this time of the year. I saw last year some of the latter variety, which were purchased in Birmingham market in the month of April, as fine in colour as any American sorts, and far superior in flavour, but there were only a few bushels on sale. What we seem to want is to popularise a few of our best kinds and grow them extensively enough to make it worth while to consider and provide for their storage. The time is gone by for Quarrendens, Russets, and Reinettes of the third size, also the host of mixtures one cannot find a name for. Cut them off if the trees are sound and graft with Blenheim, as advised in THE GARDEN a week or two back, or with Wellingtons; or if too old, grub them up and plant young ones, and there will then be some chance of competing with the foreigner.

A. BARKER.

FRUIT NOTES.

AIDS TO SETTING GRAPES.—Mr. Barker, I think, acted wisely in omitting drawing the hand down the clusters for the twofold purpose of removing the viscous matter from the crown of the stigma and conveying home the pollen. Soft silky hands in forcing houses are rare; hard horny palms, more or less tinged with perspiration, prevail, and all Grape growers know how the slightest touch with matter of an oily nature produces rust upon the berries. Years ago, I believe when Mr. Barker lived with me, we tried repeated experiments with the hand and invariably found a small brown spot upon the stigma point of the outside berries of Muscats when they became ripe. The practice was discontinued and this apex spotting has entirely disappeared. If this were the only aid, why then so clumsy a method might be tolerated; but, like direct syringing, it may well be dispensed with, as I believe that Grapes which set under the syringe set equally well without it; indeed, I question if a great number of berries are not perfectly fertilised before the capsules are removed. Mr. Barker gives his Muscats a very light dewing over with the syringe once or twice during the time they are in flower, but relies principally upon the camel's-hair brush. When looking through his houses a few days ago I noticed that his Muscats had set apparently every berry. I commend all Grape growers for keeping

square with the conscience by trying every aid which is not likely to do harm; but, after all, the grand aid, and that of Nature's providing, is a warm, healthy root-run well filled with active fibres. The Hindlip Vines have warm, well-drained inside borders and the houses are skilfully managed, two very



Fruiting branch of Wellington Apple.

consequence, if all plant early kinds, the market will in time—as it is already fast becoming—be over-stocked or glutted.

I am well aware that so soon as consignments of American Apples reach this country, a very considerable fall in the prices takes place, so much so that only good samples of

important factors in setting and finishing superb Grapes.

CUTTING BACK YOUNG TREES.—This exploded method of trying how not to do it, like the sea serpent, is coming round again; but why cut back maidens even when equally perfect and longer-lived trees can be manufactured without the aid of the knife? Nurserymen, if they would, might assist the fruit grower by pinching the points out of the leaders when 12 inches to 18 inches from the bud, but they do not seem inclined to leave the beaten path; consequently the leaders run up 4 feet or 5 feet, the base buds become buried in sap, when, unless the season is hot enough to ripen them thoroughly, cutting back represents the first nail in the coffin of the tree. If we examine dwarf trained wall trees obtained from any of the best nurseries, we find a hard plug of dead wood in the centre of the breast a few inches above the union. Raising cuttings, or layers, or seedlings may be suggested as the remedy, but so long as worked trees are indispensable and cut-backs are accepted, we must trust to the nursery foreman, ever too ready with the knife when March winds are sweeping over the quarters. Putting certain sorts upon unsuitable stocks is bad enough, but when decapitation deals out canker, gumming, and premature death, one cannot but regret that the nursery operator's rules of procedure so closely resemble the laws of the Medes and Persians. Millions of buds inserted last August are now starting into growth, and the majority of them it may be necessary to rush into cordons and standards. But will no active nurseryman break new ground by trying the experiment upon choice varieties, especially stone fruits? Experiment, indeed, it can hardly be called, as I have in my mind two very large Rose nurseries in which the two methods of preparing dwarf Roses are in full force. In No. 1, the proprietor, an exhibitor, allows his maiden plants to rise to any height for the sake of a monster flower; in due course his plants are sold, transferred to a poorer soil and cut down. The base buds, buried in sap wood and badly ripened, never break, when naturally the plant dies. No. 2, a non-exhibitor, grows specially for his private customers, securing charming plants with four to six firm, well-ripened shoots close to the ground. The *modus operandi* consists in pinching out the points when the young growths have made 1 foot or 14 inches from the bud. The wood ripens, the plants move well and give satisfaction, as they flower freely the following year. If Roses can be managed in this way, why not dwarf fruit trees? If growers of hard and soft-wooded plants succeed in forming specimens by pinching, why do fruit foremen decline a leaf out of their book? W. C.

Strawberries.—Where August planting was put off and the young plants have been kept in nursery beds, no time should be lost in getting them transferred to their permanent quarters. We sometimes plant in April, but until quite recently the ground has been wet and cold and quite unfit to undergo the treading and ramming essential to success, although manuring and trenching were performed during the autumn and early winter. Home-grown plants always lift with good balls and start away at once if transplanted when they have made a few small leaves, in some instances producing a little fruit, but the light is hardly worth the candle; therefore the ground being available for certain vegetables and Lettuce, all the bloom should be pinched out the first season. Plants put out in spring should be well mulched and watered occasionally in dry weather, also they should be kept clear of weeds and runners. If ground is scarce and the past year's runners are not very good, the allotted space

may be cropped with early Potatoes, which will come off in time for runners of the current year layered early in pots for lining out in August.—W. C.

FORCED FRUITS.

STRAWBERRIES.

As the latest batches of plants approach the flowering stage the blossoms should be well thinned before they expand. Ten or twelve fruits to a plant being ample, and those produced by the terminal buds the finest, all weak spray and some of the inferior trusses may be removed with the greatest advantage. The plants cannot be kept too close to the glass, provided they do not actually touch it, and in this way impede a circulation of fresh warm air above the foliage. If on shelves in houses which require back and front ventilation, watering will be a heavy item and syringing will be by no means light; but these matters must have proper attention, as drought, which causes the balls to part from the sides of the pots, is fatal to results, whilst imperfect syringing too often lets in spider and mildew. Either of these is bad enough to contend with, but next, after good culture with plenty of air, the safest and best preventive is bi-weekly syringing with clear sulphur water. This is easily made by working 1 lb. of sulphur into a paste and adding nine gallons of soft water, stirring well and allowing the mineral to settle to the bottom of the tank or tub before the water is used. If mildew is actually present, it may be used full strength overnight, and syringed off with pure water early the following morning; but here, as elsewhere, prevention being better than cure, it is a good plan to add one gallon to four and use at this strength every evening when the plants are not in flower. Sulphur in any form, dry even, is very useful in the Strawberry house, especially in the spring, and much fine fruit might be saved were it constantly used. Green aphid about this time often makes rapid strides, and, left alone, very soon puts an end to the most promising prospect of fruit. Its destruction by smoking the plants, when dry, up to the flowering stage is very important; hence the advantage of making a clearance of all Peach houses and vineries and keeping the Strawberries in light airy pits where suitable treatment is the best preventive of the appearance of parasites. When the late fruit is set, the trusses should be tied up to small sticks, well syringed with pure water and finally thinned, as second-sized fruit in these days is but lightly appreciated. If pits warm enough to swell the fruits are out of the question, and exposed shelves must be occupied, much labour may be saved by placing the pots on thin sods of turf, or in saucers which catch the filtered liquid in its downward course. The latter should not, however, be kept constantly full, otherwise the liquid will become stagnant, if not putrid, and the best feeding roots will perish.

Late plants in pits and now throwing up their flower-stems will require an abundance of air on fine days and a liberal chink on mild nights. If partly plunged where they are intended to remain until the fruit is ripe they should not be disturbed, otherwise the roots which have escaped through the apertures will receive a check, and the crop will suffer. As this crop will lead up to Strawberries from the open air, the plants may be retarded by pushing off the lights on fine days, or they may be hastened by shutting up early with sun-heat and atmospheric moisture in moderation. Fire-heat, if ever so mild, is a great help when the plants are in flower, as it prevents condensation of moisture on the petals and keeps the pollen dry; but, lacking this, the lights should be freely tilted along the south front in all weathers, a light covering being used when nights are unusually cold or frosty.

Early forced plants intended for fruiting in the autumn having been thoroughly cleansed by being dipped in soapsuds and properly hardened off may now be planted out. A cold, shallow pit, minus the lights throughout the summer if at command, is best, as it can be covered with glass on the approach of danger in the autumn. Being close to the eye,

moreover, it will be handy for mulching and flooding—no small matter during the hottest part of the year. The next best place is a flat border under a south or west wall, with planks on edge back and front for carrying glass lights clear of fruit and foliage when the Strawberries are setting and swelling. Having turned the plants out of the pots, divest them of crocks and inert soil, see that the balls are thoroughly moist, plant firmly 18 inches apart, mulch at once, and thoroughly soak the whole of the border. When the roots have taken to the soil all runners must be removed as fast as they push, weeds must be kept in check, and on no account must drought favour the spread of mildew or spider. I know an adept at this work who lifts and repots his plants of the Vicomtesse, and never fails in having full crops of remarkably fine fruit ripe before Christmas.

Young maiden plants put out last August for giving the next supply of runners for forcing will well repay careful attention to mulching and watering. In this case early runners are of greater importance than fruit; hence the advisability of removing all the flower-stems as they emerge from the crowns. If a few rows are put out annually specially for runners for pots, upsetting the nets and working amongst fruiting beds are avoided.

CUCUMBERS.

Winter plants that have been heavily cropped, no matter how well they have been fed, will now show signs of exhaustion, but seeing that they are fairly remunerative, a quantity of fruit may yet be obtained provided other occupants are not waiting for their quarters. When everyone knows over-cropping is the gardener's failing, I must again advise early thinning before the fruit becomes fertilised, the daily removal of a few of the oldest leaves and useless vines, thin training and frequent manipulation. If the plants are to be kept through the summer, now they are in free growth is the time to get rid of all insect pests by light smoking for green-fly, the use of sulphur, soft soap or other insecticides for the destruction of spider and mildew. These, one and all, should be used in a very weak state, not once or twice, but repeatedly until the old foliage is clean or has disappeared, and young, short-jointed growths are quite free from an unprofitable burden. So much for manipulation; now for culture. With the solar heat and light now due a temperature of 70° should be maintained at night, and if express speed has anything in it, now is the time to put it on by shutting up very early with the house full of moisture, and the afternoon temperature touching 90° to 100°. As this speed gives quick growth of fruit and vine, the supply of food, liquid and solid, must be good and abundant. Warm, but weak clarified liquid soot and guano water may, in fact must, be given alternately and freely; the first may also be used for filling up the pans, damping the floors and other surfaces at night, their great feeding time, and the soot water twice a week for syringing the foliage. Morning syringing is neither wise nor necessary, but every particle of leaf surface, upper as well as under, should be thoroughly bathed under full sun heat not later than 3.30 up to midsummer. The soil for top-dressing, good sound loam not too light, corrected with rough lime rubble or charcoal and bone dust, should be kept dry and warm ready for use, little and often, as the roots creep through to the surface. As this material improves with age, a good quantity should be made up when quite dry, and lacking the accommodation of a warm shed, it may be kept covered up with fresh fermenting stable litter. Three quarters of an inch of this compost at a time is ample, and the firmer it is beaten with the hand the better. Another great aid to quick clean growth of vine and fruit is fermenting material, not necessarily very hot, but sufficiently brisk to maintain a bottom heat of 75° without the aid of dry fire heat. If possible, the house should have night air and liberal ventilation through the early part of the day, otherwise the foliage will become soft and flabby, when shading, a baneful and troublesome practice, will be found troublesome. After a long sunless period, foliage of all kinds sometimes flags, when slight shade for

a short time is the better part of prudent culture; but systematical shading during bright settled weather should never be indulged in, neither is it needed where the trellis can be lowered to keep the foliage quite clear of the glass throughout the summer. Encourage plants in

Pits and frames by the maintenance of a steady temperature by night and day—the first, by good covering throughout the summer; the second by regular attention to the linings and very early closing with plenty of sun and moisture. As the roots of young plants creep through the sides of the ridges, thin coverings of good sustaining compost must be added, but instead of filling the frames from back to front, as at one time practised, it is a good plan to set two longitudinal boards on edge 2 feet to 2½ feet apart, and fill in solid as the roots require food. If the top edges of the boards are quite level and somewhat higher than the collars of the plants, the flat surface when soiling is finished will favour copious and equal flooding with tepid liquid in summer, whilst the vacant spaces back and front will allow the fruit to hang beneath the trellis. Here, as in the Cucumber house, the secret of getting sweet crisp fruit, for Cucumbers vary in quality, is quick growth. The one great drawback at all times, especially in the spring, is throwing off the lights when manipulation is necessary. From noon until 1 o'clock in May is the best time, as the lost heat can be redeemed by early closing. In June this work may be deferred until after the assistants' dinner hour, when manipulation should precede watering or syringing, and final closing for the day. There is, of course, no rule without an exception, but all work of this kind in ordinary seasons should be crowded into the half hour which precedes early closing. As frame Cucumbers are apt to become crowded, thin planting is imperative; then the laterals should be pinched at the first joint beyond the fruit, and on no account should the old foliage crowd up to the glass or even to touch it. Plants intended for following after forced vegetables and bedding stock must be kept pretty close to the glass, where by liberal ventilation they will not become soft, leggy, and tender. If in small pots they may require a shift, as cramped root space is the sure forerunner of red spider.

FORCED FIGS.

As the first crop of fruit in the early house will now be ripe and approaching that stage, the syringe must be sparingly used, especially on dark dull days, when a free circulation of fresh air cannot be maintained. Its use cannot, however, be entirely dispensed with, as the earliest Figs ripen up in batches, whilst those which come in later as well as the second crop, now well advanced, must be kept swelling by the aid of atmospheric moisture. To carry out this give-and-take principle in a way at once genial to the ripe and unripe fruit, a sharp eye must be kept on external conditions, and when the day promises to be fine, that terrible pest, red spider, must be circumvented by a copious syringing of walls, stems, foliage, or wherever the latter can be drenched without wetting the ripening fruit. Fire-heat being necessary, a little forethought in keeping the pipes warm will enable the operator to give a certain amount of top air at once, when those parts which have not been syringed will hardly suffer from the effect of moist, warm air in rapid motion. Afternoon syringing, on the other hand, should be cautiously indulged in, but the walls and floors, which dry more quickly than the leaves, may be regularly damped with the usual quantum of diluted liquid. Another opportunity for a good syringing at this critical time always offers immediately after the ripe Figs have been picked in very close, when every part of the trellis may be well washed with great advantage to fruit and foliage. These remarks apply to light, well-ventilated houses subject to aridity and spider, whilst others, possibly dark and heavy in which growth is strong and succulent, may require much drier treatment. As Figs revel in root moisture, the supply of tepid water of a generous nature must be regular and plentiful, and being children of the sun, a temperature which suits Muscat Grapes when swelling for ripening should be maintained

and regulated by day and night ventilation. As the first crop wanes, shoots which have been turned or tied aside to let in sun and light must be rearranged and possibly stopped to throw food into the second crop, which also may require thinning. It is not, however, a good plan, unless the shoots are very strong, to pinch much in advance of the second crop, as the first in the ensuing year so greatly depends upon getting the points thoroughly ripened.

Succession houses.—Trees in these started after the turn of the year, having had longer days and better weather, will now be shortening the space which existed between the two crops at the outset, and being capable of standing any amount of tropical heat, with proportionate air and moisture, they may be pushed on to overlap the relics of the crop in the earliest compartment. It is not wise to push too hard through the night, especially when the Figs are in flower, but once the obstinate or apparently stationary stage is left behind, the roots being confined to warm inside borders, a minimum of 70° will do them no harm. This temperature I may say is not absolutely necessary; indeed, a range some 5° lower may be preferable, as loss by night can always be redeemed by running up on bright afternoons. If trained on the long-shoot system, that is, carrying each shoot forward to be cut away when it reaches the extremity, each growth must have plenty of room for the full development of its foliage, as well as for the best of the short spur-like pieces which start from the base of the growth of the current year. This house may be regularly syringed twice on fine days and once when the weather is dull, for much as the Fig enjoys moisture, the large leaves should always become dry before nightfall.

Late trees.—Where a third compartment is at command for succeeding the second crop in the earliest house, hard forcing will be superfluous. The maximum temperature of 80° to 85° should always be secured from early closing with sun-heat, but night firing must be very mild, unless the weather is unseasonably cold and the mercury falls below 56°. If more than one tree is grown in this house, varieties which succeed each other should be preferred, Brown Turkey, as a matter of course, like the Humbergh in the viney, forming the sheet anchor. Other good and prolific sorts are Negro Largo, White Marseilles, and Osborn's Prolific, a most delicious Fig, requiring an abundance of dry, warm summer air.

Pot trees intended for forcing next season, having filled the compost with roots, may now be well fed with warm diluted liquid in preference to having another shift, the main points being pot-bound balls of fibres and an abundance of short spurs clustering with embryo fruit. Some stopping having been necessary to the maintenance of the proper balance of the six to ten shoots, a few second growths will still be backward; but, the season being young, they will have plenty of time to ripen, especially if the crock roots are confined to the pots and the latter are drawn up gradually to stand upon their once brisk, but now declining fermenting material. Here they must be kept clean by copious syringing, and later on, when summer weather prevails, an abundance of sun-heat and fresh air, without the aid of fire, will thoroughly ripen up the young points.

MELONS.

Early plants upon which the fruit has been thinned down to the requisite number must be well fed with warm diluted liquid and copiously syringed when the house is closed in the afternoon. Although the Melon is not an aquatic, it will stand any amount of watering from the time the fruits are the size of hens' eggs until they cease swelling, when there must be a steady reduction, otherwise cracking and deficient flavour will be the outcome. Pot plants plunged to their rims in bottom-heat will take water every other day, and top-dressing, consisting of finely broken stiff loam and bone-dust, laid on half an inch at a time and firmly rammed, will suit them much better than animal manure. When well netted and changing for ripening, the use of the syringe must be discon-

tinued, but a brisk top and bottom-heat with a liberal circulation of air must be maintained.

Successions.—Where several small compartments are devoted to Melons in pots, a second batch of plants, not less than 2 feet in height, should be ready for removal to the pedestals occupied by the first set on the day the last fruit is cut. Being so subject to spider, every part of the structure should be well cleansed and limewashed, and to secure a suitable bottom-heat, a little fresh fermenting leaves or manure may be introduced and thoroughly mixed with the old before or after the plants are removed from the pit in which they have been raised. As days increase in length and the sun gains power, dry fire-heat may be greatly reduced, and, provided the beds are carefully renovated, the season being fairly good, it may be discontinued, certainly after midsummer. Having so often drawn attention to the great advantage of covering, I need not repeat that at no period is it of more use than when hot days are succeeded by cold nights and solar heat is the principal agent. At such times early closing with sun-heat and vapour a temperature of 90° can easily be secured, but the pipes being almost, if not quite cold, it soon declines, when covering not only checks radiation, but by keeping in moisture the plants show by the beads upon their leaves and their robust growth that the conditions just suit them. Top-dress with good loam, lime rubble, and a dash of bone-dust as often as the matted roots appear on the surface; pinch every lateral at the first joint until a flush of female flowers show that the plants are strong enough to set a crop; then pinch out the leaders, and in due course fertilise daily. If pinching the laterals back to the fruit is practised, the points should be taken out the moment the sex can be distinguished; a sub-lateral will then push and be sufficiently advanced to draw the sap by the time the flower opens. Where plants are plunged as close as the pots will stand, and space for development is limited, this is an excellent mode of manipulation, but head-room being abundant, stopping may be deferred until the Melons are set and swelling. The weight of fruit from a given space in either case is about equal, simply because the restricted cordons give, say, two Melons each; whilst the less number of plants having more room may be allowed to swell the fruits to maturity. If well grown, Melons are rarely attacked by fly, and this is fortunate, as even light smoking is very objectionable, especially when the main leaves show signs of losing their vitality. Young plants can be kept clean by dipping the points in weak soapy water or by the use of Fowler's tobacco powder—a most excellent insecticide where smoking is impracticable or dangerous to leaf or blossom.

Plants in pits and frames have had a bad time; consequently they will be very backward, if not fairly beaten by younger stock raised a month later. If not going on well and robust seedlings are at hand, time and patience will be saved by pulling them out and making a fresh start with others which have not received a check from cold or deficient pot room. When good plants are growing freely they must be guarded first of all from checks; and, second, from crowding by thin training and the maintenance of a strong heat which will favour liberal ventilation. This, with the wind in the north or east, is a difficult matter, especially with those who persist in letting all the heat escape by tilting the lights at the back, when tilting along the front answers so much better, not only in the Melon ground, but wherever the daily change of air is imperative. As the flowering stage approaches, all laterals showing fruit should be drawn up to the sun and light and duly pinched when the young Melons begin to swell. The linings will require careful renovation back and front alternately, and the glass must be well covered with dry mats or some other material throughout the season.

W. C.

The fruit crop.—It is quite cheering to look round gardens and see the great wealth of blossom there is on most fruit trees, and to feel that now it is so late we must be safe from frosts. If we do not

have a visitation of these fell enemies, an abundant crop of Plums, Pears, Apples and Cherries is a certainty, as there is so much flower that at least half of it can be spared. Apricots had but little bloom, and the trees are therefore almost bare of fruit; but I am hopeful that there will be plenty of Peaches and Nectarines, as the favourable change in the weather came just in the nick of time to save them and set them off swelling. Strawberries look very promising and appear to be throwing up strong trusses, and all the bush fruits are equally satisfactory, so that growers, pickers and jam-makers may look forward to a busy season.—S. D.

MUSCAT VINES UNHEALTHY.

I TAKE the liberty of enclosing a branch of Muscat Vine, the leaves of which are all getting unhealthy, the oldest leaves worst. Last year they were a little affected in the same way, and I attributed it to wireworms, as I put in a new border four years ago. I trapped a number of worms last year, but this year none are to be found. I allowed the Vines to break away in March with very little fire-heat, and have kept them going on steadily ever since with a temperature at night of from 55° to 60° and by day 65° to 85° according to weather. The leaves always looked somewhat transparent, but not until about a fortnight ago did I apprehend any bad consequences. Fearing mildew (though I could not find any trace of it with the naked eye), I gave the Vines a thorough dressing with sulphur, but I do not think it will do any good. I send a shoot (not the worst), and also some of the youngest roots I could find in both borders. The outside border was in a very bad state. Four feet from the arches had been excavated, well drained, and filled with a good compost; the other 9 feet consisted of yellow clay suitable for making bricks. Four years ago I had the whole border cleared away; the roots had all gone into the bank of clay in front and through the drainage into the heavy clay subsoil. I brought the subsoil to a proper fall, placed a drain along the front of the border, with several drains leading into it; then about 12 inches of broken stones and brick, smaller stones on top, and concrete. I again repeated the same course of drainage on top of concrete and covered it over with turf from an old pasture, and filled in fresh compost in the usual way. I intended having the inside border done in the same way the following year, but pressure of work and other circumstances did not allow of its being done. The Vines are planted inside, so that most of the roots must be inside. No. 1 are those found in inside border; No. 2, those found outside in new compost. They looked sickly last year, and as I found wireworms in outside border I thought that was the cause, and so laid baits for them. I have repeated the baits this year, but can find no worms. I hope you will be able to throw some light on the matter. C. G. W. J.

** Having carefully examined the pale yellow leaves and the two sets of roots wisely sent for inspection, I have arrived at the conclusion that the cause of ill-health lies in the inside border. The roots marked No. 2, taken from the outside border made four years ago, are bright, sound, and perfectly healthy. Those marked No. 1, from the inside, are in a paralysed, if not a dying state, showing at once that the soil is cold, inert, and impervious to the free passage of air and water.

It is now too late to lift these inside roots, but, assuming that those outside are quite capable of supporting a moderate crop of Grapes, avoid the use of manure, solid or liquid, inside the house; give the border an occasional dressing with bone-dust or Thomson's Vine manure, to be washed in with sprinklings and moisture from the syringe; point up the surface with a steel fork to let in warmth and air; keep it loose, giving just sufficient tepid water to maintain a healthy growth, though by no means wet condition until the Grapes show signs of changing for ripening; finally, cover up with fresh stable litter, but do not give any more water.

Cut the Grapes, if possible, as soon as they are ripe and before the leaves fall, then carry out your

good intention formed four years ago, but frustrated by more pressing, if less important matters. Do not lose a day after the crop is removed—say early in September—but shade the roof, keep the foliage moist with the syringe, remove every particle of the old border, drain well, and relay in fresh compost. You will, of course, retain all the sound roots, though, judging from the decaying condition of the outside covering, they will require severe pruning, as half-rotten roots are worse than useless. The wood is short-jointed and the foliage free from mildew; in fact, the Vines are free from disease, the only defect being a disordered condition from which they will recover when objectionable poison is replaced by good wholesome food. If troubled with wireworm, cast half a bushel of soot over each cartload of compost, and mix thoroughly before it is wheeled in.—W. C.

AURICULAS IN THE NORTH.

THE Auricula shows at Manchester and Rochdale were held on April 30 and May 1, the former being extensive and thoroughly representative, but many of the plants showed signs of having been brought on into bloom in heat. The slow character of the season had necessitated this, and indeed those who would have Auriculas in flower and up to exhibition form by the third week in April must depend upon the aid of artificial heat to get them forward. Many of the plants at Manchester had a drawn appearance, and as it is required by the regulations of the northern section of the National Auricula Society that "All trusses in Auriculas and Polyanthus to be free from artificial packing and support," it was only to be expected that not a few of the flower-stems lacked the necessary strength and rigidity to maintain themselves in an upright position, and the result can be readily imagined. At the London show supports are allowed to all kinds of Auriculas, with the result that a much more effective display is made by the plants. The northern Auricula grower cares little for effect, and he appears to regard the show as provided only for himself, and he regards solely the quality of the pips of bloom and nothing more. It is to be hoped that the time is not far distant when the northern Auricula Societies will permit supports to all flowers, so that visitors who pay to see the plants may have a chance of doing so in their most attractive form. In the case of the exhibition held in the Manchester Town Hall on April 30 the show was at times crowded with visitors, who appeared to be much interested in what they witnessed.

Both at the Manchester and at the Rochdale show, which was held on the day following, the grey and white-edged flowers, but few of which were seen in London, were produced in fine form. George Lightbody, still one of the finest grey edges in cultivation, was in its best dress, and its scarcely less distinguished colleague, Lancashire Hero, was equally striking in its green as also in its grey-edged character. Other fine grey edges were George Rudd (Woodhead), Rachel (Woodhead), two flowers much alike in general character as also in foliage; also Tom Mellor and William Brockbank (Mellor). It was noticeable in reference to the grey-edged flowers that, with the exception of the two old favourites, the new flowers are thrusting the old second-rate ones from cultivation. Of the newer green edges, the Rev. F. D. Horner (Simonite) must be regarded as one of the most useful and reliable varieties in this section in cultivation. Prince of Greens has well held its own; the plant shown by Mr. T. Lord, of Todmorden, with its eleven finely developed pips, which won the premier prize as the best Auricula in the show both at Manchester and Rochdale, was such a one as is rarely seen. Many new green edges have been produced in recent years, but that this older variety with a confessedly weak tube should distance them all bears emphatic testimony to its value as an exhibition variety. Of newer green edges mention may be made of Richard Gordon (Lord), John Crossley (Pohlman), and Hotspur, I think one of Mr. Wilson's seedlings. The later introductions included Monarch (Horner), Orion (Horner), which

seemed to me to be likely to prove one of the best green edges this famous grower has raised, and Green Plover (Horner). Colonel Taylor and Oliver's Lovely Ann, with the newer Talisman (Simonite), were all in good character. Colonel Taylor is perhaps one of the brightest green-edged Auriculas in cultivation.

In the white-edged section Acme (Read) was very fine; it is a strong flower, difficult to beat when at its best. Conservative (Douglas) and John Simonite (Simonite) were also in good form. Horner's Miranda is a real beauty as shown at Manchester, and it is to be hoped it will be put into commerce in due course. Reliance (Mellor) and Mrs. Dodwell (Woodhead) are also good exhibition white-edged varieties. In London Mr. T. E. Henwood had Smiling Beauty in very fine character indeed, but I did not see a single plant of it in the north. Traill's Beauty was well shown at Rochdale.

The newer selfs are now a numerous section, and they give us some very fine exhibition varieties. At Manchester Horner's Heroine was the premier; it is fine in all its parts, and produces a large and symmetrical truss. A plant shown by Messrs. Woodhead at Rochdale had fourteen expanded pips. Woodhead's Black Bess is a very good and useful dark self that flattens out well, and makes a reliable exhibition variety. Brunette (Pohlman) is a maroon self with a scolloped paste, and the pip does not appear to flatten out well. I think that, like Helen Lancaster, by the same raiser, it is not a very reliable exhibition variety. On the other hand, I think Sir William Hewett (Douglas) will make a most useful dark self, having good parts, but I am not sure if it is yet put into commerce. Dimple and Ebony, two dark selfs raised by the Rev. Mr. Horner, promise well; the former is a little redder than Heroine.

Of the blue selfs Mrs. Potts heads the list. There were several examples of it in the north, and it was finely shown by the Rev. Mr. Horner in his first prize six Auriculas. That Mr. Samuel Barlow should have raised this flower is indeed an honour. It has the smoothest of smooth pips, but there is a certain amount of weakness in the tube. Mrs. Douglas (Simonite) and Sapphire (Horner) were in good form, both having distinct shades of colour.

Of red selfs there appear to be only Lord of Lorne and Mrs. Sturrock. The former is very fine and striking when well grown, but it possesses the defect of a notched edge. It is remarkable that it still holds its own. Should Horner's Firefly be put into commerce it will be found a useful exhibition variety, having a bright red edge and a finely formed stout pip. Mrs. Sturrock is still shown, but only because the class is so scarce of good varieties.

Yellow selfs are something to hope for in the future. I sometimes wonder if there is a plant of the old Stadtholder in cultivation. Horner's Buttercup is a welcome kind, because while the flower has high qualities, the habit of growth appears to be robust also, and there will be no great difficulty in growing it.

I hardly know in what class to place Mr. Samuel Barlow's new self, Mrs. Bentley. It was shown for the first time at Rochdale, but there was enough of it to justify its being selected as the premier self. It is a plum-coloured flower shaded with violet, the pip smooth and of the finest form. It appears also to be a very robust grower. R. D.

Eucharis bulbs unhealthy (M. M.).—We have carefully examined your bulbs, and can find no traces of the Eucharis mite.

Cuprolene.—We have received from Messrs. Deighton and Smith, of Bridgnorth, a can of their weed destroyer (Cuprolene), and after testing it in various ways, find that it is the most effectual weed destroyer we have yet tried.

Names of plants.—M. C.—*Doronicum Columbe*, —F. L. C.—*Butter and Eggs* Dahlia. —P. Marten, —*Cunninghamia canadensis*. —C. O. Miles.—*Ame-lanchier canadensis*.

WOODS & FORESTS.

FORESTRY.

WITH the return of better demands for all kinds of forest produce, better prices, and more prosperous times all round, it is to be hoped that such will have a beneficial influence in promoting general estate improvements, in reclaiming waste land, and the planting of trees in particular for shelter, ornament, and utility. While talking over this subject some time ago with a gentleman who contemplated planting considerable tracts of exposed barren ground, I was rather surprised when given to understand that the Scotch Fir (*Pinus sylvestris*) would not grow and attain the size of a timber tree at a higher elevation than 900 feet above sea level. I tried to show that he was mistaken, but must say that I was rather taken aback when in support of his assertion I was referred to an extract on that subject from Loudon's "Arboretum," which says:—

The Larch will grow and become valuable timber at a much greater elevation above sea level than the Scotch Pine, thriving at the height of 1800 feet in the Highlands, where the Scotch Pine does not attain a timber size at a greater elevation than 900 feet.

Now it is to be regretted that this mistake should occur in such a standard store-house of knowledge as the work referred to, as gentlemen who have not acquired a practical knowledge of the subject from their own experience and observation are apt to be led astray, and in place of doing good, it in all probability might be the means of doing much harm by retarding or preventing proprietors from planting barren heather ground at high elevations that could not be turned to account for any other purpose. The fact is that I have found by far the largest and finest Scotch Fir trees anywhere in the British Islands growing at a far higher elevation than that quoted above. As, for instance, the wooded part of Mar Forest, Aberdeenshire, which lies along the Linn of Dee, which is 1204 feet above sea level, while other parts in the vicinity at a still higher level contain some fine old trees, estimated to be from 200 to 300 years old, and containing from 100 to 200 cubic feet of timber. The quality of the wood is of the highest standard, being resinous and of a hard firm texture and pretty free of knots. The Benavon and Benabuid Mountains on the Invercauld estate are well wooded with Scotch Fir and Larch mixed with natural Birch for a considerable distance up their sloping sides, and in the curries and tarns of the hills where deeper and better soil exists, the common Spruce, Silver Fir, and other species of hardy trees attain a good useful size. With these examples before us, proprietors of waste ground should take care and not be misled and kept back from planting barren ground with a reasonable prospect of success and profit at a much higher elevation above sea level than 900 feet. Of course a good deal depends on the quality of soil and situation independent of elevation, and one of the principal reasons that Larch and Scotch Fir thrive so well on the slopes and recesses of the hills is, that although in many cases the soil is of a poor hard nature, yet, as a general rule, it is loose and friable, thus proving very beneficial for the growth and healthy development of the trees. In cases where failure has taken place it can generally be attributed to one of two causes, namely, planting on wet ground or on places where the subsoil is of a hard impervious nature, thus clearly showing the necessity, where it becomes requisite, of draining and breaking up the sub-

soil before planting. Grigor, who is a good authority on planting moorland, says:—

More trees perhaps have been lost by being planted in ground too wet than from any other cause, and it is seldom that any considerable extent of ground is found adapted for planting without some parts requiring to be drained.

Thorough and efficient drainage, therefore, when it becomes necessary, ought to take precedence of all other operations in preparing the ground for planting; otherwise serious loss and disappointment are sure to result. No fixed rule as to the number of drains required can be given to suit all places alike, but the wetness, class and configuration of the surface of the ground will form a pretty safe index for the guidance of the planter. I have sometimes drained a considerable space of ground by cutting a well-directed drain and tapping a spring on the side of a hill, while at other places drains had to be cut at a regular distance apart over the whole surface. At other places I have sometimes found that a series of catch-water drains to intercept the surface water from a higher to a lower level was all that was needed to render the surface dry and firm for the plants. In draining hilly ground it is also important not to direct too many of the small minor drains into any one of the principal leaders, as by so doing there is always a risk of the latter being converted into roaring torrents during a spate, and thus undermining the banks and sometimes cutting deep gullies, all of which should be guarded against.

J. B. WEBSTER.

The life of timber.—The ordinary life of unprotected timber structures is not more than twelve or fifteen years. Timber exposed to moisture in the presence of air, especially if in a warm place, or to alternate wetting and drying, will decay rapidly. Sap and moisture retained in timber, by painting or closing in the sticks before they are seasoned through, will cause decay of a very insidious kind, as it works in the interior, leaving an apparently sound exterior or skin, which is the layer that had an opportunity to season. Paint on unseasoned timber is, therefore, more hurtful than serviceable. Large pieces of timber dry so slowly that, before they are seasoned throughout, decay may begin, and hence small pieces of scantling are preferable to large ones. Dampness and a lack of ventilation combined will hasten decay. The best seasoned timber will not withstand the effects of exposure to the weather for much over twenty-five years.

Staking trees.—The staking of newly planted trees is a matter of the first importance, for if they are allowed to be blown about by the wind the roots become strained or broken off at the collar. I, however, object emphatically to the driving of a stake down by the side of the stem through the roots and tying the tree to it, because, in the first place, the roots are sure to get injured, and, again, the stem of the tree is in much danger of being chafed by the top of the stake, or by the tie during wind-waving. I once saw an illustration of this in the case of two long lines of fine Chestnuts, each of which had four long poles driven in round the bole to serve the double purpose of steadying it and to prevent cattle from rubbing against it. At the top of the poles, which were 6 feet high, a band of straw had been wrapped round the tree, the poles being tightly bound against the straw by a coil of strong wire. Mechanically the operation had been at first well done, but in the course of time the straw from the wind-waving of the trees had wasted away, and then the stems had become so chafed that only a narrow communication of bark existed, and one of the trees had lost its top by breaking over at the damaged part. The plan which I like best is using three galvanised wires fixed to a collar at a convenient height up the tree, and fastening them to stumps driven into the ground at a certain distance from the stem, thus avoiding the roots altogether. Wire looks better than stakes, and is cheaper in

the end, and any kind of stick strong enough may be driven into the ground as a holdfast. Strips of old guano bags make good collars, or rags of any sort, or even straw ropes. Tar cord, instead of wires, is sufficient for small trees such as Cypresses, and Thujas up to the height of 10 feet. For very large trees we employ wire such as is used for fencing. A handy man with a little practice soon becomes expert at fastening trees in this way; he cuts his three wires off to one length, fastens one end of all three to the collar, catches hold of the other, and stooping down with the wire at full stretch, makes a mark on the ground with a finger of the hand which holds the wire; this is exactly the spot where he drives in his stump, with the sharpened end inclining inwards towards the stem of the tree, thus giving greater facility for fastening the wire and placing the stump in an advantageous position like a man pulling at a rope; one or two turns of the wire and an additional blow with a mallet tightens the wire; the other two wires are then served the same, and the work is finished.—D.

The Lombardy Poplar is not so fashionable with planters now as in years gone by. About a century ago no plantation was made without it, and for shutting out unsightly buildings, &c., in the landscape it was considered invaluable. Even now it may to a limited extent be introduced into plantations of round-headed trees, to give them life and interest, especially when looked at from a distance, its pointed head producing a pleasing contrast to its less aspiring companions. This effect is more particularly apparent in Cheshire, Worcestershire, Herefordshire, Gloucestershire, and Somersetshire than in other counties. It associates well with old churchyards, cemeteries, old ruins, amongst pointed-headed Cypresses and Yews; a plant or two of it has also a homely look at the entrance to a village, or it may be on its green. At the same time it would be out of place to plant this Poplar largely anywhere except where it is wanted to hide unsightly objects.—J. B.

The Beech as a shelter tree.—Writers on forest trees have sometimes dwelt upon the immunity of the Beech from destruction by lightning, and on this account it has been recommended for planting as a shelter for cattle either singly or in groups in exposed situations. That this idea was for a long time prevalent we have abundant evidence both from ancient and modern writers. Never having myself seen an instance of its being struck, I was once strongly recommending it to a gentleman in the west of England, who was planting a park on high ground, and in which I had often seen both the Oak and the Ash shattered, when he informed me that he had just returned from Ireland, where, during his tour, he had found the public road stopped and the further progress of his carriage barred by a Beech tree which had just been struck down. If, as a rule, the Beech is really entitled to the exemption claimed for it, this must be owing either to the conformation of its branches or its perfect non-conducting powers. Blencarn says: "In hot countries, where thunderstorms are particularly alarming, the Beech has never been known to be struck by lightning."—A. J. B.

Selling timber, growing and felled.—In particulars given in THE GARDEN of April 13 (p. 350) under the above heading, it should have been thirty Oak poles, containing 251 cubic feet. I am much obliged to "Yorkshireman" for his answer to my question of the above date, and I must say that I quite agree with his ideas of selling timber if properly valued in the first instance.—T. HOS. CANNING, Aldenham Park.

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No. 913. SATURDAY, May 18, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NARCISSUS BERNARDI.

NARCISSUS BERNARDI is the name given by De Candolle to those hybrid Daffodils which are found wherever *N. poeticus* and *N. pseudo-Narcissus* grow together at sufficient altitude to flower simultaneously. They are said to be found in the Jura, but they have recently been introduced into England, mostly from the Central Pyrenees. I found them in abundance there flowering about the middle of June in 1886, at an elevation of 6000 feet or 7000 feet, and brought home with me 300 or 400 bulbs of selected varieties. About the same time Mr. George Maw collected and distributed a large number from the same neighbourhood; and the late Mr. Godolphin Osborne obtained a large number which at his death were left growing in his garden at Biarritz, and are now, I believe, in Kew Gardens. These natural hybrids are interesting for the light they throw upon the origin of many of the short-crowned varieties of garden Daffodils, especially those hybrids raised by the late Mr. Leeds and Mr. Nelson, which are generally classed under the heading "*incomparabilis*," and if priority of name is to be regarded, even where the name is so utterly without meaning, *N. Bernardi* must be included amongst the section *incomparabilis*, the type of that variety or species being believed by botanists to owe its origin to a cross between *N. poeticus* and some form of *N. pseudo-Narcissus*. This typical form, however, is not to be found amongst the wild hybrids of the Pyrenees. I have now about 1000 flowers out upon my collected *N. Bernardi*, and great as is their variety, the ordinary Peerless Daffodil of gardens can nowhere be matched amongst them. No doubt it makes a great difference with what particular variety of Ajax Daffodil the cross with *N. poeticus* is made, and on the mountain where I collected my bulbs, the Ajax varies greatly. The prevalent form, where *Bernardi* is commonest, is that known as *muticus* of Gay, but the crossed varieties of *pseudo-Narcissus*, called by dealers *nobilis* or *variformis*, are also plentiful.

The different forms assumed by these natural hybrids of *N. poeticus* and *N. pseudo-Narcissus* are many. In size the flower is seldom as large as that of the typical *N. incomparabilis*. The prevailing colour of the perianth is white—not as pure as the white of *N. poeticus*, but as white as the petals of *Horsfieldi*. The shape of the perianth varies as much as it does in the different forms of *N. poeticus*, or even more. Narrowness of petals, leaving wide gaps, is a common fault. A full, round, even, and imbricated perianth is scarce in the class. Some have the petals reflexed, as in *N. poeticus recurvus*; others have them incurved or bent forwards, as in *Nelsoni*; others are twisted about irregularly. The ends of the petals are mostly pointed; not many are rounded. Perianths of pale yellow or primrose form a small proportion. The crown is a more distinctive character of the class. It varies in length from that of *Nelsoni* to that of average *incomparabilis*. The commonest shape, and the least ornamental, is spheroid or ovoid, swelling in the middle, and somewhat contracted at the base and the mouth. But another common and more ornamental shape is that of a short inverted cone, with a widely expanded mouth or base, resembling that of the variety

known as *Princess Mary* of Cambridge. Many of the crowns are nearly cylindrical, and some have the hemispherical cup of *incomparabilis*. These last are generally of the best colour. I selected a few last year having the crown of uniform bright orange, brighter than I have ever seen in any cultivated form, and retaining their brightness in the sun. Most of these, I regret to say, rotted whilst out of the ground, but I have a few of them left. Others have the rim of the crown, to a greater or less depth, brightly stained with orange, like *Barr's Sensation* and *Maurice Vilmorin*, and, I think, preserve their colour better than these. The crowns of conical shape are for the most part different shades of yellow, without any orange stain.

The *Bernardi* varieties succeed well in cultivation. They were first introduced by Mr. Henry Buxton seven or eight years ago. He kindly gave me a bulb of a variety which Mr. Barr has since called after his name. In five years this bulb has increased into at least fifty. The time of flowering is with the later *poeticus* when most other Daffodils are past. The rapidity of increase makes it desirable that the bulbs should be separated and replanted every third year, and I would recommend their not being kept long out of the ground. It will take some time to extract and raise stock from a few of the best varieties, which will prove formidable rivals to some of the most beautiful Daffodils of our gardens. I have marked about 100 for this purpose, but the number will have to be much reduced by subsequent selections. All the varieties of *Bernardi* seem to ripen seed abundantly, and I have already a healthy crop of seedlings which may be expected to flower when about five years old. These notes record only my own experience. There is, as I have before mentioned, a large collection of *Bernardi* now in flower at Kew which may contain still better flowers than mine. I know that they came from the same collecting ground.

Edge Hall, Malpas. C. WOLLEY DOD.

WASHING THE ROOTS OF PLANTS.

THIS operation may not find favour with many, but it is sometimes attended with very beneficial results, although it can only be safely resorted to in special cases. My first experience of its utility was in dividing and replanting the crowns of *Helleborus niger*. I have always succeeded in removing from the old plant every particle of soil, and never in a single instance has the operation been attended with failure or followed by the death of a single plant. This year, however, for the first time, I had to encounter a difficulty. About the middle of last month, in lifting an old plant, I found the crown one mass of hard wood, but I pursued the same course. I allowed it to soak in its bath for several hours, cleared all, or nearly all, the soil from the roots, and then with a sharp knife I cut this hard mass into several pieces, each of which appeared to contain the rudiments of a plant. Instead of transferring each to the open ground, I placed them all together in a box fitted with a movable slate bottom and filled with light rich mould. I then transferred the box to a cool greenhouse, where it is now. There were in all about a dozen pieces, more than I expected to find it would be possible to divide the root into, but nearly all of them are alive, and nine of them showing unusual vigour. They will shortly be planted out just as they are, the bottom and sides of the box being removed. Towards the end of April I took up a plant of the single red *Hepatica* which I had from a nurseryman last year. Putting it into a bath, I soon divested it of the soil about its roots and I noticed that the roots, which were very numerous, appeared as if their only use was to keep the plant alive until it had formed new roots for itself. The plant I divided with a clean cut into two halves, and planted them separately in the border where

they were to grow. Already the new leaves are appearing in profusion and of a bright green healthy colour. With plants in large pots I think a good result would follow their repotting if their roots were washed, and thus render an enlargement of the pot unnecessary. I treated in this way last year a large *Oleander*, and got rid of some portion of the soil by leaving it for many hours in the water and repeatedly moving it about and disentangling the mass of roots. The operation had been delayed till the season was too advanced for such a treatment to be entirely successful, and the summer and autumn being somewhat cold and unfavourable, the blossoms, which were very numerous, did not open, and were all cut off in the winter.

B. S.

ROSE GARDEN.

THE RAINS AND THE ROSES.

THE week ending May 11 has been a peculiarly changeable one, even for our erratic climate. The first few days of it brought quite a tropical temperature and several days of cloudless sunshine, the temperature ranging from 70° to 75°. This unseasonable heat brought up a sharp thunderstorm and heavy rain on Thursday night. Showers followed all through Friday until evening, when a twenty-four hours' downpour followed, which still continues (9 p.m., Saturday). And once more the Roses are saturated and the meadows and the lowlands flooded. These floods, if they do not last too long, are likely to do two things at least for cultivators—ensure a good Rose season and an average crop of hay. Short as has been our spell of heat and drought so early in May, it has been as sharp as short; consequently the grain and the Roses, and many other crops in field and garden, needed rain. And they have got it in force and quantity almost sufficient to provide for their water wants for the season.

The suddenness and force of these downpours have added greatly to their value, for the few days of semi-tropical heat and drought had not only caused the Roses to droop, but had developed with unusual strength and rapidity the pests of aphides and grubs. It only seems like yesterday I wrote of the cleanness of our Roses, but almost before the remarks could be put in print the maggots appeared in force; and we hear of aphides in great force in several places. The fall of temperature and change of wind to the north, as well as the heavy, continuous rains, must needs check or destroy these pests. Those who had been vigilant in the grub raids before the rain may be sure that the rains will flood off the stragglers, and so probably make an end of them. Heavy and continuous rains are distasteful to these horrid feasters on Rose buds, however snugly they may be ensconced in curled-up leaves and waterproof home-spun; hence many of them may be found on the move or on the ground, and may thus be the more promptly captured and destroyed. Aphides, too, during heavy rains get alarmed and partially loose their hold on the boughs. In this condition a brush with the hand will either sweep them all off or so loosen their hold on the branchlet that the rain will dash them to the ground; and those sent into the mud with force in heavy rains sink to rise no more.

There is, in fact, a tide in the affairs of our wars against insects that, taken at the flood, leads our Roses on to cleanliness and fortune; and that tide is mostly fullest when it is least used during our heaviest rains.

The present downpour will also stimulate as well as do very much to cleanse our Roses; and the stimulus also assists us in our war against

aphides and grubs. Plants—Roses especially—may be grown out of insect pests, as well as cleared by force or poisoning. It is seldom growth, but the lack of it, that gives insects their advantage over plant life and products; hence the rush of growth on the buds of Roses very often seems to flood off insect pests, and enables plants, by the very prodigality of growing, to overcome insects as well as fungoid pests. Unless east winds succeed these unusually heavy floods, the chances are that they will go very far indeed to produce an abnormally good, though necessarily late, harvest of Roses throughout the season. D. T. F.

SHORT NOTES.—ROSES.

A useful button-hole Rose.—Isabella Sprunt is particularly well adapted for this purpose. The buds are very pointed, show good form and colour in a small state, and the pretty creamy-white hue associates well with most kinds of materials that are worn when button-holes are required.—J. MUIR.

Rose Climbing Devoniensis.—This Rose does not succeed here. It grows strongly and has unlimited head room against the south wall of the church, but it does not flower in proportion to its extent, and as we can secure as many blooms from some other varieties not one quarter the size, we have ceased to introduce more of it.—J. MUIR, *Margam*.

Two Marechal Niel Roses.—In a garden which I have been in the habit of visiting regularly for some few years past there are two *Marechal Niel* Roses growing under very opposite conditions, and the behaviour of which I think it may be interesting to describe. Both of the Roses in question are on the Brier stock, and were planted about ten years ago. One plant was put into a large pot and placed in the corner of the greenhouse, the growth being nailed to the back wall; the other was planted in the border outside in the angle of the wall formed by the greenhouse projecting away from it. One would have supposed that the inside plant would have made the most progress, seeing that it had a very large root-space, as the pot is quite 18 inches over; but such is not the case. It grew to a height of about 8 feet the first year, but since that time it has not increased in height at all. It is still alive, and produces a few small badly coloured Roses every year from the lateral branches. The plant has been coaxed in every way by liquid manure, and has been repotted in fresh soil, but all to no purpose. The plant outside is in the best of health and vigorous. It does not cover much space, because it has not been allowed to do so. The Brier stem is nearly as thick as a man's wrist, and only last year it made two strong shoots that would have extended to a height of 20 feet had the wall to which the plant is trained been high enough. This plant, which I saw a few days ago, is still in the most satisfactory condition and promises a good crop of flowers. It would be interesting if some one would explain how it is that no matter however well this Rose may be treated, or on whatever stock it may be grafted, it often refuses to make any growth after the first year.—J. C. C.

Insects on Rose trees.—Can you give me the name of the insects enclosed? They are very troublesome among the Roses here, and they have completely stripped several standards of every bud, and in some instances have eaten the bark. What can I do to prevent them? I never see any in the daytime, but by going round with a light after dark I find the trees covered with them.—WM. CHIPP.

* * Your Rose trees are attacked by a weevil (*Otiorynchus hematoptus*) which is very nearly related to the black vine weevil, which it much resembles in general appearance. Your plan of searching for them with a light is a very good one. You might put white sheets under the bushes and shake the latter well at night, when the weevils would probably fall. Try tying small bundles of dry Moss or hay round the stems for the beetles to hide in during the day; these tufts should be examined in the morning.—G. S. S.

Name wanted. Would you kindly name in your next issue of THE GARDEN the grub I enclose,

and state whether it is mischievous, and if so, how best dealt with? Are centipedes enemies to plant life?—A. C. BARTHOLOMEW.

* * I do not know what the grub is which you enclose. I have had several similar ones sent me lately and I am trying to find out what they are, and when I do I will reply again. I quite believe they are mischievous, but, like all other grubs which live underground, they are very difficult to deal with. Soot worked into the soil near the plants which they attack would probably drive them away, and a good watering with a solution of some charcoal manure in water would probably serve the same purpose. Centipedes are by no means enemies to plant life. They are carnivorous and live on small insects, &c.—G. S. S.

CHRYSANTHEMUMS.

E. MOLYNEUX.

PREPARING FOR FINAL POTTING.

A BAD start was made in the growth of the plants for all purposes, especially in the case of those which are intended to produce large blooms. In the first place, there was a want of good early cuttings owing to the bad weather experienced during the summer of 1888. Then, again, the plants in many localities—perhaps more numerous than in some years past—have showed for their future welfare a too free inclination to premature bud formation. I do not care to see the plants thus checked early by this tendency to form flower-buds at a time when they ought to be growing vigorously. I do not think this early bud formation can be prevented by culture, as it results from the previous year's growth of the parent plants. Yet with all these difficulties to battle with I find the plants are making vigorous efforts to catch up lost ground. I never saw them rooting so quickly and well as they are at the present time; indeed, they will require transferring to their flowering pots earlier this year than at any time during the last eight or ten years of my experience. There is some difference of opinion amongst growers as to when is the proper time to give the plants their final potting. It is because of the extra quick rooting of the plants this year that I draw the attention of beginners to the heading of these notes, so that they may make some preparations by which the work of potting—which is generally very heavy where numbers of plants are cultivated—may be expedited when it is necessary to commence operations. There are many details required in the carrying out successfully of this phase of culture, such as preparing the pots, cleaning them, or the ordering in of a new stock of pots, which often happens if this matter is not thought of in due time, the pots not being available at the pottery when required. Thus valuable time is lost. The preparation of the compost will also need some forethought to have it in a proper condition for use. The position the plants are to occupy will need attention, as they cannot possibly occupy the same space now as when they are placed in their flowering pots; and lastly the supports for the Chrysanthemums during the summer will need erecting.

The first consideration is, "When should the plants be placed in their flowering pots?" There is no hard and fast rule to be followed in the carrying out of this detail as regards any particular time, but the final potting of the plants is generally done some time in May, varying according to circumstances, such as the time the plants were struck, the numbers to be done, and a variety of other things. In the south of England this last potting is carried out

earlier than it is in the northern counties, because the plants make their growths earlier in the south than in the north; consequently roots are formed at a quicker rate; hence the reason for earlier potting. I know of a collection of plants in the hands of a noted grower, part of which are already (April 29) in their flowering pots, but, except in extreme cases, this seldom happens at so early a date. My opinion is that the plants should be transferred to their flowering pots when the pots in which they are growing are thoroughly filled with roots, and not until then. The plants should be turned out of the pots to see if they are thoroughly well rooted, and not in any way what is termed pot-bound.

If the roots are much matted together before potting takes place the plants suffer in two ways; firstly by the breaking of the roots in the removal of the crocks, and, secondly, owing to the roots being so matted together, the soil in the pot becomes dry much sooner, so that it often happens that the bottom leaves of the plant turn yellow and fall off. Every available means should be taken to maintain the foliage uninjured and of a healthy green colour right down to the soil. When the plants are ready as described, my advice is to pot them at once, whether it be at the beginning or the end of May. Some growers recommend the use of stimulants to the roots of the plants previous to their being placed in their final pots, but this I cannot advise. It is much better to pot them, thus giving the roots more freedom of action. The pots must be considered next, as the "cast" sizes vary at different potteries. I think it is better to give the sizes in inches, always measuring inside. For the bulk of the ordinary habited kinds 9-inch pots are large enough, but for some of the weak-growing sorts such as Princess Beatrice, Lady Hardinge, Mrs. W. Shipman, and Barbara among the incurved; Jeanne Delaux, Criterion, Margaret Marrouch, and Golden Dragon, for instance, of the Japanese section, 8-inch pots are large enough—in fact, they are to be preferred to those of a larger size, for the reason that such weak-growing sorts do not make roots so freely as the stronger-growing kinds. The plants will also be able to receive more stimulants when the smaller pots are full of roots than when larger pots are used and only partly occupied with roots, and, consequently, not in a fit condition to receive stimulants in the shape of waterings with liquid or artificial manure. The strongest-growing sorts, such as Prince Alfred and its sport, Lord Wolsley, Maiden's Blush, Belle Paule, and Fair Maid of Guernsey, may have 10-inch pots. Where a stock of pots is at hand larger in diameter than the sizes named, and it is the wish of the cultivator that they be used, it is much better to grow two plants in one pot than to use only one. When two plants are to be grown together in one pot, they must, of course, be the same varieties, choosing those most weakly in growth.

The soil needs attention, so that it shall be in a moist state when used, neither wet nor dry. All the ingredients should be placed under cover. Loam, as it is called, is the principal ingredient in the compost required. If a sufficient quantity is not at hand, no time should be lost in cutting some, choosing that which is full of fibre. Leaf-soil is good for mixing with the loam, as it assists in keeping the soil open. Manure in animal form is beneficial, some growers preferring one sort, and some another. Some hold strongly to partly decomposed cow manure; but, except where the loam is of a light sandy nature, I think cow manure is too

cold. For general usefulness I prefer horse manure prepared as if for a Mushroom bed. Charcoal is a capital ingredient to use mixed with the soil, especially where the loam is of a heavy nature. It not only renders the whole porous, but acts as a storehouse for the ammonia. Sand is necessary according to the kind of loam used. There are numerous kinds of sand available; each cultivator must consult local circumstances regarding the kind of sand to use, rough silver sand being the best. A small portion of soot added to the soil is also beneficial to the plants.

NOVELTIES AMONG CHRYSANTHEMUMS.

CHRYSANTHEMUMS are very popular flowers just now, hence all new-comers of special promise are of interest. Perhaps no one Chrysanthemum has been more talked about the last year than Mrs. Alpheus Hardy, which was included in that remarkable Japanese collection brought to this country by a Japanese named Neeseina.

MEDUSA CHRYSANTHEMUM.—Numerous among curiosities is Medusa, with its drooping florets. The plants which produce this type of flowers are rare in collections, as they have not proved capable of much improvement and are not of vigorous growth. Medusa, according to as high an authority as *Garden and Forest*, is better than any of its class yet seen, and may be found of use as a parent of new forms when crossed with other varieties. It is pure white in colour, and possesses a certain grace of form.

A SWEET-SCENTED CHRYSANTHEMUM.—Much as Chrysanthemums are admired, the odour emitted from most flowers is disagreeable, hence *Nymphæa*, a new sweet-scented Chrysanthemum to which a prize was awarded by the New York Horticultural Society at its exhibition in November, may be considered a novelty. The plants of this variety are dwarf and bushy in habit; the flowers are white, measure about 2 inches in diameter, and when first open have a delicate perfume resembling that of a pond Lily. H. W. Hales, Ridgewood, N.J., who includes *Nymphæa* in his collection, says: "One peculiarity of this variety is that it never needs disbudding, as the flowers are borne individually on long stems and stand well above the foliage."

LEOPARD, a new spotted Chrysanthemum, which heads the list of novelties as catalogued by Peter Henderson, is, according to Mr. Henderson, a most distinct variety. The ground colour is a deep shade of carmine, irregularly splashed and spotted with pure white. Other Chrysanthemums attracting attention are the crimson seedling, George Pratt, Mrs. C. H. Wheeler, and Mrs. Brett. Lilian B. Bird is a Japanese Chrysanthemum of large size and vigorous habit.—*New York World*.

TREATMENT OF THE PLANTS AFTER POTTING.

THE position which the plants are to occupy during the summer months requires consideration, and should be looked out and made ready for their reception. Practised cultivators will of course need no advice, but those who are cultivating the Chrysanthemum for the first season will require to know. Our practice is to fence an open space in with thatched sheep hurdles or double hurdles set on end, which are not thatched at all. This protection is to ward off easterly winds, which sometimes play sad havoc with the leaves, often bruising the tissues so much as to cause a serious check to the growth of the plants directly after being potted. Our position is one facing south with the protection named above. Within this shelter the plants are stood thickly together until all are potted, when they can be placed in their summer quarters so much better, having regard to a neat arrangement for the summer months, and varying the heights according to the position and variety. We are generally troubled with strong easterly winds throughout the month of May and, arranged in a mass, the plants escape the damaging effects of wind of this kind. In the meantime the summer position can be got ready as

well as the stakes for the plants, which should not be placed outside unless they are securely staked. When the supports are obtained from the woods they should be cut at once and, if crooked, tied in bundles, which will help to straighten them. One year's growth of young Hazel will suffice to make stakes for the plants until they get into their summer quarters. Other lengths, such as 4 feet, 6 feet, 8 feet, and 10 feet, will also be needed. Bamboo canes are largely used where available. Some growers erect supports of iron standards with galvanised wire tightly stretched. To this the stakes in the pots are firmly tied, which prevents them being broken by winds. A very good trellis can be made with stout poles varying in height according to the variety of plants grown. Three cross rails will be required for the tallest plants and so on in proportion to their height. These will not be required nearly so stout as the poles. Labels should now be got ready, as the plants are generally all re-named after they are potted. Builders' ceiling laths answer well if cut into lengths of about 6 inches, thus allowing space for any notes which may be made during the season's growth.

E. M.

NOTES OF THE WEEK.

Scilla nutans carnea.—Those who like flesh-coloured flowers will find this pretty Squill a gem. It was in bloom the other day at Broxbourne.

The Turkish Tulip (*T. acuminata* or *cornuta*) is a very curious form. From this and *viridiflora* doubtless originated the Parrot Tulip. *T. viridiflora*, which is now in bloom, is more curious than beautiful.

Epping Forest.—It is gratifying to learn that upwards of 12 acres of rich woodland have been added to the forest. This tract, which was known as Oak-hills, was placed in one of the best portions of it.

Primula Sieboldi.—A mass of this beautiful *Primula* was an interesting feature the other day in St. James's Park. It is worth noting for the reason that hardy flowers of this kind are not often seen in our London parks and gardens.

Coffea bengalensis.—This is a beautiful plant when in full bloom. It is very free, and the pure white flowers are produced singly or in pairs at the tips of the branches. A specimen of it was in perfection a few days ago at Kew.

Aubrietia Leichtlini.—This new variety, recently certificated, far surpasses any other. We have a large block of it now flowering here. It is far more brilliant in colour than the variety, *Campbelli*.—G. G., Floore.

Polemonium Richardsoni is one of the most beautiful hardy plants in bloom now. A well-established clump on the border is not often seen, as this Jacob's Ladder is as yet somewhat scarce. It will thrive in almost any soil, and has clear sky-blue flowers, which are borne in great profusion.

Odontoglossum citrosimum roseum.—This is a beautiful variety of one of the most charming of *Odontogloss*. The habit of the plant is the same as that of the type, but the lip is of a bright rose colour, which is very telling against the white sepals and petals. This rose tint is richer in some varieties than in others. It is in bloom now.

Tulipa sylvestris is just now at its best, and makes a beautiful subject for an open bed or border. The so-called *T. italica*, *florentina*, and *frangens* seem to be mere forms of the above, and not distinct enough to keep separate in the garden. *T. orphanidea* is also nearly allied; the flowers, however, are of a different shade of yellow and have a blackish eye.

Megasea Progress (seedling variety).—I send you some flowers of this which I consider a very good form. It has ample, nearly prostrate foliage and bold scapes of warm rose-pink-coloured flowers, many of which are 1½ inches in diameter—by far the largest flowered form which has yet appeared. I have some fifty selected seedlings under trial, and will send you a note about them by-and-by.—T. SMITH, *Newry*.

Ixora javanica nana.—*I. javanica* has the reputation of being the freest blooming among all the *Ixoras*, but the dwarf form of it with its compact close habit of growth appears to be even freer still. Mr. J. Hudson, of Gunnersbury House Gardens, with whom this dwarf type is a great favourite, states that it flowers so freely that he cannot get much growth

into it. We lately saw quite small plants laden with flowers, and pretty little floral pictures they made.

Flowers from Edge Hall.—I enclose a few flowers of *Narcissus Bernardi* to illustrate my notes; also *Trollius asiaticus* and *Androsace sarmentosa*, both doing unusually well this year.—C. WOLLEY DOD, *Malpas*.

** We have never seen finer flowers of the *Androsace* and *Trollius*.—Ed.

Phajus Manni is a handsome and distinct kind in the way of *P. Wallichii*, but the flower is much larger, richer, and more robust. The sepals and petals are of the richest brown, thinly margined with green; the lip almost white, but with a rich crimson central line that runs into the throat. A plant of it was in bloom the other day at Kew.

Scilla campanulata alba.—Clumps of this useful plant make a pretty display in the borders of Gunnersbury House Gardens. They are well established and bloom profusely, and the flowers are found very useful for cutting. The blue and rose-coloured forms make excellent companions, and are so accommodating that they will grow almost anywhere and in any soil.

The Orange Fleabane (*Erigeron aurantiacum*).—If this would flower as the other species do then we could put up with it, but it commenced to bloom a fortnight ago, and it will keep on during the next month, rarely more than two or three flowers opening at one time. It seems to require being regularly raised from seed, as with us at any rate the old clumps wear out and refuse to flower at all.

Lotus peltorrhynchus.—This is a really handsome plant, and apparently a rare one, as we have only seen it in two or three gardens. A fine piece of it was sent to the Drill Hall last Tuesday from Kew, where it does well in a cool house as a basket plant, its long branches covered with glaucous leaves and numerous bright scarlet pea-shaped flowers being quite unique. It is a native of Madeira and Tenerife.

Saxifraga Kolenatiana is an Asiatic representative of the *Aizoon* group, and a most lovely species for the rockery or pots. It forms rosettes of crusted leaves much in the way of *S. Aizoon*. The flower-stem is branched, and produces numerous medium-sized rose-coloured blooms, which are very beautiful when expanding. It is increased by division, and requires a warm free soil, to which has been added plenty of lime grit.

Double Primroses.—I noticed in a recent issue that an authority upon these plants appears to doubt the existence of more than one variety of late yellow. By this post I send you flowers, buds, and leaves of one that I have long known as *Giantess*. As you will see, this has very short, blunt buds, hairy stems, smallish leaves densely hairy; while *Cloth of Gold*, flowers and leaves of which I also enclose, has long-shaped buds and larger and brighter green foliage. The two varieties are quite distinct.—T. SMITH.

Cestrum elegans.—This Mexican shrub makes one of the finest pillar plants for a cool greenhouse. It is used for this purpose in the conservatory at Kew and is never out of bloom. Its bright red flowers hanging down in large clusters are very striking. *Cestrum*s are of easy culture, requiring to be planted out in some rich sandy loam, but they flower better if their roots are restricted. *Cestrum aurantiacum*, the orange-flowered species, is also suitable for this purpose, and does not grow so robust.—G.

Tulips from Haarlem.—A rich series of florists' Tulips comes to us from C. G. Van Tubergen, Haarlem, among them some of the finest and newest varieties. We noted the following as worth particular attention: *Single*—Paul Moruse, white and crimson; *Ophir d'Or*, rich yellow self, a noble pot Tulip; *Admiral Reinier*, white flamed carmine; *Golden Bride* of Haarlem, yellow and crimson; *Proserpine*, very fine; and *Jenny*, self carmine. Of the doubles, the best were *Vermillion Brilliant*, crimson; *Clothilde*, carmine; *Parmesiana*, rose; *Raphael*, rose and white; *Cochineal*, crimson; *La Superba*, crimson; *Queen Victoria*, crimson flamed with white; and *Geertrinda Marie*, brilliant rose.

Abutilons.—Few plants have been improved more than these. The species have been surpassed in most cases by the hybrids, which embrace nearly every shade of colour. Being of free growth and easily managed, Abutilons are invaluable for decoration. Some varieties are well suited for bedding cut and

make a distinct and pretty bed, the foliage being very ornamental. When intended for pot culture some distinct colours should be chosen, and the strongest shoots put in as cuttings. The plants soon grow into a useful size if treated liberally, and where a good selection is made they will be found very useful in the conservatory at this season.—F. G.

The Antarctic Forget-me-not (*Myosotidium nobile*).—In Sir Edmund Loder's gardens at Floore there are now blooming (and will be for the next fortnight) a group of about two dozen plants of this beautiful Boragewort. The plants were raised from seed saved here in 1887. Anyone who may be interested enough in them to visit Floore during the time would be able to see them in their full beauty.—G. GOLDSMITH, *Floore, Weedon*.

* * A coloured plate of this handsome plant was given in THE GARDEN, Dec. 18, 1886.—ED.

Globe Flowers.—We have often tried to find a reason for the neglect with which these plants are treated, but confess to finding none. We have just tried some in a marshy spot near a tiny waterfall, and will not hesitate to plant them in quantity when the season again comes round. The leading types are *Trollius asiaticus* and *T. europæus*, to which may be added many useful varieties, all of which have a grace and beauty quite their own. They make handsome border plants, and the damper ground the better they will like it. We have, however, never seen them in such perfection as in a marsh in a fairly shady wood. Here they have increased wonderfully within the last few years, and are now a perfect sheet of pale yellow and gold, producing an effect almost unequalled by any other hardy flower at this time of the year.

Tulips in the London parks.—The Tulips have made a great show in the London parks this spring, although individually the flowers have not been so fine as in some seasons. They have been far more satisfactory, however, than the Hyacinths, which were a failure almost everywhere. St. James' Park, Embankment Gardens, and Hyde Park have been worth visiting for the Tulips alone. The double varieties stood the best, and in a few spots are still fresh; but the recent heavy rains have done much to destroy the beauty of the heavy cup-shaped flowers. The advantage of having distinct beds of one colour over indiscriminate mixtures of several shades is most conspicuous.

Primula prolifera.—This is one of the easiest Primulas to grow, but on the whole very disappointing after all that had been said about it previous to its introduction a few years ago. It was raised by the late Mr. Isaac Anderson-Henry, and although given as a synonym of *P. imperialis*, a Java plant, the two are quite distinct. The Java species grows 3 feet or 4 feet high, with unusually large leaves and a few whorls of smallish flowers. *P. prolifera*, which is found on the Himalayas, is a plant with the habit and stature of *japonica*, and with about the same number of whorls; the flowers are smaller and of a fine yellow. It is perfectly hardy, and may be raised from seed as readily as any of this family. The roots are very remarkable, being deep red with a very strong and pleasant fragrance.

Notes from Newry.—*Iris cristata* grows freely here in all situations and flowers well also, but a clump about a foot across which has been somewhat restricted in its root-run is bearing twenty-six flowers, and is very beautiful. From this it appears that too much and too rich soil are conducive to growth rather than flowers. *Ranunculus cernitifolius* fl. pl. is a distinct vigorous growing plant for a damp spot. The leaves are large and bold in outline. The flowers are bright yellow, very double, and nearly as large as those of *R. speciosus*. *Brodiaea Howelli* is the first to come into flower of the group. The scape is from 10 inches to 18 inches high, the flowers of medium size, porcelain white, with pale blue lines both within and without. The coloration is precisely similar to that of *Puschkinia*. *Veronica taurica* is an exceedingly pretty, dwarf creeping, evergreen plant, and the first to come into bloom. The colour is not a bright blue, but it is helped greatly by the pro-

truding red anthers. *Leucojum plicatile* is a distinct member of a pretty family, of close erect growth; the scapes, rising a little higher than the leaves—10 inches to 12 inches—are two to four-flowered. The blooms are of medium size, ovaries intense green with deep green spots on the flower segments. It is also one of the latest to bloom. *Iris stellatæ* and *I. pseudo-pumila* are distinct, the former growing about 8 inches high, and from the peculiar manner in which the broad standards fold over and the falls fold under, the flower, of delicate perfume, has quite a globular outline. The colour also helps the suggestion in the distance of small ground-glass globes. *I. pseudo-pumila* I take to be a form of *I. obliensis*. Its height is about 4 inches. The colour combination, pale straw-yellow and reddish brown, is very attractive.—T. SMITH.

A double wild Primrose.—On Saturday last Mr. W. G. Head, the garden superintendent of the Crystal Palace, received from Mr. Geo. Nixon, The Gardens, Easton Hall, Grantham, some flowers of a double Primrose, identical in all respects with what is known as the late Double Yellow, which he said he had found in the woods on the estate of Sir H. A. H. Cholmeley, Bt., and which he supposes originated from the common single Primrose. It must have been a charming sight, for Mr. Nixon said the plant had sixty-five blooms. Let us hope Mr. Nixon was not tempted to lift it, but permitted it to remain undisturbed and develop its beauty with native luxuriance in its wild home. The Rev. J. T. Boscawen once sent me a plant of a double yellow Primrose, apparently in all respects identical with the one Mr. Nixon sent from Easton Hall, which he stated he discovered in a wood on his Cornwall estate. I think these circumstances tend to show that the double forms may have been naturally evolved from the single flowers.—R. D.

Aristolochia elegans.—The *Aristolochias* are not often grown, but the beautiful free-flowering species named *elegans* should be in every stove, as the growth, though rapid, is not coarse, and the flowers are curious as well as beautiful. One of the finest specimens we have seen of it is at the Manor House, Acton, where Mr. Manning, the gardener, seems to have just hit upon the right conditions of culture. The specimen was cut down to within a short distance of the base in February last, and since then has made more than 20 feet of growth, clothing the rafter with its mass of handsome ovate leaves. From this dense canopy of foliage hang the flowers, which are exceedingly elegant and handsome, the upper portion forming a wide cup-shaped limb, richly coloured with deep purple overlaid with markings of creamy-white, against which the golden-yellow eye is in rich contrast. The flowers of this variety are free from the objectionable odour that characterises some of the species and a succession is maintained for several weeks. This *Aristolochia* is one of Mr. Bull's introductions from Rio, Brazil.

Flowers from a Dutch garden.—Although the beauties of Hyacinths and Tulips are now faded, a general collection of bulbs will still produce many beautiful flowers. Camassias now showing colour are handsome plants in a border, and also succeed well in pots. Noteworthy are the true *C. Leichtlini* (*Chlorogalum*), a strong broad-leaved plant 2 feet or more high with sulphur-white flowers, and *C. esculenta atro-violetacea*, a very deep-coloured form of *esculenta*. Irises are lovely; the dwarf section of these, of which *I. pumila* may be considered as the type, contains many charming dwarf border plants such as *obliensis*, *cristata*, &c. Among newer or rarer plants may be mentioned the pale blue *I. præcox*, the pygmean, extremely free-flowering, pale yellow *I. arenaria*; the tuft-forming, very dwarf and large-flowered *I. Calkana*, with flowers of a bright lilac-purple; and the profuse blooming *I. Ciengalti*, without exception one of the most beautiful perennial Irises in cultivation. The new *I. asiatica* opened yesterday, thus proving to be a fortnight earlier than the germanica section. The flowers of this new species are very bold and telling, with standards of a sky blue and falls deep indigo. This is the largest flowered of bearded Irises. The genus *Allium*, though contain-

ing many species little better than weeds, is nevertheless able to show some plants which would honourably occupy a very prominent position in any collection. Surely no one would refuse a place in his garden to that charming dwarf species, *A. oreophyllum* (*Ostrowskianum*), with its good-sized head of deep purple, wax-like flowers remaining for more than three weeks in full perfection, *A. well-grown* plant of the rare and very slow increasing *A. karataviense* will even be greatly admired for its broad, deep green, glaucous and purple-tinted foliage, which when first appearing above ground looks more like made from metal than belonging to the vegetable kingdom. *Primula cortusoides* (*Sieboldi*) is one of the chief ornaments of the herbaceous border, with its numerous brightly coloured flowers. I would especially mention one variety grown here under the name of *rubra grandiflora*, the trusses many and large-flowered, of a very deep and brilliant carmine-red, relieved by a small pure white eye; a mass of it looks especially fine. Fritillaries are beautiful by the flowering of *recurva*, of which there seems to be two distinct varieties; the one of a very deep crimson-scarlet chequered with yellow, and the other with longer flower divisions many shades lighter, both ranking among the choicest and most distinct of bulbous plants, perfectly hardy and thriving best in a rich, porous, sandy soil. *F. Thunbergii*, *lanceolata viridis*, *lanceolata messanensis*, and *atropurpurea* are also in bloom. Tulips are represented by many late-flowered species, *vitellina* being among the best; the blooms are large, of good form and substance, and possess a very distinct and beautiful soft creamy yellow colour. Dodecatheons are amongst the best plants for somewhat shaded situations, although the flowers when getting the benefit of a little sun become much brighter in colour than when kept too dark. *Ixiolirion tataricum* is now a well-known hardy bulb, producing masses of deep blue flowers. The type is surpassed in beauty by the handsome forms of *Ledebouri* and *brachyantherum*, which not only flower from ten to twelve days earlier, but are also so dwarf that they remain erect, the stems being stouter than those of the type. Of terrestrial Orchids none are now surpassed by *Orchis papilionacea*, which makes a capital pot plant, though *Habenaria*, *Orchis Branciforti*, *Serapias*, &c., are also very fine.—C. G. VAN TUBERGEN, Junr., *Haarlem*.

Primula Rusbyi is the only American species we have been able to do well, and it may possibly be the only one that will prove perfectly amenable to ordinary cultivation. Of course, P. Parry grows with us, but it never flowers freely. It requires a damp spot where the water is always nearly freezing, and if such were attainable we would succeed, we are told, but how few have such facilities. *R. suffrutescens*, a Californian species of most peculiar habit, has strong shrubby stems, which creep and root in the soil as the plant grows, so that where it does well there is no difficulty about increasing it. Our only difficulty is that when it grows freely it fails to flower. The flowers are purple and smaller than those of *Rusbyi*, which we find very free, and a really useful plant.

The Himalayan Primroses have just begun to bloom, which is well timed, seeing that the European species are now all over, or nearly so. *P. Reidi* is certainly one of the most beautiful of the late introductions. The whole plant is covered with long white hairs, and the creamy white, somewhat bell-shaped flowers, together with the large green calyx, give a very characteristic appearance to this pretty species. It is deciduous in winter and quite hardy, although it might be the better of a slight covering to prevent the roots being disturbed. *P. obtusifolia*, of quite another stamp, is by far the best purple-flowered species we have yet seen; the colour is extremely rich and fine. It is said to be variable, and the lucky grower who gets a supply of seed should be able to show something startling. It is believed to be a form of *P. japonica*, but of this we are unable to speak, not having seen intermediate states. It is now in flower at Kew, and does best in shade and a peaty soil.

BOOKS.

THE CRUISE OF THE MARCHESA.*

ONE of the best ways of seeing the world is to go on board a well-furnished steam yacht, and this or its equivalent many of the most noted of travellers have done. Darwin's voyage in the *Beagle* seems to have commended itself to many in modern times, and as a method of research

and discoveries of a series of voyages extending over two years. In the preface we are told that—

The *Marchesa* is an auxiliary schooner yacht of 420 tons, belonging to Mr. T. P. Kettlewell, who acted as captain, and she was commissioned in the Clyde in November, 1881, and left Cowes on the 8th of January following. She reached Colombo April 24, having touched at Socotra and Oolegaum Island, one of the Maldive group, on her way from

of the Sulu Archipelago and to visiting the territory of the North Borneo Company. The *Marchesa* then returned to Singapore to take in stores, and proceeded *via* Sumbawa, Celebes, and various other islands of the Malay Archipelago to New Guinea. In her homeward voyage she again visited the Straits Settlements and Ceylon, and calling at Bombay, finally reached Southampton on April 14, 1884.

Such is the bare itinerary of the voyage, but the book itself is full of interesting details of the places, people, and products seen. About 3000 specimens of birds from Malaysia were collected and 100 species of butterflies, together with numerous interesting ethnological specimens, and photographs of many kinds were obtained. The maps and illustrations used in the volume are very satisfactory, and assist the reader in getting the scenery and specimens clearly before the mind's eye. Even from a gardener's point of view the work is interesting, since vegetable products are not forgotten in the pages before us. At Formosa, for example, the Camphor Laurel and Rice-paper *Aralia* were seen in cultivation, and testimony as to the cultural abilities of the Chinese as gardeners is given. In the Liu-kiu Islands the residents are great connoisseurs of tea as a beverage, and, of course, offered it to their visitors, and we are told that as great care is bestowed on its appearance, flavour bouquet, and feeling as is bestowed on a glass of water by a critical Greek. Its price varies to an extent unknown in Europe, except in Russia, since although the poorer classes can get it for as little as 2d. per lb., the Japanese of rank will set carefully before his guests a brew from selected leaves costing 18s. to 20s. per lb. or more. The visitors gave a dinner, including champagne and Asparagus, to the Japanese, one of whom got puzzled in trying to hold the toothsome herb by the soft and slippery head while essaying to munch the butt end. When recommended to try the other end, however, he obtained as much satisfaction out of the dish as other people. Rice, Millet, Sweet Potatoes, and Bananas are cultivated in Liu-kiu, and the characteristic tree is the Cedar-like *Pinus Massoniana*, which exists in dense groves bestrewn with a carpet of "needles," and its fragrance scents the air for miles around. Few countries are said to be so taking at first sight as is Japan; other countries seem related and have points in common, but Japan is only like Japan. If you have seen Constantinople, Persia seems not unfamiliar. If you have lived in India, the great Malaysian region does not surprise you, but Japan is a novel experience that even a residence in China does not spoil one to receive.

Kamtschatka, with its sleigh dogs, reindeer, seals, and dried fish industry, is sketched with a light, but firm hand. Days hot, but pleasant and invigorating; nights cold and bright. The hungry mosquito seems to have been the most serious drawback met with. The little gardens of the settlements were aglow with bright flowers among Grass and weeds. But slight efforts were made at cultivation. Potatoes, Cabbages, and other vegetables were met with, but no cereals, although Rye does ripen in the river valleys. The harvest of river and sea is of supreme importance, and so agriculture goes to the wall. Owing to the rapacity of the sleigh dogs, it is impossible to keep sheep, goats or even poultry, and now and then even the rearing of babies is interfered with by an animal which devours everything he can seize for food. The enormous salmon fisheries are described and the great volcanoes are alluded to, and it is surprising to hear that mountains of 8000 feet to 9000 feet in height should exist unrecorded and



A mountain in Kamtschatka: Kluchefskaya Volcano (16,988 feet).

culminated in the *Arctic* and *Challenger* expeditions, and in the yachting expeditions of the Brasseys and many others who love to "go down to the sea in ships." Dr. Guillemard's book is a very interesting one, and relates the incidents

* "The Cruise of the *Marchesa* to Kamtschatka and New Guinea, &c." By F. H. H. Guillemard, M.D. Second edition. London: John Murray. 1889.

Aden. From Ceylon she proceeded *via* Singapore to Formosa and the Liu-kiu Islands, and thence to Japan. She left Yokohama for Kamtschatka on July 29, returning thither from the north on October 6. On the second visit to Japan four months were spent in the country, and the yacht then proceeded for a six weeks' cruise in Chinese waters. Leaving Hong-kong at the end of March, 1883, some weeks were devoted to exploring the little-known islands

nameless in a country so well known. The great volcanoes of Kamtschatka bursting from snow-clad peaks are very beautiful, a fact well shown in the accompanying engraving. Pine trees grow in a marly soil, and Aspens replace them here and there, and there are plenty of small black Cherries, and the Raspberry and Red Currant were alike abundant in a wild state. The delicacies of the table in this northern land are Cranberries, brick-tea, and cold ducks.

From Kamtschatka *via* Hong-kong to the sunlit islands of the Eastern Archipelago seems to have been a pleasant transition, and pleasing details are given of Bancoran Island and Cagayan Sulu, where some crater lakes were seen. One of these is thus described:—

The little lake and its surroundings were fair-like in their beauty, but so peculiar in character, and so rich in tropical luxuriance of foliage, as to give almost a theatrical effect. Around us the dense jungle overhung the water, completely precluding any attempt to land, and clothed the steep walls of the crater to a height of 200 feet or more. Giant creepers had sprung from tree to tree, and choking the struggling vegetable life beneath them with an impenetrable mass of foliage, hung in long trailers towards the margin of the water below—a wealth of green of every imaginable shade. . . . The explorer who penetrates the true primeval forest of a country such as Borneo finds himself at the bottom of a sub-arboreal world. Beneath, the forest seems gloomy, dank, and devoid of life. Everything is fighting for sun and air, in which alone most flowers will come to perfection, and could we transform ourselves into monkeys and swing from branch to branch 200 feet from the ground, we should doubtless get a much more favourable idea of the richness of the flora of the tropics than our limited powers of locomotion permit us to obtain at the foot of the trees.

Sulu proper is next described with enthusiasm, and seems to have been appreciated as such a beauty spot in the East deserves to be. The market place, in which I spent some pleasant hours myself years ago, is thus described:—

Close to the banks (of the little river) lies the market place, a picturesque jumble of ponies, ripe Bananas, red sarongs, Palm-leaf stalls, and flashing spears, overshadowed by rustling Cocoa-nut Palm leaves. Beyond, the sea-going praus are hauled up on shore, their unwieldy sterns a mass of quaint carving. Then through a tiny reach bordered by the Nipa Palm, whose graceful fronds, 30 feet to 40 feet long, spring directly from the stream, and we find ourselves in a sort of upper town where the houses are built with seeming indifference either in or out of the water. The place is the absolute perfection of beauty and untidiness. Overhead the eye rests on a wealth of verdure—Bamboo, Banana, Durian, Jack fruit (see illustration, p. 455) and the arrowy Betel-nut Palm, with its golden egg-like nuts. In these happy climes man's needs grow at his very door. Cold, hunger, misery, and physical want are words without a meaning!

Here is another little picture, for the truth of which I can vouch:—

Among the big Durian and Jack fruit trees behind the village lay the little cemetery. The carved wooden head-stones were closely packed together, some flat and in the shape of a conventional leaf; others straight and post-like, carved to represent a number of superimposed cubes. Overhead the *Michelia** (*M. Champaca*)—the dead man's flower, as the Sulus call it—dropped its deliciously scented blossoms, and the graves were strewn with the flowers of the Areca Palm. Buddhist and Mohammedan alike plant the *Champac* above their dead. So should we, too, I think, did our climate permit it. Day after day throughout the year the tree blossoms. Day after day the delicately creamy

corollas fall entire upon the grave, retaining both their freshness and their fragrance unlike any other flower. For how long after they have closed over our loved ones are our graves decorated? Here Nature, kindlier hearted and unforgetful, year after year lays her daily offering of *Champac* blossoms upon the tomb.

Other islands, including Sumbawa, the Celebes, the Moluccas, and New Guinea were subsequently visited, and in the last-named habitat a *Nepenthes* was seen in abundance, with dwarfed and ungracefully shaped pitchers; as also a *Cypripedium* related to *C. philippense*, but with shorter petals and a golden lip, and which has been named *C. Gardineri*. One of the main objects in visiting New Guinea and the adjacent islets was to see and collect the lovely birds of paradise which exist only therein. Amboyna and Banda, with their nutmegs and spice gardens, were visited, as well as the Aru Islands. In the market at Amboyna (where the remains of Rumphius rest in a beautiful garden) a very distinct and highly flavoured variety of the Banana was seen with pure white flesh and a delicious flavour, something between a Pineapple and a pear-drop. Out of the many dozen varieties of this plant to be met with, from the 15-inch Horse Plantain to the tiny Silver Banana, I have never eaten anything at all like it. It was delicious, but no trace of the Banana flavour was to be detected in it.

One might say much more of this highly interesting work, but our extracts and the illustrations speak for themselves. It is just the book to make us feel extremely discontented with London in November, and to long to visit the regions of perpetual life and sunshine.

Our account of this book must be taken as the merest of superficial sketches, and mainly treated from a horticultural point of view. The work is cleverly written, and is often amusing in a peculiarly dry and simple way. Ladies might be quite as much interested in the author's description of the natives and seals in Kamtschatka as in his accounts of people and products of other and warmer climes. That the work has reached a second edition is a tolerably clear proof of its interest and value.

F. W. BURBIDGE.

FRUIT GARDEN.

W. COLEMAN.

VENTILATION DURING THE NIGHT.

THE "chink of night air" is now a hackneyed phrase amongst forcing gardeners, and much benefit, no doubt, is derived from a system which lowers the temperature and lets out the vitiated air. But this method, to my mind, is only begging the question, as I believe all the apex lights may be run down to an extent that will equalise the inside and outside temperatures, and yet that gentle movement which should be perceptible upon the leaves in the body of the house is altogether absent, whilst the air near the surface of the floor or bed is quite dead and stagnant. Fruit growers, as a matter of course, give an abundance of air during certain portions of each fine day, but unless the weather is very bright and mild, the ingress ventilators remain closed when the plants or vines or stone fruits, especially in modern houses, simply languish in an unchanging atmosphere. In due course the house is closed for three or four hours, and as regularly, unless stoking or outside conditions are at fault, is the top chink put on for the night; but so far from every leaf and stem deriving health and vigour from the process, Grapes persist in shanking and remaining foxy, Peaches and Figs are deficient in colour and flavour, Melons canker in various

parts of the stem, and spider reigns triumphant upon leaves exposed to an incessant rush of highly-heated air to the egress ventilators. Extra fuel, as a rule, is ungrudgingly allowed for this grand method of night ventilation, but the heavier the bill the sharper the draught, as highly heated air rushes as quickly as a cork rises to the surface of water, carrying with it every particle of moisture contained not only in the house, but in the tender leaves the night chink is supposed to benefit.

By all means let us have top ventilation from the time the day temperature begins to rise until the maximum is reached, otherwise an accumulation of moist, vitiated air will produce scalding; but once this stagnant moisture has been got rid of and the foliage is dry, the supply of fresh air should percolate into the house at the very lowest level. How often on an intensely hot, bright day, with a brisk wind blowing, do we see every light along the top of a vinery run down to its fullest extent, whilst those along the front are open just wide enough to produce a vacuum, or, as it has been called, a cutting draught. Now, cutting draughts, as we all know, are neither good for men nor plants; how then are we to remedy this evil? Well, simply by reversing the order of giving air, by gradually closing the top ventilators and opening those near the ground line, and when we find the most delicate leaves waving and the fresh air infringing on the sensitive flesh as we stand upon the lowest path, we may rest assured that the proper balance exists, that there is no draught, the house being kept full to repletion from the front ventilators. Night ventilation can be managed in the same way, that is, by admitting air along the front, the lower the better, provided it can be conducted over or under the hot-water pipes into the centre of the house before it begins to rise. If anyone doubt this, let him plant two compartments, subject to that dread disease canker, with young Melons of uniform age, and from one packet of seeds, fire-heat, fermenting material, and soil or compost being precisely the same. Night air in one at the apex will keep down the temperature, and unless fermenting material is very active, all the moisture will escape, leaving the foliage dry, drooping, and as languid as a man unrefreshed by loss of rest. In the other, kept close at the apex and ventilated on the level of the bed, the night temperature from the same boiler will be slightly lower, the fresh air at banking time will be perceptible, and the dew beads depending from every leaf at daybreak will show how thoroughly the plants have rested and fed in an atmosphere the reverse of oppressive. Let him watch his two sets of plants closely, and if canker sets in or spider makes a violent attack, he will find the high and dry stagnant and stuffy atmosphere, in which the attendant does not care to linger, and in which comparatively the plants look unhappy, is at the bottom of the mischief. Canker and spider are now more prevalent than they were before hot-water pipes took the place of fermenting material, and before hermetically glazed roofs forced the small open-lapped squares out of the garden. Scorching or scalding, too, is so severe, that Melon growers often have to shade, and then the foliage not unfrequently ripens before the fruit; whereas under the old system the plants were considered fresh enough to give second crops of excellent Melons. Hot water is a great factor with which we cannot, neither do we wish to dispense, and so is light modern glazing, but we cannot turn them to full account so long as we neglect front ventilation through the hours of darkness.

If we turn to vineries, the preceding remarks

* The *Plumeria* is also known as the dead man's flower in Sulu and Borneo, and is very generally planted on the graves.

apply, for in my own practice many years ago I took down two old-fashioned houses in which the Grapes always coloured to perfection; modern roofs were substituted, and the Grapes the following year were three weeks earlier, but they lacked bloom as well as colour. We ventilated, as we thought, liberally, but the thousand and one chinks in the old roof were missing. Here then we had proof positive that a diminished supply of fresh air had affected the Grapes and the Vines also; but this never happened again, for I set open the ground line ventilators when the weather in May would admit, and in this position they remained throughout the season. I might strengthen my argument in favour of rest by night under front ventilation by reference to the double glazing craze, at one time so rife amongst Orchard growers, when the houses were so hot and depressing that visitors would not enter, and the plants could not live in them. But when I state that one of the finest and most valuable collections in the kingdom was saved and restored to health by a ponderous crash of crow-bars along the line of the foundations, and that the same East India houses in which the plants are in perfect health are now as pleasant as a warm greenhouse, I have said sufficient to show that there is something in front ventilation. But what about time? We are forcing against time and cannot afford to waste 5° or more every night early in the season. Well, progress is not made in the dark; plants, like animals, require rest in sweet, well-ventilated structures. Give them this, and they will pay back with interest the following afternoon, that is if we wish it; but there is another way out of the difficulty—give them more time by starting a matter of three weeks earlier.

GROWING OUR OWN SUGAR IN OUR FRUITS.

I AM glad to see this sensible course making progress, as witness "J. B.'s" and the Editor of the *Field's* notes (page 387). I cannot, however, endorse "J. B.'s" high estimate of the Jargonelle as a stewing Pear. Unless this luscious variety is stewed very green indeed, it seems a sacrilege to dissipate its mellow aroma and luscious flavour in the stewpan. Nor is it needful with our host of Beurrés, the majority of which are better stewed than raw. The same exception, however, cannot be urged against Ribstons, Blenheims and Newtown Apples, which stew as well or better than the best kitchen Apples, and can only be spoiled by the addition of foreign sugar. Neither can it be said that they are too sweet if stewed only in their own juices, however sweet and sparkling their flavour when raw. Ripe Apricots named by your correspondent "J. B." is a striking case in point. These appear to lose some of their almost fulsome sweetness in the process of stewing, and are seldom thought too sweet for general consumption. The same is true of Gages and other such fine Plums as the Golden Drop, Jefferson's, Impératrice, &c. These are almost too sweet for many palates in a raw state, though most even add sugar to them when cooked. Whilst considering the latter practice as wholly unnecessary and mostly mischievous, it must be admitted that some of the saccharine matter seems to vanish in the process of cooking, and that the finest dessert Plums prove also the best for tarts and puddings. But the tyranny of fashion and habit are so strong alike in dining-room, kitchen, and garden, that the practice of growing our own sugar in our fruits rather than purchasing it makes but slow progress. Possibly the present rise in the price of sugar, and the prospect of stiffening prices for months, perhaps years to come, may do something to force us to accept the boon of our sugar for nothing by simply growing it in our fruits.

Nor is this the only profit we would reap by the adoption of such a rational practice, for no amount of sugaring or flavouring can impart to acid fruits

that aromatic flavour that Nature has piled up ready to our hands and our enjoyment in most of our superior varieties of Apples, Pears, Plums, &c.

D. T. F.

JUDGING MELONS FROM APPEARANCE.

It is difficult to discuss the question raised by Mr. Muir, as to the proper method of judging Melons, without opening up the whole subject of fruit judging. Melons alone may be dealt with on their own merits, such as they are, but when they are associated with other fruits in collections almost invariably more weight is given to them than they deserve. In ordinary fruits quality is almost invariably associated with ripeness or finish. Melons, on the other hand, are never so deceiving as when they look the handsomest or smell the sweetest. Thus, in a collection of fruits, a handsome-looking Melon is almost always passed as equal in quality to any of the other dishes in the collection, let them be what they may, although, were that Melon cut, it would perhaps be found to be unripe or devoid of flavour and lusciousness. A really superior Melon is quite a rarity, that is, amidst so many thousands which are annually produced. If twenty fruits be staged at any exhibition, the probabilities are that not more than two will be what may be termed really good. Very often, not one out of the whole number is first-rate, although including sorts usually held to be the best of their kind. Every Melon grower knows that with the greatest care in cultivation it is impossible for him to assure anyone that any fruit grown will be of particular excellence in quality, although in appearance the utmost perfection of form may have been secured. The rapid diversion of interest from one named sort to another comes from an anxious effort to secure the comparatively unattainable in Melons, that is to say, any sort which shall as certainly give invariably the richest quality, as Grapes, Peaches, and other fruits will do. Melon raisers naturally assume that by constantly intercrossing the kinds of good repute, they will in time secure the perfect variety; but somehow, whilst their products may now and then give us a fruit of exceptional quality, the seedlings remain neither better nor worse than those which have gone before. That result is very disappointing. If we could secure any variety of Melon which would turn out its fruits of the same assured regular quality in flesh and in flavour as with comparative certainty marks a Marie Louise Pear or a Noblesse Peach, the status of Melons as exhibition fruits would be materially changed, because their edible merits might be always taken for granted. In judging a collection of fruits it is evident that whilst nearly all other kinds may have their merits taken for granted, a Melon can only have any points awarded to it according to its merits after being tasted. If good, it merits the fullest number; if bad, even though its appearance be of the best, yet it is of no more edible value than a Pumpkin, and is worthless. To judge collections of fruits fairly if there be severe competition, a gradation of points should be given as thus, the highest number for Grapes, Pines, Peaches and Nectarines, fewer marks for Plums, Pears, Apples, and Melons, whilst small or bush fruits, including Strawberries, unless forced should have the least number of marks. Still in each case the maximum allowed in each class should only be given when the samples are of the best. Any system of awarding prizes by points whilst the best possible is always open to the objection that human judgment even in allowing points is fallible, still with ordinary judges the duty of honourably awarding prizes should never be difficult.—A. D.

— Cutting Melons is an old custom, and one that is not easy to get out of if quality is to be the leading object, which it ought to be. Being frequently called upon to do duty at fruit shows, I find nothing in fruit more deceptive than Melons, as often from their appearance and perfume they seem first-rate, but when tasted are far from ripe, and turn out to be a very inferior variety. Besides, if the judges pass a Melon as hard as a brick without cutting it, the exhibitor will wait for the judges to return to the show, and ask the reason

why his Melon had not been cut, as he was sure it was the best Melon on the board if it had been tried. I have gone with exhibitors many a time and cut the Melon to satisfy them, and the fruit has been so far from ripe that it had not even the taste of a Melon. In collections Melons are judged by appearance, and Cox's Golden Gem is very handsome, but an old exhibitor will take care not to risk one in his collection if he can possibly avoid it. When cutting is done at random it is very objectionable, but if a small piece is cut out with the point of a knife, the fruit is very little disfigured, and the flavour can then be easily distinguished.—JAMES SMITH, *Waterdale, St. Helens.*

— The old adage says, "The proof of the pudding is in the eating," but in modern times the truth of this statement seems to be denied by some writers on the above subject. In *THE GARDEN*, April 20 (page 351), Mr. Coleman maintains that the practice of cutting up fruit, Melons included, is bad, and the sooner it is done away with the better. J. T. Poë, J. T. Fletcher and "E." take a more enlightened, common-sense view of the matter, and explain the necessity of cutting and tasting the fruit to enable them to form a just appreciation of its merits as to flavour and quality, while J. Sheppard believes that Melons can be judged more satisfactorily by appearance than by cutting, &c. Such testimony, in place of throwing additional light upon the subject, has rather a tendency to envelop the matter in obscurity and doubt; consequently amateurs must try to solve the problem for themselves, and I think this can be best done by tasting and not by appearance, colour, and aroma. Mere bulk and outward appearance are not a proper criterion to judge of the interior of anything, for we often find samples of large fine-looking fruit and vegetables surpassed in quality by those of a less size when cut. For example, I sent a sample of Turnips to a show, and to all appearance they were the largest and finest looking there, but the judges cut them up, when the centre was found to be quite soft. Another sample of a less size and inferior appearance when cut was found to be hard, crisp and juicy all through, and consequently got the first prize, while mine were placed second.—J. B. W.

— It is a fact wholly beyond dispute that fine appearance and a rich smell are no guarantee of good flavour and juiciness in a Melon, and it is this knowledge that leads judges to cut Melons, and justice cannot be done otherwise. But if those who write so confidently on the other side will undertake to pick out the first, second, and third prizes at any show from a collection of at least twelve unnamed varieties, let them try it; the fruits to be afterwards judged by tasting in the usual way, and all precautions against fraud or mistakes to be provided against. Are there any of the opponents of cutting and tasting open to a benevolent wager on that head, say at the next Manchester autumn show? I fear not.—J. S. W.

— This subject has often been discussed and never fails to elicit opposite opinions, yet when all has been said that can be urged against the practice of cutting the fruit, it is not likely that there will be any alteration in the matter. In times past when I used to show Melons, I confess it was sometimes vexing to have several fruits not only cut, but often nearly demolished. Still, after all, the grievance is more imaginary than real, inasmuch as there are comparatively few families that would admit to their table either Melons or other fruits that had been exhibited, except, perhaps, Pines or Grapes, and in the case of those who sell their fruit, Melons that are in right condition to win a prize in a competition are too ripe for the dealers to care to have anything to do with. Mr. Coleman is right in saying that a fine, highly perfumed example of a good variety, such as those he names, usually wins. Where there happens to be only one fruit of this character shown against a lot of inferior nondescript sorts, there would be no difficulty in giving the first prize without cutting. But how about the second and third awards, when very frequently there is little to choose in either appearance, condition, or smell, and when there are several exhibitors who stage a good variety or

varieties with little to choose between them, so far as their satisfying the eye and the sense of smell, how can a correct decision be got at without cutting them? Further than this, as those who have had much experience in judging Melons know, the fruits which smell the best are far from always being the best flavoured. There is no difficulty in getting at the cause that brought about the custom of cutting exhibition Melons; it is simply through the fact that it so frequently happens that there is no other way of arriving at a correct judgment of the merits of the competing fruits. No one who has had much experience in judging is likely to advocate cutting Melons for any gratification to themselves. From a personal point of view, I look upon it as an infliction, of which I have had some instances that are not likely to escape my memory. One in particular, when at a large provincial show a handsome prize was given for the best pair of the variety Little Heath. My colleague and I had to face sixteen pairs of this awful Pumpkin, every fruit of which had to be cut. The taste, real or imaginary, was in my mouth for a month after.—T. BAINES.

— I have repeatedly strongly advocated the system of judging Melons by appearance, but am afraid made but few converts, or at any rate have failed to effect any modification of the rules or conditions connected with the offer of prizes for Melons. During the past eight years I have competed in one or more classes for Melons at six or more shows each season, and a reference to published reports would prove that I have won on an average three first prizes and probably as many seconds. I have also acted as a judge at a considerable number of shows each summer, and therefore have had some experience in the matter of testing Melons grown by other people as well as in selecting those shown by myself. Occasionally I have been deceived by appearances, but as a rule the fruit I had any confidence in when staged met with the judges' approval, while I would unhesitatingly select the best three out of any number of fruit staged. It has been my good fortune to be associated with other judges of known repute both as cultivators, exhibitors, and censors of fruit, and these men have selected the best Melons in a surprisingly short space of time. They were, however, compelled to cut them, or otherwise those who failed to win prizes would feel annoyed. Only those who have judged in a large class of Melons are aware how very bad the majority of the fruit staged really are. Sometimes not a good Melon is staged, the prizes in this case going to the least worst.

Who ever tasted a good fruit cut from a plant that had been dried off or had lost its foliage from any other cause? Yet more than half the fruit shown are ripened (?) in that or in some artificial manner, and those who exhibit them deceive nobody but themselves. At any rate, a well-qualified judge would know what the shrivelled foot-stalks, lightness, and general flabbiness of the fruit meant without any cutting or tasting. I maintain that an experienced judge has only to lift, feel, and smell a fruit to decide whether it has been cut from a healthy plant and is ripe enough for the table. To mutilate this in order to conform to an old, and what ought to be an obsolete custom is sheer wantonness. What first disgusted me with the system of cutting Melons took place at a fashionable show annually held in London about the second or third week in June. A class was provided for two Melons, the first prize being the munificent sum of 10s., and a dozen or more fruit were mutilated in order to decide which were best. Among these were two grown by me and which were worth, according to the then market price, not less than 15s., but after the "dissolving" process described by "D. T. F." (page 403), they were of no further value. The gardener or grower may be delighted with the way in which his prize fruit are appreciated, the said appreciation, it is admitted, being somewhat demoralising; but what have the real owners to say to the delicate form of praise conveyed by those who help themselves to a slice and it may be a few seeds at the same time?

The question yet remains to be answered, Why should Melons more than any other fruit be tasted by

the judges? Why should wretched little undergrown fruit less than a pound in weight be preferred to well-grown fruit, which happen to either not be ripe enough by a few hours, or it may be slightly past their best? Very few judges now-a-days go to the length of cutting Peaches, Nectarines, Apricots, Pears, and other fruits, nor do they often taste Grapes, Cherries, and other small fruits. All these are generally judged by appearance, and though exhibitors, especially the non-winners, are not invariably pleased with the awards, not many mistakes are made, always provided competent men are engaged to make the awards. Where tasting is resorted to all through the fruit classes the grumbling is excessive, and no wonder when the premier prizes are awarded to fruit that ought not to have taken a prize of any kind. Occasionally it may be necessary to finally decide by the test of tasting, or say when the competing exhibits are of about equal merit, but this rarely happens. In conclusion, I repeat what I have before stated, that judging by taste is even more of a lottery than judging by appearance, and both as an exhibitor and a judge I should much prefer that the latter system should be generally adopted with Melons.—W. IGGULDEN.

— One would imagine, to read the several articles which have recently appeared upon this subject, that the exhibition table was the end and aim of all Melon culture; but is it? Who ever heard of a gardener tasting a Melon before sending it up to his employer's table? I have often seen the perplexity or anxiety with which a gardener would examine one fruit after another by the tests of touch, smell, and appearance before deciding which to cut; but he does decide, and, I suppose, very often with perfect success. If the experienced man can decide successfully in cases certainly crucial, why not at the exhibition table by the same methods?—S. T.

EVILS OF GRAFTING.

I AM rather glad to hear that what I wrote on p. 290 amused your correspondent, Mr. Barker, since it is at least some small advantage to be amusing even if not also instructive in what one may say. Before he ventured to criticise my statements, however, it would have been only fair and just for him to have read "Some experiments in grafting Apples" to which I referred in the Journal of the Royal Horticultural Society, as he would then have grasped the true and full bearing of my remarks. Really Mr. Barker is most chary of his practical information. For example (p. 385), he tells us that when he wants a Peach tree he sends to a nursery where he knows he will get it on a good stock. But what is the name of the stock considered in this case to be a good one? Again, what is the best stock in one soil or situation may be indifferent or even worthless in another, as all fruit growers are aware. No one in his senses would think of grafting a Peach on a Peach stock, since its own roots would be quite as good, even if not, as some of us believe, far better. A Peach fruits at four years old from the stone, and so one has only to rear a few every year to make sure of a young and healthy stock. When Mr. Barker speaks of a good stock for Apples to "push them a little," he speaks against all the evidence of present-day vegetable physiology. No headed-off stock can "push" anything grafted on it as a scion, but a scion may and often does keep a stock alive that would die without its aid. As to longevity, I quoted the original Ribston Pippin Apple tree, which is about 200 years old, and was never grafted, and I ask "S. D.," if he can, to name a grafted Apple of any kind of that age to-day. I will grant a good deal about grafting. All our fruit crops of to-day, for example, are obtained in spite of its drawbacks, but that does not prove that it is absolutely essential to suc-

cess. I will grant that grafting is a most convenient and ancient dodge for getting up cheap stock, but I totally and emphatically deny that it is either the best or the only good way. I will grant that Apples on the Paradise and Pears on the Quince will produce fruit of fine quality earlier than they would on their own roots, but that the fruit is as abundant or the trees so long-lived as on their own roots I totally deny. We get by restrictive grafting, plus good cultivation, splendid fruits in limited quantities, but trees on their own roots would be still more amenable to good cultivation, and fruit of equal quality would be obtainable in greater quantity and for a much longer number of years. We must never forget that "small trees mean small profits." "J. S. W." says he never knew a Peach tree on the Plum (what Plum?) to die outright. No; that is very often the trouble. If they did die off outright instead of lingering on in a half useless state for years, a good deal of trouble and disappointment would be saved.

As to the flavour of English v. American Apples, I can confidently assure "S. D." that no Apple on earth can surpass, and very few can equal, an American grown Newtown Pippin.

I know we have a few choice and highly flavoured English Apples, although even our much vaunted Ribston came from Normandy; but, broadly speaking, American Apples are far ahead of those home grown. We may talk about the superiority of home-grown fruits as long as may be, but the fact remains that if we get a decent Apple in the market after November it is either of American or Continental origin.

According to "S. D." (p. 386), grafting is necessary only because cuttings do not root readily. My contention is that if a Pear or an Apple is, apart from cultivation, actually benefited by the act of grafting, then a Fig or a Vine or a Gooseberry ought to be better grafted than grown on their own roots. If it is not so, then, of course, grafting is a mere mechanical convenience, and no more. Use grafting by all means as a convenient makeshift, since in spite of it many things succeed pretty well, but on that account only, one can scarcely venture to assume that it is the best and only good method of rearing fruit trees or flowering shrubs.

My own opinion is that grafting is by no means the right and best way, no matter how ancient, how general, or how successful it may be; indeed, many things now difficult to increase, because they are grafted, such as fruit trees generally, and such flowering shrubs as double Plums and Peaches, would increase like weeds if cut down to the ground when on their own roots. Of all grafted shrubs known to me, *Prunus triloba* is one of the most short-lived and miserable, and yet I saw in a French garden the other day an own-rooted bush which had actually to be cut in to prevent its blocking up the way past it, and some of its suckers, of which there were many, were in bud and blossom at from 12 inches to 18 inches above the ground level. This is only a solitary example out of quite a considerable number known to me. A good many of us are, if less frank, exactly of the same opinion as "J. S. W.," viz., we "do not feel quite clear about this grafting business," even although present results are pretty good in spite of, rather than as the result of, its being the practice. Some of us have layered down grafted trees so as to obtain own-rooted stock of, say, Cox's Orange Pippin and other good Apples, and wiser times will show whether we are right or wrong.

In conclusion, I agree with the writer in the

Field who said it would be no great loss if grafting were abolished altogether, for I can never believe, except on much better evidence than any now forthcoming, that fruit cultivation is absolutely dependent on grafting.—SCION.

—Because here and there naturally short-lived subjects (even on their own roots) have not succeeded for any length of time when grafted standard high or otherwise, or because a grafted Conifer (*Picea nobilis*, for instance), planted in a water-logged and inimical soil, becomes gouty and out of health, are no sufficient reasons for denouncing the practice. That grafting has been of use to man can be readily shown. Oranges and Lemons are all, I take it, grafted, and surely they are of great use to man? To take a more recent instance, that of grafting the French and

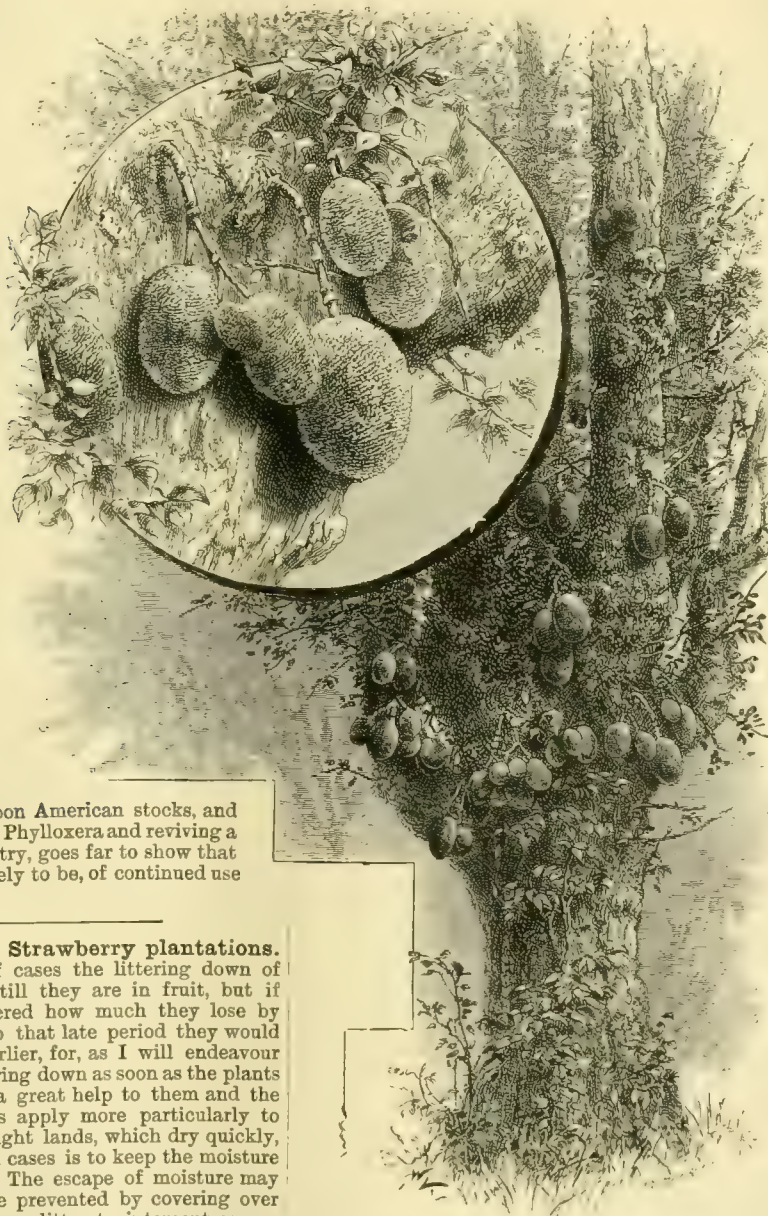
as the sharp points of the Bracken and broken parts prick or cut the slugs and prevent them from travelling and destroying the Strawberries. The Bracken, too, is very clean and dries quickly. Tan is very good if put on early, but Grass or hay are the worst things that can be applied, as after rains or damp weather they soon get mouldy and impart a taint to the fruit.—S. D.

FRUITS UNDER GLASS.

THE ORCHARD HOUSE.

THE cold backward spring, which appears to have given general satisfaction to the growers of hardy fruit, has been equally favourable to the owners of unheated orchard houses, for not only were blossoms late, but the sharpest frost has been most propitious. This very agreeable outcome is satis-

be kept in check by the use of tobacco powder, or light puffs of smoke from Bloxham's fumigator. The most forward trees, too, may be carefully syringed with a decoction of Quassia chips; in fact any device that will scotch the enemy is better than watching with folded hands the certainty of speedy destruction. Another important operation after the fruit is set is vigorous syringing with tepid water, not only to cleanse the foliage, but also to facilitate the flow of sap after closing on fine sunny days. If the baneful practice of keeping the roots of the trees on the dry side has been allowed, liberal supplies of water also in a tepid state must be resumed and continued through every stage until the fruit is nearly ripe. Then as the young Peaches throw off the remains of the decaying flowers, and show by their rigid pistils that fertilisation is perfect, it will be necessary to commence the joint operation of thinning and disbudding, the main point being the retention of a few of the finest and best placed fruits standing apex upward to the light. It is wise to retain enough and to spare for future removal, but beyond a fair per-centage of the best, all inferior fruits should be taken without the slightest compunction. I venture this remark advisedly, as we so frequently see pot trees growing in a cubic foot of soil, heavily handicapped by a superfluity which detracts from and not unfrequently jeopardises the whole of the crop. In thinning, then, always err on the safe side, as it is better to have one dozen fully developed Peaches than double the number of stones sparsely covered with pulp of inferior quality. As growth proceeds, stopping and thinning may be carried on simultaneously, the length of shoot being regulated by the size of the tree and the space at disposal. In the formation of trees we frequently allow 12 inches to 18 inches before we stop the shoot, but when old enough to bear fruit all intermediate shoots are pinched at the sixth leaf. Much, however, depends upon the shape of the tree and the formation of the framework, as some require severe disbudding to keep them thin enough, whilst others require repeated stopping to get them properly furnished. Of two evils, it is better to have them thin than crowded, as future success depends upon stout short-jointed growths which can have full exposure to solar heat and fresh air. A good crop of fruit and a fair complement of successional shoots secured, the next important step is top-dressing and feeding, as the veriest tyro must know the trees are entirely dependent upon the food daily administered to the pot-bound roots. Good rotten manure free from worms no doubt is a host in itself, but rich nitrogenous food makes too much foliage and tends to souring the soil when daily watering becomes absolutely necessary. To what substance, then, must we turn for a highly concentrated stimulant capable of feeding the fruit and forming firm short-jointed wood? Well, artificial manures in these days may be enumerated by the score, but for our purpose there is nothing better than genuine bone-dust, finely broken hair mortar, and charred wood or garden refuse taken in equal quantities and thoroughly incorporated with ten times their bulk of sound rich loam. This compost, or something like it, should be mixed up some time in advance, kept dry under a good covering of fresh stable litter, and the longer it lies the better the quality. The first dressing—half an inch—may be placed over the roots when each fruit is the size of a Hazel Nut, and it may be repeated as often as it is washed away or the feeders appear on the surface. Pure tepid water only should be used at first, but gradually as the fruit attains size and the trees begin to feel the strain of the crop, weak clarified liquid from the manure tank may take its place at every watering. A full crop of good fruit being of greater consequence than extreme earliness, ventilation on all favourable occasions should be on a liberal scale. Commencing after the close of a fine day, a little air should be given about 8 p.m., and shut off at 6 a.m. for the morning bath. About 7, or whenever the temperature begins to rise from temperate, the top lights must be opened, then the front ventilators, the increase or decrease being gradual and alternate until a maximum of 75° to 80° with full air is secured. As the outside



Jack Fruit tree (*Artocarpus integrifolia*). (See p. 452.)

other wine Grapes upon American stocks, and so beating the terrible Phylloxera and reviving a most important industry, goes far to show that grafting is, and is likely to be, of continued use to man.—T. SMITH.

Littering down Strawberry plantations.

—In the majority of cases the littering down of Strawberries is left till they are in fruit, but if growers only considered how much they lose by deferring the work to that late period they would carry it out much earlier, for, as I will endeavour to point out, the littering down as soon as the plants get well into leaf is a great help to them and the crop. These remarks apply more particularly to plants growing on light lands, which dry quickly, and the thing in such cases is to keep the moisture in as far as possible. The escape of moisture may in a great measure be prevented by covering over the ground with straw or litter to intercept evaporation. Not only is it desirable to mulch, but by carrying out the work at once and before the trusses of bloom show or the foliage becomes advanced, it may be done in half the time, as it is much easier to get about among the plants without injuring them, and to place the straw or litter close up round them. We use short straw from the ice house. This straw gets broken up after being there for a year, and is free from weed seeds. I also like Bracken, which is especially valuable for gardens that have slugs,

factory, but it does not lessen my aversion to structures upon which the outlay of an extra 5 per cent. in hot-water pipes might render perfect. Retarding having ceased, a close eye must be kept on the trees until the latest are out of flower, and fumigating, if ever so mild, can be ventured upon. Meantime, if fly shows signs of spreading, it may

temperature declines, the volume of air must be reduced and eventually shut off altogether for the afternoon syringing with pure soft water.

WORK IN THE VINERIES.

The gardener who has charge of an extensive range of vineries cannot for the next two months boast of a sinecure. With every compartment at work, cold nights necessitating stoking, and bursts of July sun rushing young growths forward, keeping every detail within bounds just now is a difficult matter. Taking the houses in the order in which the Vines were started, we find the early Grapes colouring and possibly causing some little anxiety as to finish. It is now too late to act upon the advice given six weeks ago, but relief may be obtained from careful surface feeding with extra warm diluted liquid by reducing the swelling maximum from 90° to 80°, the minimum from 70° to 60°, and by persisting in a little extra night air. Red spider, too, may be putting in an unwelcome appearance, and the presence of this diminutive visitor demands the stitch in time. The aids to colouring are good preventives, but once in the house the highest culture will not annihilate it; therefore first of all we may sponge solitary leaves with soapy water, and then, as invariably happens, the final check must be obtained from the fumes of sulphur. Many people dabble with sulphur, but for all the good that accrues they might just as well leave it alone, in fact better, for they lodge themselves in a simpleton's paradise. For sulphur to be fairly effectual the house should be kept perfectly dry and cool through the day, and the pipes towards night should be made as hot as the hand can be borne upon them. All ventilators, chinks, and outlets may then be closed, when the wash, previously mixed with skim milk, should be deftly brushed over the hottest or flow pipes. Air very early the following morning is imperative; all available parts must be syringed, and as few care to exhibit sulphur in their houses, the pipes may be well washed when cool with tepid water. As the Grapes approach ripeness they will require cooler treatment, liberal ventilation, and less moisture; but with the whole of the summer yet to come, the floors and walls must be well damped and syringed once or twice a day when the weather is favourable to a free circulation of fresh air.

Succession houses in which different varieties, including Hamburgs and possibly Gros Colman, are now swelling freely must have copious supplies of tepid liquid given to the inside roots, and the same may be sprinkled over the surface of the bed after the sun leaves the roof every fine evening. Night air should be given at 8 p.m. and shut off at 6 a.m., when the morning damping will precede airing for the day. As days increase in settled brightness this will be less difficult, but the maximum, be it 80° or 85°, should be gradually approached by slight additions of air always with the mercury on the rise, and when this begins to wane, reducing must be followed on converse lines. As the Grapes swell to their largest size under afternoon closing, the house should be shut up in time for the mercury to touch 90°, when atmospheric moisture must be abundant. A little steady artificial heat being necessary, the fires should be stirred in time to let the temperature gradually down to 70° at 8 p.m. and 65° the following morning. Although thinning may be considered finished, it will be well to look over all large clusters after the Grapes are stoned, as some varieties, especially Gros Colman, are very deceptive. Laterals need not be kept very close, but the strongest will require pinching and regulating, if only to maintain a free circulation of air between the main foliage and the glass.

Muscats in early compartments having undergone the final thinning, will require precisely similar treatment in every particular save one, and that is the degree of heat. Here the temperature by day and night may range quite 5° higher than would be good for the Hamburgs, although Gros Colman will stand and enjoy it; hence the wisdom of growing this Grape with the Muscats, or, better still, giving it a well-heated house to itself. The latest Muscats—this year later than usual—will now be in flower if not already set. It is not a good plan

to tie them down too close to the wires, especially where the clusters are very large, as bunches point upwards towards the glass generally set well when others sometimes fail. Aids to the satisfactory performance of this operation having been widely circulated, I will not presume to plagiarise; but this I may say—see that the roots are kept in an active condition in warm, well-drained, moist, healthy borders; maintain a brisk temperature with plenty of fresh air and atmospheric moisture, and the Grapes will not be found ungrateful.

Lady Downe's and other late Grapes require exactly the same management, the most important aid lying beneath the surface of the inside border. This and other details as to heat, air, and moisture being right, the brush or the syringe may be used, but I question if fertilisation will not have preceded the removal of the capsules.

PINES.

As early Queens are sure to be in demand and forcing can be greatly facilitated by sun heat, the long stretch of daylight will now justify a higher range of temperature in the fruiting house, 90° to 95° being acceptable to the plants when the house is full of atmospheric moisture on bright afternoons. This early closing will not maintain a high figure for any great length of time, but by this means the temperature may be let down gradually to about 78°, when the fires must be stirred to catch the night heat, graduating from 75° at banking time to 70° at daylight the following morning. The syringe, of course, must be pretty freely used for damping the surface of the bed and walls, also for charging the axils of the lower leaves with weak liquid, but provided this work is properly and promptly done the moment the house is closed, the less direct overhead syringing the better. Pines do not suffer from the attacks of insects which can be destroyed by tepid water, neither when shut up for three or four hours do they perspire very freely; consequently they are not improved by an operation which clogs and sours the soil about the necks of the plants, increases the size of the crowns and number of suckers and, carried to excess, results in black centres. Vapour, on the other hand, may be advantageously produced by watering the beds, especially over hot-air chambers, and by the daily application of clear liquid to the evaporating pans and other available surfaces. The plants, through the roots, also derive great benefit from the use of weak liquid guano or soot water at every watering from the time the fruit shows until the last ounce of pulp is laid on, when pure water, and very little of that, is most suitable. It is impossible to say how often fruit-bearing Pines will take water, as so much depends upon a host of conditions, including size of pot, texture of compost, nature of plunging material, the structure of the house, and the abundance or otherwise of roots capable of assimilating food. One thing, however, is quite certain: they should be looked over plant by plant every week, and when on the dry side the supply should penetrate every particle of soil and drainage. The best time to water all tropical plants, Pines included, is immediately after dinner, as any waste of heat through opening the lights and doors can be restored by closing half an hour earlier than usual. The same rule, in fact, prevails in the watering of all tender plants which cannot be reached from the interior. As the heat sometimes drops when firing is slackened and the fermenting material has become dry, it will be necessary to watch for fluctuations and to apply hot water between the pots, when the plants and fruit will derive the greatest benefit from the resultant stream of warm vapour. Ventilate early and carefully up to 1 o'clock to prevent the crowns from becoming drawn, avoid systematic shading and reduce gradually, but by no means tardily, until the time arrives for final closing.

Successional fruiters, now in various stages from showing to flowering and swelling, will require all the attention recently accorded to the earliest Queens, but the fruit being required much later, they may be worked on under a lower night temperature. Suckers, for instance, should be reduced

to two on each plant and the fruit, if not stiff enough in the stalk to stand without, must be tied to neat sticks, as nothing looks worse than a ripe Pine with its crown out of the perpendicular. Overhead syringing when in flower must be carefully avoided, but in other ways the use of the syringe may be repeated.

The best successions shifted into the fruiting size in February or March will now begin to feel the sides of the pots, and having to make and mature their growth early in the autumn, length of days will now justify high culture. As no after-management can restore a "drawn" plant, night air should be the rule, and this, on bright mornings, should be increased as the day temperature gradually rises to the maximum. From 12 until 2 o'clock air should move freely amongst the plants, not necessarily creating a draught, as this can always be prevented by reducing to a chink upon the top ventilators, and keeping the structure supplied from the front openings. By adopting this plan, damping and steaming early in the morning, and again about 3 p.m., when the house may be closed for three or four hours with sun heat, the plants will make good progress, and yet the foliage will remain broad and sturdy. As more water will now be required, clear diluted liquid soot and guano water, at a temperature equal to that of the bed, should always be used for every purpose save overhead syringing, and as this process is easily carried to excess, soft water in the form of fine dew after the pit is closed is all that is necessary. Fire heat, to a certain extent, is still necessary, but this can be greatly economised, and moisture retained by night covering. If shading is used, it should be of the lightest character, as well-rooted plants are not injured by slight browning, altogether distinct from burning.

HARDY FRUITS.

So far, a tardy spring has shown willing to atone for an unkind summer, and had trees in unfavourable situations been but a little better ripened, the present fruit prospect would have been fairly up to the average. One great advantage which cannot be too highly appreciated is the present freedom from insect pests—at least this is my experience, as hitherto we have not had occasion to apply insecticides to any of our hardy stone fruit trees. Although late in flower, this clean bill of health is worth a good fortnight to any tree, and should the weather continue propitious, time lost may yet be redeemed before harvest is upon us. The fine rains we have had having penetrated well into the sub-soil, fruit trees of all kinds, on light sandy soils even, are quite safe for the present, but the sun having gained in power, the genial moisture should be preserved by timely mulching. South and west wall borders, of course, claim first attention, but after this date it is hardly possible to make a mistake, especially where trees under modern culture have the bulk of their working roots close to the surface. Disbudding upon Peach and Apricot walls will now be in full force, and soon where late spring frosts are not prevalent this work for the present may be brought to a close. If any of the trees have missed their crop of fruit, disbudding may be finished, as there will be nothing to protect, but fruit being plentiful, close pinching, whilst forcing the sap into proper channels, will leave a few leaves as a covering until all danger of severe frost has passed away. As disbudding is brought to a close and the young shoots begin to elongate, they should be neatly heeled in with soft matting in preference to pegging, as the slightest pressure at this early and tender stage often leads to canker or a flush of sub-laterals. These, as a matter of course, must be regularly pinched at the first leaf, and any strong shoots likely to become gross when 9 inches to 12 inches in length may be pinched before they have time to rob the less robust parts of the tree. Wall-trained Plums and Pears will soon be ready for pinching, but beyond checking any gross breast-wood, this work for the present should be deferred, as undue haste exposes fruit almost as tender as the flower, and induces a thicket of soft useless laterals

which neither set flower-buds nor ripen properly. The trees, nevertheless, should be looked over and divested of any curled leaves or shoots, when a good syringing with pure water or weak soapsuds on a mild dull day will do good service in the destruction of rising colonies of aphids and spider, and the removal of the remains of the decaying flowers. If Strawberry beds have not received their usual covering of fresh long stable litter, no time should be lost, as early varieties will soon be in flower, when, independently of the loss of moisture, the work must be deferred until after the fruit is set. Another advantage attends early mulching of the beds, and that is the washing and bleaching of the ammonia-stained straw before the fruit begins to ripen. If extra fine fruit is wanted for special purposes, it is a good plan to thin out the weakest trusses before the flowers open and the fruit also when properly set. Plants put out 2 feet apart last August and now throwing up strong trusses should be made very firm by another careful treading round on a dry day, when more mulching may be added, as these, unlike older beds, still have a large breadth of soil exposed to sun and drying winds. A thorough watering, too, without wetting the crowns, should the weather set in dry will be a great help, as anything approaching a check from drought at the present time may render the finest flowers abortive. Where forced plants, although I do not recommend them, are put out for giving full crops another season, the ground should be well manured and deeply trenched forthwith. When properly levelled and made very firm, set out the rows 30 inches apart each way, draw shallow drills, and put in a good plant at each angle. As these plants are frequently infested with spider and mildew, they should be divested of crocks, loose soil, and dead leaves, immersed in strong soapsuds, and placed in flat hampers to dry and drain before they are planted. When planting, loosen the matted roots with a sharp-pointed stick, make the soil very firm about the balls, mulch and water copiously. Should the summer prove hot and dry, increase the first and repeat the liquid, as dry balls mean certain failure. Young plants put out in single or double rows for supplying early pot runners must be divested of all flower trusses and liberally supplied with weak liquid. Stock plants should be placed in the most open and airy part of the garden and not too far from a good supply of tepid water, as much labour by this precaution may be saved when the time arrives for layering. La Grosse Sucrée has again beaten the Vicomtesse in the forcing house, and in this part of the country has become first favourite.

W. C.

KITCHEN GARDEN.

TOMATOES IN POTTING HOUSES.

A GREAT many potting sheds in this country are miserably dark and altogether inadequate to the requirements of the gardens with which they are connected. They, no doubt, answer the purpose for which they were constructed, but has it never occurred to any of the various owners as well as those in charge of the places how much more serviceable these structures would have proved if more intelligently devised, or even if only the roofs had been glazed instead of tiled or slated? Not only ought potting houses generally to be covered with glass, but all should also be heated in some way, anything short of having a combination of a sulphureous stovehole and potting house being preferable to the damp, cold places too many of us have to be content with. I could give instances of potting houses being sufficiently warmed by the flues connected with a large saddle boiler underneath, but as a rule it is most advisable to heat them where possible with hot-water pipes from the nearest boiler, and, failing these, by one of the many excellent slow combustion stoves now to be had. The original outlay on a glazed and heated potting house would not be much in ex-

cess of the cost of building the class of shed generally in use, while the advantages are numerous. Practical gardeners scarcely need be told how many are the uses to which a well-arranged potting house can be put, but I must, however, enumerate some of them in order to induce amateurs and owners to seriously think of adopting my suggestion. In the first garden in which I had sole charge of the houses I found a roomy glazed potting house of the greatest service in the production of the commoner or earlier varieties of Grapes, including Black Hamburgh, Foster's Seedling, and Buckland Sweetwater, some being in pots, and others rooting in an outside border. In addition we were able to utilise various shelves for storing and raising summer bedding plants, while during the winter all the large Fuchsias, bulbous-rooted and other plants requiring to be rested in a cool house, and which usually present a rubbishy appearance, were also kept in this slightly heated potting house. One friend of mine annually grows large quantities of Maréchal Niel and Gloire de Dijon Roses in a potting house, and another covers the roof with hardy fruit trees. One of the most profitable uses, however, to which potting sheds can be put is the cultivation of Tomatoes, and after offering a few more suggestions as to the form in which a potting house may be constructed, I will confine myself exclusively to this portion of the subject.

Potting sheds being frequently, though not always necessarily the receptacles of a great variety of materials of a non-ornamental character, being in fact kept in the background for this very reason, it usually happens that they are located on the north side of a wall or range of lean-to houses. Even if there is no possibility of having a better site, there is yet good reason for covering with glass, though not with the motive of cultivating fruit. If, instead of building a lean-to house, one with a span roof could be substituted, this would be much more commodious, and a considerable portion of sunshine would reach anything grown in it, or sufficient for Tomato culture in the early summer and autumn months. Where it can be managed without disfigurement to the place, the potting house might well be more closely connected with the plant houses, this either obviating the necessity of risking tender plants for a few minutes in a cold and most injurious temperature or of repotting them in the same house in which they are grown. Whether the house is lean-to or span-roofed in design is not material, nor, as I have already pointed out, is any particular aspect necessary. What, however, is needful is a good height at the front or sides or sufficient head-room to admit of the potting being done on a bench without fettering the operator or being detrimental to anything growing overhead. The front of a lean-to or the sides of a span-roofed house ought then to be fully 6 feet high, and if rather more than that, so much the better. One half of this height might well be glazed, but this again is not absolutely necessary, and if privacy is needed or economy be paramount, then the fronts or sides may either be walled or boarded up, and the house yet be most serviceable. Some provision ought to be made for front and top ventilation, but these details may safely be left to the ingenuity of those responsible for the design. In other respects the other arrangements may correspond with those existing in the old form of potting sheds. Thus a paved floor, strong benches, and as many shelves as there are room for may be formed, and there is nothing to prevent the storage of various soils, sand, and manure where they will be kept fairly moist and warm. Dust ought to

be prevented from rising, but if damping down and syringing interfere with the original purpose of the house, they need not be much practised.

At the Aldin Grange Gardens, Durham, Mr. W. Jenkins has succeeded in converting what was once a heated pit, 8 feet wide, 30 feet long, and about 4½ feet high at the back, into a very serviceable Tomato and potting house combined, and his employer has good reason to be satisfied with the improvement effected. The instructive description of how the alteration was effected I cannot do better than give in Mr. Jenkins's own words:—

The pit was built against another house, which, however, ran 9 feet to top of eaves, and this gave us the opportunity of raising the framework and lights and making a nice little house 8 feet 3 inches high at back and 5 feet 6 inches in front. About 3 feet 4 inches of front is 4½-inch brickwork, stayed at intervals by 9-inch pillars, the remaining 2 feet 2 inches being made as a fixture and glazed, ventilation being provided in the shape of sliding shutters in the brickwork below, the top lights being movable as before. A small chamber was made for growing the Tomatoes as follows: Opposite the 9-inch brickwork pillars previously alluded to, others 9 inches square were built; on the top was laid an old railway bar on each side, and across these were arranged what hereabouts are called "quarls." The latter are made at the collieries about here, of the same material as bricks and of any length and thickness that may be required, and are very useful. These quarls were about 18 inches long and 12 inches wide, and were left 1 inch apart to allow the heat to pass up from the four 3-inch pipes underneath. On them was built a 2½-inch wall of cement and bricks, this being 12 inches deep, and serving the double purpose of separating the pit from the potting bench and enclosing the soil for the Tomatoes.

The house thus formed is somewhat limited in size; a potting bench 22 inches wide only could be fixed, but opposite to this a narrow stage for plant growing was made, a narrow shelf being also hung on the back wall near the glass. During the unfavourable season of 1888 and in a wretchedly late district no less than 2½ cwt. of Tomatoes were cut from this house, and if we assess the market value of these at a fair average of 6d. per lb. it will be seen how soon a good return for the comparatively small outlay expended in reconstructing it resulted.

It will also be noticed that the room for the soil and roots was very limited, and Mr. Jenkins states that he found a space 16 inches wide and 12 inches deep ample. It should, however, be added that he mixes special manures very freely with good fresh loam by way of compost and rams this well together. As a matter of course, the plants require plenty of water, or nearly as much as they would if the roots were confined to pots; but under this treatment they form sturdy fruitful growth and are far more profitable than when afforded a much less limited root-run. Tomatoes succeed best when confined to a single stem and trained not less than 12 inches apart up the roof and fully that distance from the glass.

W. IGGULDEN.

SHORT NOTES.—KITCHEN.

Mushrooms.—I send you some Mushrooms which were gathered in a field adjoining the woods. Please state in GARDEN if they are the true Mushrooms. I say not, but am overruled by all.—G. NIXON, *Easton Hall*.

** The examples sent are "Horse" Mushrooms (*Agaricus arvensis*). They often grow in spring and near trees. When young and fresh they are delicious eating.—W. G. S.

Vegetable Marrows.—There is no more certain way of securing good and abundant supplies of these than by making up a firm, but slight hotbed at the

present time. Put a barrow-load of moderately rich soil down here and there on the top of the heap, make each lot into a mound, and put two or three seeds into the top of every one. The young plants will appear in ten days, the shoots will soon begin to run, and by July the whole of the bed will be clothed with fertile growths.

—J. MUIR.

Cutting Asparagus.—The following questions have been addressed to me by one of your readers: 1. *What age should Asparagus roots be before cutting begins?* Not less than three years. 2. *When should we begin cutting?* As soon as the shoots are 6 inches high. 3. *How long should we cut?* Until you think the crowns are nearly exhausted; that will be from the beginning to the end of June. 4. *How many stems should be left to form the plant?* Four or five. 5. *How long will Asparagus roots continue to bear?* It depends on their treatment. If the ground was originally well prepared, and the plants are kept clean and well fed afterwards, Asparagus will continue bearing for twelve or fifteen years.—J. MUIR.

KITCHEN GARDEN NOTES.

LETTUCES.

A REGULAR supply of crisp well-blanching hearts is considered indispensable in most establishments, especially in hot weather. Lettuces well repay for any trouble taken with them, though, as it happens, their culture and requirements are of the simplest description. Where failures to maintain a good succession occur, these, as a rule, are principally due to a neglect to sow seeds at the right time, one or more weeks' delay making all the difference, especially at a time of year when Lettuces quickly run to seed. Supposing a good number of autumn raised plants were kept through the winter, these ought now to be growing strongly at the foot of sunny walls and on warm borders where they will heart in quickly. They will grow more rapidly and strongly if a surfacing of soot, or soot and some kind of special nitrogenous manure is stirred into the ground about the plants in showery weather. It is not always advisable to wait until the plants are fully grown before tying them up in order to well blanch the hearts. If at all crowded, every other plant when well advanced in growth should be lightly tied up, and these can then be cut in a few days, the remainder having a better chance to develop to their full size. The Cos varieties most need hastening, the Cabbage Lettuces hearting in without assistance. Those who have raised successional plants under glass ought to have dibbled these out where they are to grow before they are spoilt or much weakened in the seed beds, pans, or boxes. These also succeed best on a warm border, and more might be planted between the rows of young Asparagus plants and any late planted rows of Strawberries. The Cos varieties if on a bed by themselves should be grown 10 inches to 12 inches apart each way, and where they are in a single line between other plants 9 inches apart is quite enough, rather less space being needed by the Cabbage varieties. Where more seed was sown on a warm border some time in April, the plants from this sowing also will soon need attention in the way of thinning out and transplanting. We usually dibble out a considerable number of border raised plants on the ridges between the Celery trenches, two rows on each ridge, and these usually develop into the finest Lettuces of the season. Before this is done, however, it will be necessary to sow more seed either on the ridges or in a good open spot, the seedlings being duly lightly thinned out, a portion of the reserved plants being left to grow to their full size and the rest transplanted elsewhere. During hot, dry weather Lettuces transplant badly, and the wisest course from the present date is to sow the seed where the plants are to grow, there being no better position than the Celery ridges. Failing these, a well-manured open spot should be given up to them, as it is quite useless to attempt their culture in plots between fruit bushes or in any other makeshift position. A fresh sowing should be made every fortnight, one long row or two short ones each time being ample for most establishments. A very lumpy soil is not suitable for surrounding the seeds, and if the ordinary garden ground cannot be finely separated, it is necessary to open the drills,

moisten them if at all dry, and after the seed has been thinly sown to cover with fresh sifted soil from the frame ground. Newly-planted Lettuces and small seedlings are liable to be quickly cleared off by slugs, and in showery weather especially they ought therefore to have soot and lime freely and frequently dusted among them. Directly it is seen a sowing has failed from any cause, sow more seed, or a gap in the supply may occur. Any of the white and green Paris and Brown Cos varieties are suitable for summer culture, whilst the best varieties in the Neapolitan section of Cabbage Lettuces are very good in quality and the slowest to run to seed.

ENDIVE.

There is not much demand for Endive when Lettuce is plentiful and properly blanched, but if the former is well grown it improves the appearance of a salad. It is not advisable to sow much seed at this early date, as in all probability the bulk of the plants will run to seed prematurely. The Moss Curled is the best summer variety we have yet tried, as it hearts in quickly and blanches readily. The seed may be sown in drills 6 inches apart, and the seedlings eventually thinned to that distance apart. A sowing of a good selection of Green Curled should also be made at the same time, the drills for this variety being 9 inches apart, a similar distance dividing the plants in the rows. Rich cool ground is necessary for these early crops.

SMALL SALADING.

Radishes, to be good to eat, must be grown quickly, and seeing also that they soon become either hot and stringy or hollow and woolly, fresh sowings should be made every fortnight. They succeed well on the ridges between Celery trenches, and, failing these positions, the seed should be sown on a well-manured border that has been dug long enough to be thoroughly pulverised. Some of the quick-growing French forcing varieties, as well as Wood's Frame, may yet be sown, but these soon become uneatable in hot weather, and most reliance ought to be placed on the red and white Turnip-rooted kinds. Long Scarlet and Sutton's Long White are also suitable for summer and autumn culture. The seed may either be sown broadcast and covered with a little sifted soil, or in drills drawn 5 inches apart—thinly in either case. If birds are troublesome, either cover the beds with fine mesh fish-nets, or coat the seed with red lead before sowing. The Turnip flea, which is very apt to injure the leaves of Radishes, can be prevented by occasionally dusting the plants with soot and lime while yet the dew is on them.

MUSTARD AND CRESS

is of the easiest culture, it being possible for owners of the smallest places to maintain a constant supply of this very popular salading. A small patch of well-manured ground—say about 3 feet square—should be sown every week, a fresh site being chosen each time. It is the neglect of the latter precaution that frequently leads to failure, and if it is not convenient to change the site, the old soil and roots must be removed, and fresh, fine, and fairly rich mould substituted. Moisten it if at all dry, sow the seed thickly on the surface and press it in with the back of a spade, but do not bury it, or the produce will be gritty and otherwise unsatisfactory. Cover with brown paper or mats till the young plants are 2 inches high, and then gradually expose to the light. The seed if kept moist will germinate quickly without being shaded, but the stems of the seedlings then come short and not blanched as they ought to be. The plain Cress is preferable to the curled variety, and Rape seed is superior to Mustard. If curled Chervil is used in the salad, a pinch of seed should be sown occasionally. In order to keep up a supply of tender young Onions, a little seed ought to be sown at intervals of a month. Any surplus seed may be utilised for this purpose, but we prefer the white Tripoli varieties, as being the sweetest and mildest in flavour. Corn Salad, or Lamb's Lettuce, is of little value during the summer or early autumn months, and it is only a waste of ground to sow it before July.

TURNIPS.

Very early sowings made on a warm border were

a failure, nor did the seed sown early in April on an east border come to much. What few plants did survive were hoed up and more seed sown during the third week in April, and a comparatively early supply of Turnips will be the result, a fairly close succession to those in frames being anticipated. Those in frames are useful when about the size of overgrown Radishes, and the earlier some are pulled and used the better it will be for the remainder, crowding being the most frequent cause of failure. Up to the end of May we sow small breadths of Turnips on east borders, where they will succeed much better than in hotter positions. The roots soon become tough and hot in flavour; consequently small sowings every fortnight will answer better than larger sowings made less frequently. In June larger breadths on a north border are sown, and these are of the greatest value during the late summer and autumn months, or when good Turnips are very frequently scarce. If the seed is sown on freely manured, well worked ground, a rapid growth and juicy, tender roots result. The Extra Early Milan is of the quickest growth, and the quality is fairly good for a short time. This being a strap-leaved variety, it does not require so much space as the other types. The drills may be drawn 12 inches apart, and the plants finally thinned to a distance of 6 inches apart. Snowball should be sown at the same time to form a succession, and also Veitch's Red Globe, the last-named being still later and a very serviceable variety. The drills for these should be not less than 15 inches apart, an extra 3 inches being desirable on good ground; while the seedlings should be finally thinned to a distance of 8 inches apart. As nearly every sound seed will germinate, it is unwise to sow it thickly, this most probably necessitating much thinning out at a time when other work presses, and yet if thinning out is neglected the crop is soon spoilt. As there are several enemies to Turnips, it is unwise to do all the thinning at one time, the best course being to do this work gradually, completing it when the plants are about 5 inches high. At the outset the Turnip flea beetle is most destructive to the seedlings, the pest, if not checked, quickly ruining the foliage. Slugs also are apt to be troublesome, but both may be warded off by occasional dustings of soot and lime, or even fine ashes. W. I.

GARDEN FLORA.

PLATE 701.

FRAXINELLA.

(WITH COLOURED PLATE OF DICTAMNUS FRAXINELLA AND VAR. ALBA.*)

It is very remarkable that this is the first coloured illustration of Dictamnus that has ever appeared in an English periodical, notwithstanding its great beauty and the length of time it has been in general cultivation. The first record of a woodcut is that in the Proceedings of the Horticultural Society, published in Loudon's *Gardener's Magazine*, 1839 (p. 202, t. 37), and which shows an instance of its monstrous flowers. Fraxinella is said to have been cultivated by Gerard so early as 1596, and named by him the Bastard or False Dittany, and by Parkinson False White Dittany; while we of the present day are content with the name of Fraxinella. Little mention is made amongst the old writers of the remarkable phenomena it presents on dark nights and at certain intervals which are well known amongst all those who watch the habits and peculiarities of their pet plants. Miller states that the whole plant when gently rubbed emits an odour of Lemon peel, but when bruised it has something of a balsamic smell. This fine scent is strongest in the pedicels of the flowers, which are covered with glands of a rusty red colour, exuding a viscid

* Drawn for THE GARDEN by H. G. Moon in Mosses, Villemorin's grounds at Verrieres-le-Buisson, June, 1888. Lithographed and printed by Guillaume Sovereyus.



BURNING BUSH (DICTAMNUS FRAXINELLA & VAR. ALBA.)

juice or resin which exhales in vapour and on a dark night may be seen to take fire. The perfume given off by the *Fraxinella* is very strong, and at the same time agreeable. It pervades the air for a considerable distance around, and attention is easily directed to the spot where the plant is growing. It is strictly a herbaceous plant, with a somewhat shrubby habit, and is a very beautiful and attractive subject either for the mixed border or rock garden. It is one of the easiest plants to cultivate, doing well in any ordinary garden soil, the lighter and drier the better, while it should be partially shaded. It requires little attention when fairly established. As a border plant it has few equals, and deserves a first place in every collection both on account of its great beauty and fine fragrance, two qualities rarely combined as we have them here. It flowers during June and July, and the seeds ripen in September. Only two are produced according to Linnaeus; Scopoli says one, but I have rarely seen so few in a capsule in an ordinarily good season. The seeds if sown when gathered soon germinate, and the seedlings may be pricked out

a good time to procure a stock. I have found that keeping the pots plunged in ashes and Cocoa fibre refuse answers very well with *Primulas* (alpines), as it seems to prevent the soil getting dry, more especially in the case of small pots. Would this plan answer with *Auriculas*? Can you inform me if any work on *Auriculas* is published, and if so, where I can obtain it? also what number of plants I should place in frames 6 feet by 4 feet, of which I have several?—W. B. C.

TREES AND SHRUBS.

EARLY-FLOWERING MAGNOLIAS.

THE Yulan (*Magnolia conspicua*) is certainly one of the finest of all our hardy trees, and the blossoms are especially noticeable from the fact that they are in full beauty when nearly all other trees are leafless. So early indeed does the Yulan flower, that occasionally the expanded blossoms are greatly injured by late spring frosts, but this is not of frequent occurrence. A coloured plate of it was given in *THE GARDEN*, September 22, 1888, and it is so generally known

which is usually regarded as a hybrid between *M. conspicua* and *M. obovata* (purpurea), and its general appearance certainly suggests that such is its origin, for in all particulars, except the shape of the bloom, it is about midway between the two. There is another *Magnolia*, known as *M. Soulangeana nigra*, the blooms of which are very deeply tinged on the outside, thus rendering the flowers remarkably striking. Attention was first directed to it by the Messrs. Veitch, who have since distributed it under the above name. The origin of this striking *Magnolia* appears to be somewhat doubtful, but it is believed to be a direct importation from Japan. Another, viz., *M. Lenné*, a good deal in the same way, originated as a seedling in Italy, and occupies a very high position among the early-flowering *Magnolias*. The last to bloom of what may be regarded as the early-flowering *Magnolias* is *M. obovata* or *purpurea*, which does not expand its blossoms till those of *M. conspicua*, *Soulangeana*, and *stellata* are past their best. *M. obovata* usually assumes the habit of a large shrub rather than a tree, and when under suitable conditions it is by no means of slow growth. The flowers are purple on the outside and whitish within, but they never open to a great extent. This *Magnolia* strikes root from layers more readily than any of the other kinds, and on this account it is often used as a stock on which to graft the allied kinds. The fact that *Magnolias* are by no means easy to propagate no doubt prevents their being planted to the extent they otherwise would, for layers take a long time to root properly, and the plants are in all stages impatient of removal. Conditions most favourable to them are a good deep loamy soil, well drained and yet fairly moist, even during the summer, as in hot sandy soils they are not seen at their best. The Yulan is sometimes grown as a wall plant, but cramped and confined in this way it is not nearly so beautiful as when allowed to assume its natural character. Again, when planted in a sheltered spot to protect the blossoms from frost, the result is sometimes exactly opposite to that intended, for the flowers open earlier than on those plants in a more exposed position, and are consequently injured while the later blossoms escape unhurt.

T.



The Burning Bush (*Dictamnus Fraxinella*). A well-grown plant in Mr. Bartholomew's garden at Egham. Engraved from a photograph.

the following spring into beds and there allowed to remain until large enough for the border. The *Dictamnus* may also be propagated by root cuttings, which grow freely and make plants more quickly than the seedlings, but it is always risky to disturb established clumps. Native of Southern Europe, Caucasus, Tauria, China, &c.

D. K.

Auriculas.—I am desirous of acquiring a small collection of *Auriculas* in the various sections, and should be greatly obliged if you would give me through *THE GARDEN* a little advice as to the varieties to buy. I do not want a large collection to commence with; three plants of about half a dozen varieties in the edged sorts and three plants of about a dozen varieties in the selfs would be about the number I propose commencing with. As I attend to the flowers myself, I think one may as well bestow care and attention on good plants as on inferior kinds. I have read or heard that most *Auricula* growers use special pots; perhaps you will also tell me where these can be obtained. I have read in your paper various articles on composts, potting, &c., and presume that the present would be

that no further description is necessary. This *Magnolia* was introduced from China 100 years ago, but it is still far from a common object in gardens, the reason, no doubt, being that it is not readily propagated, a remark that applies to all the other members of the genus. Another *Magnolia* that flowers about the same time as the Yulan is the pretty little Japanese *M. stellata* or *Halleana*, for it is known under both these names. This is quite a shrub, with numerous branches and rather pale green leaves, which, however, do not appear until the flowers are over. The flowers are very different from those of the rest of the genus, being composed of a number of narrow strap-like petals, pure white inside, and flushed with pink on the exterior. They reflex soon after opening, thus leaving the centre of the flower fully exposed. The blossoms are liable to be discoloured during heavy rains, and on that account the plant is often grown under glass, not because it is tender, but in order to protect the blossoms. Among the larger kinds the Yulan is followed by *M. Soulangeana*,

***Spiraea callosa*.**—In addition to the beautiful brightly-coloured blossoms of this Japanese *Spiraea*, the foliage, especially when first expanded, is very attractive, for the young leaves are deeply tinged with crimson, which contrasts well with the pale greenish-yellow tint of the golden-leaved form of the North American *S. opulifolia*. Though the leaves when mature lose their crimson colouring, the plant continues to grow throughout the season, and the young leaves as well as the growing shoots are always brightly coloured. This *Spiraea* does not bloom till the majority of flowering shrubs are past their best, and, consequently, this is another point in its favour.—H. P.

***Rubus spectabilis*.**—This is a plant suitable for the wild or woodland garden. It is a North American species of Bramble, and comes into bloom about the same time as (or perhaps slightly later) than the Flowering Currants. It is of free growth, reaching a height of 6 feet or 8 feet, and sometimes more, and pushes up suckers in such profusion that it soon forms a good sized clump. For this reason it must be kept away from delicate subjects, as they are very liable to be choked by it. The drooping blossoms, which are borne in great profusion, are bright purple, a colour but little represented among flowering shrubs. Other Brambles suited for the same positions are *Rubus nutkanus*, with huge lobed leaves and large pure white blossoms, while *R. odoratus* is somewhat in the same way, but the flowers are purple, and the Himalayan *R. biflorus* or *R. leucodermis* is espe-

cially effective during winter, as the stems appear to be all whitewashed, and when devoid of foliage this character of course is most striking. The finest of all the hardy species of *Rubus*, and one that may be associated with the most select shrubs is the Rocky Mountain *R. deliciosus*, which in general appearance is very different from the other Brambles. It forms a much-branched bush, with lobed leaves, and is altogether devoid of spines, so that when out of bloom it seems to bear more affinity to a Currant than a Bramble. The blooms are large, a good deal like those of a single Rose, and borne in such profusion that a specimen when seen at its best is quite a mass of white.—T.

NATURAL REPRODUCTION OF LEBANON CEDAR AND WEYMOUTH PINE.

THE majority of our forest trees reproduce themselves freely enough from seed, but not so with the greater portion at least of the newer and rarer Conifers that have been introduced of late years. No doubt the climate has much to do with the free growth of certain seeds, while the particular surroundings with which the plant is brought into contact have an influence. Nowhere have I noticed natural reproduction going on so steadily and surely as on the Holwood property, and nowhere have I observed so many rare and uncommon kinds of trees and shrubs springing up spontaneously in the woodlands. Fence in a bit of common ground, and in a few years you have a wood, or rather thicket, densely clothed with Birches, Oaks, Scotch Fir, the Guelder Rose, Wayfaring Tree, Clematis, and numerous other interesting and rather uncommon trees and shrubs. Even the common Juniper propagates itself with great freedom, while the Yew, Holly, and Lilac become perfect nuisances, so thickly do they spring up in the woodlands. The Acacia, too, may be found here and there in out-of-the-way places where one would hardly think it possible for seeds to have been conveyed. The Butcher's Broom is also found all through the woodlands.

But what I wanted particularly to bring forward at present was how very freely the Weymouth Pine and Lebanon Cedar produce young plants in their close environs and without the least artificial aid being given. I have just had several Lebanon Cedars planted out that were picked up some years ago beneath the large trees of the same kind that grew in such profusion all over the estate. The young trees are now between 4 feet and 5 feet in height and bushy in proportion. The soil in which they spring up is of a light sandy texture and practically carpeted with weak-growing Grasses. That the old trees produce fertile seeds in fair abundance is painfully evident from the havoc wrought by the squirrels amongst the abundantly produced cones. Seldom do we hear of the Weymouth Pine reproducing itself from seed, but at Holwood I have noticed several healthy young trees growing amongst the Heath and Birches near to the parent specimens. The Cluster Pine, although it grows with unusual freedom and is in great numbers in some of the woods, does not seem to spring up naturally, for I have looked in vain on several occasions for seedlings. Cones are produced in quantity, but for all that fertility must be wanting.

Not many days ago I counted several healthy and stout seedlings of the Evergreen Oak that had sprung up on a sunny bank not far from two giant old specimens of the same kind. This, I believe, is unusual—at least, I have not seen it recorded. Laburnums, too, cover the ground beneath the parent plants, and this may with equal force be said of the Barberry and Dogwood. It would be interesting to know if any other rare trees or shrubs have produced them-

selves in a state of nature, for it is generally believed that such trees as propagate themselves are best fitted for extensive planting in this country. The Oak, Ash, Beech, Sycamore, Birch, Chestnut, both Horse and Spanish, Norway Maple, Mountain Ash, Alder, Elder and Scotch Fir produce seedlings in some cases abundantly without care or attention, but here, including the Thorn and Scotch or Mountain Elm, the list nearly ends. A. D. WEBSTER.

Trees and shrubs for towns.—Replying to the question asked in THE GARDEN (p. 376) for the names of any uncommon trees or shrubs that have been found to succeed in smoky localities, I will just mention a few other than those commonly planted that I have specially found to thrive under these conditions. Of Evergreens, the different forms of the Holly-like *Osmanthus*, including the Myrtle leaved variety, all do well; but, in common with *Aucubas* and *Euonymus*, the green-leaved forms are more satisfactory than those with variegated foliage. A first-rate plant for the purpose is *Skimmia oblata*, as well as the male form of the same, usually known as *S. fragrans*, both of which retain their freshness when the leaves are coated with soot. *Mahonia Aquifolium* and the various forms of it are well suited for such a purpose, while the pretty little *Pieris* or *Andromeda japonica* is, with me, very ornamental under adverse conditions. Though the foliage becomes, as a matter of course, somewhat discoloured, the hard glossy nature of the leaf is not favourable for the accumulation of soot, and early in the summer when the whole plant is bristling with red, owing to the very bright colour of the young leaves, it is very handsome. I have never induced the *Pieris* to flower, but, from a foliage point of view alone, it is well worth a place. *Escallonia macrantha* both grows and flowers well in smoky districts, and all the *Privets* are especially suitable for the purpose. I have been more than once surprised to see how well the Yew-like *Prumnopitys elegans* will thrive in London, where the conditions must be very different from those of its Valdivian home. *Aralia Sieboldi*, with its large leathery foliage, must find a place and the *Yuccas* as well. The Tree Ivies, again, form pretty bushes, and, like their climbing relatives, they can resist smoke to a great extent. The creeping little *Periwinkles* are occasionally very useful, while I have seen the Spanish Furze (*Genista hispanica*) unusually bright. In a smoky air *Hibiscus syriacus* and its varieties will hold their own, while all the *Weigelas* flower well if in a sunny spot. *Daphne Mezereum* and *Kerria japonica flore-pleno* may, with the addition of the *Hypericums*, be included. In a spot exposed to the glare of the sun, the golden-leaved Elder is seen to great advantage, while the same remark will apply to *Prunus Pissardi*. *Rhus Cotinus* and *R. typhina* are good town plants, while a couple of Evergreens that I omitted at the commencement are the new *Phillyrea Vilmosiniana* and the Butcher's Broom. Of flowering herbaceous plants, perhaps the best of all are the different varieties of the German Iris.—T.

SHORT NOTES.—TREES AND SHRUBS.

Eucalyptus globulus in bloom.—I have a *Eucalyptus globulus* about four years old in bloom. I should be glad to know if this *Eucalyptus* blooms every year under favourable circumstances, or whether it is an unusual occurrence.—A. J. SPIERS, Tottenham.

Berberis japonica.—The habit of this is as good as that of *B. Darwini*, while it flowers as profusely. It does not begin to blossom until *B. Darwini* has ceased, and on this account it forms a very desirable and acceptable successor to it. As early summer-flowering shrubs the varieties of *Berberis* merit more attention than is often bestowed on them.—J. MUIR.

Varieties of Weigela.—I do not think "T." (p. 435) gives *W. rosea* its due. It has the recommendation not possessed by all of growing quickly and forming a most graceful, well-furnished bush in all localities and in gardens of all descriptions. Close to the room in which I write there is a plant of it 10 feet high, more in diameter, and when this is in bloom, as

it invariably is in June, it is highly attractive, and not surpassed by any other of its class.—J. MUIR, Margam.

Ribes.—The most showy among the Flowering Currants is *R. sanguineum*, the flowers of which are exceedingly rich and vivid in colour, and plants of it quite light up a garden or border in which it may be placed. By way of contrast to the above-mentioned variety, and to plant near it or group with it, the yellow or white *R. aureum* or *R. album* are worth having, as they make a fine contrast. These *Ribes* are very easily propagated, as they strike readily from cuttings made from the young ripe shoots and which may be put in at any time during the autumn or winter. In spring these cuttings will form roots and soon make nice bushes for planting out.—S. D.

ORCHIDS.

W. H. GOWER.

CATTLEYA MENDELI AND ITS VARS.

Now is the flowering season of this glorious *Cattleya*, which belongs to the large-lipped or labiata section. It was first imported about twenty years ago by the Messrs. Low, of Clapton, but I think it was the Messrs. Backhouse, of York, who named it after the late Mr. Mendel, who at that time was an ardent horticulturist. Upon its first appearance it became extremely popular, and at the present time it may be said to be one of the very finest forms of the genus in cultivation. Like all the large-flowered *Cattleyas*, the blooms are extremely variable in colour, and enthusiasts in these plants endeavour to gather together all the best and most richly-coloured of its varieties, which vary from the purest white of *Blunti* to Mr. White's *Ardarroch* variety, which, although resembling *Blunti*, yet retains a sufficient tinge of flesh colour or purplish in the sepals and petals to distinguish it from that kind. It is a most beautiful variety, bearing about the same relationship to *Blunti* as do so many of the whitish forms of *Trianae* to the true *Trianae alba*. In THE GARDEN of October 1, 1881, we have a portrait of what may be taken as the typical *C. Mendeli*, in which the sepals and petals are whitish, suffused with a shade of delicate mauve; the lip large, the basal part, which is rolled over the column, being white, slightly tinged with rose; whilst the very long and broad middle lobe is crisp and undulated on the edge. The front portion is deep crimson or crimson-purple, the base being more or less of a rich yellow. I have heard it remarked that *C. Mendeli* does not produce such numerous varieties as *C. Trianae*, but in either *Trianae*, *Mendeli*, or *Mossiae* it is a difficult matter to obtain two plants which produce flowers exactly alike. Such being the case, it is no wonder that the finest coloured varieties are much sought after and that they fetch high prices. I have given below the names of a few of the best coloured varieties of this beautiful *Cattleya*, which will continue to embellish our plant houses until about the end of June, and therefore those who are desirous of obtaining fine forms should keep on the watch. It is a plant that is largely grown by all the leading nurserymen who cultivate Orchids. The plant is a native of Colombia, and is found on the mountains near Pamplona.

C. MENDELI BELLA is a very handsome form with flowers 7 inches across. The sepals and petals are of a delicate white, suffused with blush, the former plain, the latter very broad, wavy, and serrated on the edge, whilst they have a pale central band. The lip is white at the base, rolled over the column and deeply emarginate in front, where it is most frilled at the edge. It is entirely of a rich lilac hue in two shades and netted with lines of

white, the basal half being rich yellow with a white border.

C. MENDELI DUKE OF MARLBOROUGH.—This has an immense flower, with broad sepals and petals of a rich deep rosy hue, the large lip being beautifully frilled and of an intense deep rich crimson-magenta colour, which runs far back, the throat being golden yellow. It is, as far as I know, the grandest variety in cultivation.

C. MENDELI GRANDIFLORA.—This form well deserves its name, as its flowers measure some 8 inches across. Sepals and petals white, faintly tinged with flesh colour, the latter very broad and prettily frilled; lip white without, the front portion of a deep rich rosy-magenta; throat and disc of a tawny yellow, the whole margined round with a white border, and the edge beautifully lobed and frilled.

C. MENDELI JAMESIANA.—This is a superb, highly-coloured variety, but the flowers are not so large as those of the last-named kind. The sepals and petals are rosy-lilac, the petals marked at the apex with a central stripe of rich magenta; the lip is large, lobed and frilled at the edge, the greater portion of the front lobe being wholly rich deep magenta, the basal part and the throat being deep orange-yellow, with a few radiating lines of rich magenta-purple.

C. MENDELI MORGANÆ.—This plant is frequently called *C. Morganæ*, but it certainly must be regarded as a variety of *Mendeli*. The flowers are large, the sepals and petals being pure white, the upper part of the petals prettily frilled and serrated. Lip also white, beautifully lobed and frilled at the edge, and having a small irregular-shaped blotch of pale magenta in front, but which does not extend to the edge. The throat is rich orange-yellow, veined with paler lines of yellow.

C. MENDELI SUPERBISSIMA.—An ugly name given to a magnificent flower. The sepals and petals are large and broad, of a pale rosy hue, and of great substance; lip large, much frilled and lobed at the edge, the whole front portion being of a rich violet-purple hue, and the base and throat deep golden yellow.

C. MENDELI BLUNTI.—This is the purest white *Cattleya* which I know, the whole flower being of the purest white, saving a stain of yellow in the throat, whilst the edge is prettily frilled and lobed. This form arrived at the Messrs. Low's nursery from Blunt, who was then collecting Orchids for that firm. It was named after its sender, and it passed into the hands of Mr. Day at Tottenham, where I saw it in flower. Mr. Day divided his plant, but I cannot say what became of the pieces, and the only other example I have seen was in The Woodlands collection at Streatham last season. I do not say that there are not other plants in other collections, but it is a very scarce form.

C. MENDELI, MR. WHITE'S VARIETY.—This is also a very fine variety, and the nearest approach to *Blunti* which I have seen. The sepals and petals are white with a shade of flesh colour or a purplish tinge, the lip white faintly tinged and stained in the throat with pale yellow, overlaid with a few streaks of purple. It is a very elegant variety.

The above are a few of the most beautiful of the named varieties. There are plenty of others, however, and grand forms are continually occurring in almost every importation. I have noticed from time to time some excellent varieties among the introductions of the Messrs. Shuttleworth and Carder, at Clapham Park Road, and any lovers and growers of *Cattleyas* cannot occupy themselves to greater advantage than to quietly walk round the establishments of importers of *Cattleya Mendeli* for the next month or six weeks, and select the finest forms as they open, although they may not quite come up to the named varieties.

Vandas at Norwood.—There are several very fine *Vandas* now flowering with Mr. James, but the best is certainly a grand plant of *V. tricolor planilabris*, which bears numerous large highly

coloured flowers. This is a very handsome variety, the sepals and petals being soft pale yellow thickly marked with blotches and spots of bright brown, lip large and flat, rose-coloured, bordered with purplish lilac and streaked with dark purple. It appears that *Vandas* are fast returning to their old popularity.

Dendrobium Dalhousianum.—I am glad to see that this lovely old species is gaining much favour with Orchid growers after having been neglected for years. It is truly a grand plant when well grown. The very finest example I have seen of this species was exhibited at Blackburn, now some years ago, but a very good specimen is now flowering in Mr. Sander's establishment at St. Albans. It bears upwards of fifty spikes and presents a marvellous appearance.—W. H. G.

Dendrobium Griffithianum.—The true form of this glorious *Dendrobe* is now extremely fine in the Cambridge Lodge collection, where upwards of fifty of its immense drooping spikes of golden-yellow flowers may be seen. This plant belongs to the densiflorum section, the one great fault of which is the short time the flowers remain in beauty. *D. Griffithianum*, for example, does not last more than a fortnight or three weeks in perfection. There are many inferior plants sold for this superb variety.—W. H. G.

White-flowered Orchis mascula.—One of the handsomest spikes of this rare and pretty Orchid that I have yet seen was pointed out to me the other day at The Rookery, Mr. Lubbock's pretty place near the famous village of Down. White-flowered forms of our native Orchids are few and far between, and particularly so of *Orchis mascula*, and when one does see it, the enfeebled appearance of the plant and paucity of bloom at once lead us to suppose that the unusual floral colouring is due to disease or brought about by some peculiar morbid condition due to the plant's surroundings. Not so the plant in question, which was in rude health, as was clearly demonstrated by the large healthy foliage, stout fleshy stem, and great wealth of almost paper-white flowers. No particular care had been bestowed upon the plant, it having been lifted some years ago from a wood close by and transferred to the rich alpine garden of The Rookery, where it seems quite at home, and is certainly one of the showiest and handsomest of the many alpine plants at present in flower. Why our native Orchids do not receive a fair share of attention I can never understand, for they are neither wayward nor unmanageable, uninteresting nor devoid of beauty. That the plant in question was far more interesting, more beautiful, and ten times more easily managed than nine-tenths of the foreign specimens of hardy Orchids exhibited at late meetings of the Royal Horticultural Society, I can well vouch for.—A. D. WEBSTER.

SHORT NOTES.—ORCHIDS.

Cymbidium Lowianum.—This species is grown in a very cool temperature by Mr. James in the Castle Nursery, where it thrives and flowers very freely. Some of the recent importations of Mr. Low's are flowering well, and some fine forms are appearing. A specimen now bearing about 100 flowers is very handsome.—W. H. G.

Dendrobium Farmeri albiflorum.—A very fine form of this beautiful variety is now flowering in Mr. Laing's nursery at Forest Hill. The sepals and petals are of the purest white, to which the deep orange-coloured lip affords a beautiful contrast. This fine form, I believe, comes from the Burmese territory, but it is seldom seen.—G.

Thunia alba, or Phajus albus, as it is sometimes labelled, was remarkably beautiful a few days ago in the Orchid house at Kew. The flowers are produced in a short nodding raceme, and are of the purest white, except for a delicate pencilling of purple over the front portion of the lip. It is one of our choicest gems from Burmah and Northern India.

Cattleya Schröderi alba.—A very fine form of this *Cattleya* is now flowering in Mr. Laing's nursery at Forest Hill. It is a beautiful variety, and, apart from its purity, it retains the delicious fragrance of the species. I have not yet seen many of this white form,

and believe it still remains scarce. It is well deserving the attention of growers of these plants.—W. H. G.

Dendrobium chrysotoxum (the Golden-arched *Dendrobium*).—Although an old species, and one that has been somewhat despised of late, a specimen in Mr. Sander's collection bearing 350 fully expanded flowers is enough to make the plant a general favourite. The sepals and petals are bright golden yellow, the lip being of a deeper hue, prettily undulated and frilled, while the margin is beautifully fringed and ciliated.

Cypripedium Curtisii.—A great quantity of this plant has been sold by auction during the last six or eight months, and I have heard many fears expressed that the plants would not turn out true, but these doubts may all be dismissed, I think, for I have seen many of them flowering recently in various places, and all that I have seen appear to belong to a very fine form of *Curtisii*. The majority of them have borne twin flowers upon a scape. This fact enhances its beauty, and adds considerably to the charms of this, one of the most beautiful of its section.—W. H. G.

Odontoglossum nebulosum.—This is a somewhat neglected plant, and I must acknowledge that it is a species which has always found less favour with myself than almost any other kind. Perhaps, as in the case of *O. citrosmum*, we have not yet learned how to manage it. Now and again, however, an extra good form is to be met with which alters one's opinion, and such a variety I saw flowering recently with Mr. Laing in his establishment at Forest Hill. The flowers are large and round, sepals and petals some 3 inches across, pure white, the basal portion of each segment being thickly studded with reddish brown blotches. The lip is somewhat heart-shaped with an erose edge; it has a two-lobed crest, bearing a pair of teeth in front, white, marked at the base with larger and deeper coloured blotches than those on the sepals and petals. Although *O. nebulosum* was discovered upwards of fifty years ago, I have never seen a fine plant of it.—W. H. G.

Masdevallias at The Woodlands.—These plants are returning to favour, and deservedly so, after being so much neglected. In this establishment particularly they are receiving every attention, and although there are not many kinds now flowering, the condition of the numerous examples proves how well their culture is understood. Just now in bloom are several examples of the finest forms of *M. Veitchi* both for size and colour that I have ever seen, and also *Veitchi sulphurea*, in which the inner half of the lateral sepals is of a distinct and clear sulphur-yellow; this is a very handsome flower. There is also a large form of the lovely canary yellow-coloured *M. Davisii*. This plant has hitherto been somewhat neglected owing to its want of size, but I am inclined to think that this arises from bad cultivation, as I am strongly of opinion that careful cultivation will develop size, more especially as I have observed that wherever these plants receive proper attention, the largest flowers are to be seen. A lovely species bearing the name of *M. Armeni*, belonging to the *Shuttleworthii* set, is a kind which I have not seen before; the flowers are wholly of a rich purple, the narrow long tails being yellow.—W. H. G.

Phajus.—Although the *Phajuses* cannot be considered the choicest of Orchids, they may be said to be among the most useful, as they are very easily grown, and their fine spikes, which they send up so freely, are of great value for cutting, as when placed in glasses or vases they produce a striking effect. They remain in full beauty in water almost as long as they do on the plants. *P. Wallichii* is one of the most popular and it is very free blooming, but *P. grandifolius* is larger, the two being equally desirable. Unlike many Orchids, these *Phajuses* require no special treatment, as all they need is to be potted somewhat loosely in fibry peat, with a little sand and charcoal mixed with it, and to have free drainage by putting plenty of crocks in the pots. The time to divide the plants is directly after they have done flowering, as then they begin to grow, and, if desirable, they may be pulled apart and divided; but in doing this one or

more suckers or shoots should be secured to each pseudo-bulb. When the potting is complete, the plants ought to have a half-shaded position in a brisk moist heat, and be kept syringed once or twice a day to encourage free growth. The flowers are formed on the new side shoots, and it is necessary, therefore, to get the shoots strong.—S. D.

FERNS.

FERNS AT EDMONTON.

THE groups of Ferns exhibited from time to time by Mr. H. B. May at the meetings of the Royal Horticultural Society are sufficient indication of the richness of the collection in the Edmonton Nursery. The Fern specialist will find a storehouse of both common and uncommon kinds in all stages of development, and obtain some idea of the existing demand for this class of plants in the London market. It is often repeated, and there is much truth in the assertion, that Ferns are at their lowest ebb in popularity at the present time; but although the enthusiasm once manifested has lapsed into apparent indifference, there still remains a general love for Ferns of the more common types. Thus at Edmonton the Maiden-hairs are grown by the thousand, and none more so than the old, but still unrivalled *A. cuneatum*. Batches of *A. elegans*, a form of *cuneatum*, show a certain grace and refinement wanting in the old favourite; it has larger fronds and a freer habit. There is a probability of its becoming in the truest sense a market plant. A whiff of fragrance came from a number of healthy specimens of *A. fragrantissimum*, a beautiful Fern, which until now we thought scarcely justified its name; but the young rising fronds have a distinct hay-like scent. The dwarf, compact, and pretty *A. Pacotti*, *A. mundulum*, and *A. Legrandi* are of quite a distinct type from the taller growing kinds. They are gems in their way, especially to those who have only a greenhouse and little space. A Fern that should become quite as much grown as *A. Pacotti* is *A. Regina*, a variety with much of the character of both *A. Victoria* and the beautiful free-growing *scutum*; it has rich green pinnules and a handsome free habit. *A. Williamsi* and *A. farleyense* were in the collection, and two more handsome Ferns it would be difficult to find. The graceful pale-coloured fronds of *A. Williamsi* are a contrast to those of the heat-loving *farleyense*, that hang round the pots like rich drapery. At this season everything is full of life and activity, and now is the time to see the brilliant tints on the young fronds of *Veitchi*, *rhizophyllum*, *rubellum*, and *macrophyllum*, while if we leave the Maiden-hairs and seek for colour in other species we shall find rich hues in *Pteris aspericaulis*, and an acceptable silvery shading in *P. argyrea*, *cretica*, and other forms.

There is no sameness in Ferns. The delicate fronds show various shades of green, sometimes brightened by tints of crimson, or suffused with bronze or variegated with silver. We may refer again to the Maiden-hairs for the purpose of noting the handsome and especially distinct *A. cardiochlena*, *formosum*, and the bolder habited types, as *A. pentadactylon* or the excellent basket Fern, *A. caudatum*, a companion to *A. dolabriforme*. There is, as is well known, many varieties of the common *A. Capillus-veneris*, and few are more beautiful than *A. Mariesi*, *magnificum*, and the singular *fissum*, a variety that will please those who like curious Ferns. A distinctly crested Maiden-hair is *A. cuneatum grandiceps*, a heavy tassel terminating each frond. We are not partial to crested Ferns unless they show some beauty, as in the strikingly handsome *Pteris serrulata*, which in its several forms displays much of the crested character—*cristata major* and *May's* variety of compacta showing this distinctive trait. *P. cretica* is, of course, largely grown; it is amongst the most popular of all Ferns, as much for its bright silvery appearance as for its free growth and hardiness. The variety *albo-lineata* is well known, and *Mayi*, a dwarf-growing, conspicuously crested Fern, has established its name as a useful addition to its

class. *P. cretica nobilis*, referred to on p. 439, is another novelty in crested Ferns. *P. tremula* may be seen in quantity and in different phases. It is as useful as any Fern in cultivation. The *Gymnogrammas* offer much colour and character, a collection losing greatly in beauty and variety by not having a few of the leading kinds. *G. Alstoni* is a beautiful golden powdered form, the tips of the pinnules incurved showing the gold-dust-like powder underneath; a crested variety of the same class is *G. Parsoni*. As a foil to these, a rich contrast in colour, are the silver-powdered *Gymnogrammas*, of which *G. peruviana argyrophylla* is the best representative.

We must not pass over a genus rich in ornamental Ferns without referring to the number of good sorts of *Aspleniums* at Edmonton. *A. bulbiferum*, *flaccidum*, *lucidum*, *laxum*, *pumilum*, *neocaledonicum*, *formosum*, and other kinds were growing as only plants do grow in a nursery mainly devoted to supplying the market. *Davallias* need no comment here as to their beauty. Few are finer than *D. Mooreana*, or more lovely when in full health and vigour than *canariensis*. The pretty *Tyermanni*, *bullata*, *Griffithiana*, conspicuous for its silvery rhizome, *elegans*, *fiensis plumosa*, and *tenuifolia* *Veitchi* are in the list of first-class Hare's-foot Ferns, and it is not often we have seen them finer than here. There were a number of the more beautiful *Lastreas* and several large plants of *Nephrolepis*, which are magnificent Ferns for hanging baskets, especially *N. davallioides furcans*, a remarkably distinct type; *rufescens pinnatifida*, a graceful handsome Fern; *acuta*, and *exaltata*, one of the commonest and best of all. We might devote several columns to describing the handsomest types in the various genera, but we have said sufficient to convey an idea of the wealth of good kinds at Edmonton. The several *Osmundas*, *palustris*, *japonica*, *corymbifera*, &c.; *Onychium japonicum*, *auratum*, and those species more valuable for their intrinsic beauty than mere usefulness are to be found in rude health and vigour. Such a collection of Ferns is a sure sign that thousands do ardently care for them, and we hope the time is not far distant when some of that enthusiasm displayed years ago will revive. We should then have more variety in the fernery, and less of one kind than now exists.

There is a great demand for Ferns in fancy pots—toy-like ornaments that are much used in drawing-rooms and small ferneries—and here may be seen designs of all kinds, the pots filled with the commoner kinds of *Pterises*, *Adiantums*, &c. They are exceedingly pretty and tasteful.

Ceterach aureum.—In THE GARDEN of March 30 I have just observed a paragraph by Mr. Gower on *Ceterach aureum*. Two years ago I gathered this plant in Tenerife, and can answer his question as to the nature of its habitat. I got it in two places—at least twenty miles apart—both being up valleys several hundred feet above the sea. One habitat facing the east was on a somewhat dry bank of soil, but the other facing the south was on the ground among herbage, where the ground did not seem particularly dry. The soil in both cases was a light loam. I found the plant in Tenerife only, but in Grand Canary and Madeira a friend with me discovered *intermedium*, a small form of *aureum*. There was not a single plant to be seen approaching *aureum* in size where these were found, nor, on the other hand, was there any *intermedium* where *aureum* grew. I brought home a few plants of each, and have kept them since in a cold frame, matted up during frost. They are now growing vigorously under this treatment. I am curious to see if *intermedium* will develop into *aureum*. I should like much to know if Mr. Gower has ever received specimens of the large form from Madeira. A plant sent me twelve years ago from Tenerife I still have. Mr. Gower says he has been unable to keep it alive over three years. I fancy, from his description of the treatment he gave it, that he must have over-drained the pot and kept the plant too dry. Loam, as I have said, is its

natural soil, and it should have plenty of water during the growing season.—P. NEILL FRASER, *Murrayfield, Edinburgh.*

STOVE AND GREENHOUSE.

SIDE-SADDLE PLANTS.

(SARRACENIAS.)

THIS is a curious and beautiful family of plants, which appear to give considerable trouble to many gardeners, but which in Mr. James' nursery thrive remarkably well. Apart from their curious and beautiful leaves, the *Sarracenias* are extremely showy when in flower, although I am inclined to think two sets of plants would be required to maintain an annual supply of blooms, as these considerably weaken the crowns. *Sarracenias* have been much misunderstood, it having been assumed that as *S. purpurea* comes from North America it should be almost hardy in this country, but *S. purpurea* grows in the centre of the Northern States, where it is found amongst *Sphagnum* and wet Moss. In the summer months the temperature rises to 100° or 112° Fahrenheit, and however cold it may be in winter, this plant is tolerably secure from any ill effects through being well covered with snow. This should show our growers in this country the absurdity of expecting it to thrive well in the open air here. It is still more absurd to suppose that the other species which grow naturally much further south can be successfully cultivated in a cool house or in a position which would suit *S. purpurea*. Mr. James' plants are for the most part garden varieties, and these, whilst in no way inferior to the imported plants, are extremely beautiful in their markings, and are also not inferior to them in the vigour of their constitution. Little affects them but black thrips. The presence of these, however, I do not think indicates that the plants have been grown in too high a temperature, but that the atmosphere has been too dry and arid. Amongst the best of Mr. James' plants just now may be mentioned—

S. CHELSONI.—A hybrid between *S. rubra* and *S. purpurea*, the pitcher-like leaves combining the character of both parents. The upper portion assumes a bright crimson hue.

S. STEVENSI.—This is a beautiful form, the parents of which, I think, were *S. purpurea* and *S. flava*. It has large upright pitchers, with a large lid, somewhat resembling that of *S. purpurea*, and of a rich deep crimson colour. The prominent veins are also deep crimson with cross veins of a somewhat lighter hue.

S. CRISPATA.—This is a supposed natural hybrid between *S. rubra* and *S. flava*. The pitchers resemble those of the last-named kind in size and shape, the upper part of the pitcher and the inside of the lid being prettily veined with red.

The other kinds which were not sufficiently advanced to display their full beauty were *S. Tolliana*, *S. Swaniana*, and *S. Mitchelliana*. These, together with *S. Drummondii* and *Drummondii alba*, formed a rich collection of *Sarracenias*, which I should much like to see more largely grown.

W. H. G.

Abutilon Madame J. Laing.—These *Abutilons* are very elegant plants, but are not sufficiently used during winter, at which season and during the early spring months they make a grand display. Particularly is this the case with the above-named variety, which is free in habit, and flowers abundantly in even quite a small state, the blooms being large and round and of a rich bright rose, flushed with pink. *Abutilons* should receive a larger amount of attention than is usually accorded them by gardeners.—H. G.

Ericas and Azaleas.—Many of the Heath tribe are just now very fine in Mr. James' nursery, where for some years great attention has been given to them. Amongst those conspicuous for their beauty at the present time are grand examples of *Cavendishi*, *afinis*, *depressa*, *ventricosa tricolor*, an old, but beautiful form; *mundula*, an almost forgotten species, and many others. There are some handsome examples of the older kinds of *Azaleas*, and

amongst them some of M. Van Houtte's newer varieties. Of these now in first-rate condition are Oswald de Kerchove, Mme. Van Houtte, Reine des Pays-Bas, and many others. It is a great pity that these plants are so neglected.—W. H. G.

Geonoma Herbsti.—This is evidently nearly allied to *G. gracilis*, but it is somewhat stronger in growth, and carries its foliage better; moreover, the segments of its leaves are broader than those of *G. gracilis*, and the young leaves come up of a rosy brown hue. This latter character appears to me to be very distinct. The seeds, however, I am told, came home with those of the typical *gracilis*. A handsome young example is now to be seen in Mr. Laing's nursery at Forest Hill. It promises to become a useful plant for decoration; indeed, this and some of its congeners are specially useful for growing with Orchids.—W. H. G.

Sundews (Droseras).—The two species *D. capensis* and *D. dichotoma*, I have noticed for the last few years, have been exceptionally well done in Mr. James' nursery at Norwood. *D. capensis* is amongst the largest of its kind which I have seen. This, it would appear, is likely to become plentiful at this establishment, for the old specimen flowered last year and produced an abundant crop of seeds, which were sown, and the young plants are coming up in great profusion. It is a pity we have not more species of this pretty family of plants in cultivation, and there are plenty to be had. Mr. James' plants are grown with his *Odontoglossums*.—W. H. G.

Æchmea Marie Regina.—This showy Bromeliad is now in bloom, and is very attractive. It is a large, bold-growing plant, the blossoms being packed rather closely together on a spike 2 feet or more in length, thus allowing it to well over-top the foliage. The flowers are small and tipped with blue, but they are not particularly showy, for by far the most conspicuous feature is furnished by the large boat-shaped bracts, which subtend the blossoms, and are of a beautiful shade of magenta-pink. They remain in beauty a considerable time if the atmosphere of the stove is not too much charged with moisture. Well-drained soil, composed principally of fibrous peat, with copious supplies of water when growing, will suit this plant perfectly.—H. P.

Anthurium Scherzerianum.—It is nearly twenty-seven years ago since I first brought this plant from Mr. Wendland in Hanover to England, and flowered it for the first time at Kew. The spathe was then very small, but great improvement has been made by liberal cultivation and selecting seedlings. Many grand displays have been made from time to time, but one of the very finest shows of this plant which I have seen is in the nursery of Mr. James at West Norwood, where for some years much attention has been devoted to the raising of superior forms. Many examples of large dimensions are to be seen, and they are free from the objectionable habit which many forms show of the leaves curling round and concealing their size. The colours also are extremely rich and deep, one strikingly peculiar form being remarkable for its rich scarlet spathe and lemon-yellow spadix.—W. H. G.

Ageratums in pots.—I do not think that *Ageratums* are much grown for blooming under glass, but good plants in full flower at this time are very attractive, and they give a colour that is always more

or less wanting. The old form of this plant, owing to its lanky habit, was not well adapted for pot culture, but the dwarf kinds are very suitable, as they bloom even more freely and produce large heads of bright blue flowers. As *Ageratums* grow so quickly, the cuttings need not be put in before this time. If grown in the open air they will make good plants by autumn.—J. C. B.

GREVILLEAS IN BLOOM.

THE *Grevilleas* are a remarkably pretty and interesting class of greenhouse shrubs, and nearly all natives of Australia. Though not grown to any great extent in this country, *Grevilleas* are certainly the most generally cultivated of Proteaceous plants, as the merits of these last are now overlooked altogether. A cool greenhouse, such as will suit Heaths, *Epacris*es, and the general run of New Holland plants, meets the requirements of the different *Grevilleas*;



Grevillea robusta.

indeed, two of them (*G. sulphurea* and *G. rosmarinifolia*) are almost if not quite hardy in the south and west of England, while they will often survive many winters around London where protected by a wall. *G. sulphurea* assumes the character of a dense, much-branched bush, with narrow pointed leaves, and during the summer months the branches are thickly clothed with sulphur-coloured blossoms. The individual blooms are not particularly showy, but being borne in great profusion they render a well-flowered specimen very attractive. *G. rosmarinifolia* bears its peculiarly shaped reddish purple-coloured blossoms in closely packed clusters at the end of every shoot. Other pretty *Grevilleas* are *G. ericifolia*, a low close-growing kind with needle-like leaves, and bright red blossoms. This will often flower in

the depth of winter, a remark that applies also to *G. Thelemanniana* or *Preisi*. *G. Preisi* is very distinct from any of the rest, for it is more open in growth, the long slender shoots being clothed with much divided leaves (somewhat like those of the Southernwood), while the bright pink blossoms are borne in closely packed clusters. Other very desirable kinds are *G. acanthifolia*, *punicea*, and *macrostylis*. The most commonly cultivated of all the *Grevilleas* is *G. robusta* (see illustration), whose handsome foliage combined with its quick growth renders it a very popular market plant. The foliage is certainly very beautiful, but the flowers I have never seen. Seeds of this should not be kept long out of the ground, as their vitality is greatly impaired if they are not sown as soon as received. H. P.

WORK IN PLANT HOUSES.

STOVE.—JASMINUM GRACILLIMUM.—This is the best of the stove species of *Jasminum*, as owing to its bushy habit of growth it is easier to manage than the climbing kinds, and a much greater quantity of flowers is produced. When well managed it blooms from every bit of growth made. Its white and fragrant flowers are suitable for use in any combination of cut flowers. It may be propagated now and if the plants are liberally grown they will bloom well during next winter or spring. Plants that flowered in the past winter will now have started into growth, and will afford plenty of young shoots in suitable condition for propagating. The cuttings should be about 3 inches or 4 inches long, and if taken off with a heel will be more certain to strike than if severed at a joint. It is better to put them separately into small pots than several together in larger ones, as when in single pots the roots are not disturbed when the plants are potted on. A brisk heat with a confined moist atmosphere and shade are the conditions necessary to get the cuttings to root quickly. As soon as they are well rooted put the plants into 3-inch or 4-inch pots. Good fresh loam with rotten manure and sand is the right material to grow them in. When the top growth has begun to move freely, pinch out the points of the shoots, so as to have the plants properly furnished at the base. Shade will be requisite through the summer, and the syringe should be used freely every day. Plants that were struck last year and have flowered should have their branches shortened back moderately, and when they have started into growth they should be turned out of the pots and have as much of the old soil removed as can be done without unduly disturbing the roots. Pots 3 inches or 4 inches larger than those they have been in will be necessary, as during the present summer they should increase considerably in size.

JASMINUM DUCHESSE D'ORLEANS and the double form of *J. Sambac* are desirable plants for training round a pillar in a warm house. They are more suitable for this than for draping the roof or rafters, as the growth the plants usually make is not sufficient for the latter purpose. When to be used in the way advised and they are to be turned out in a bed, the present is a good time for planting them. Plants that have already attained considerable strength in pots are much preferable to small ones. Rich soil, similar to that recommended for pot-grown plants, is necessary for the bed. Be careful not to over-water until the roots have made some progress, as these *Jasminums* are not vigorous rooters.

GREENHOUSE.—AMARYLLISES.—The treatment required by these plants during the spring depends much on the system under which they are grown, for though the usual course is to start the bulbs in heat early in the spring, so as to have them in flower during April and May, still they can be grown well by allowing them to come on in a greenhouse or cold pit. Where the former system is followed they will now in most cases have bloomed and be making their growth. It is of the first importance that during this time the plants be stood where

they will get plenty of light. See that the soil is kept fairly moist, and that the leaves are well syringed daily. In doing this it is necessary that the water gets to the underside of the foliage to destroy all traces of red spider. Weak manure water should be given every ten days or a fortnight. Stimulants of this sort are the most necessary when the bulbs have not been repotted before or after they have bloomed. This applies to both the evergreen and the deciduous varieties, the latter being now grown in much larger numbers than the former. Even with these I do not approve of the annual repotting which is practised by some growers, as I know from experience that the bulbs produce more offsets when not disturbed, being repotted oftener than necessary; and with sorts that are scarce and valuable this is an important consideration. Where *Amaryllises* are grown under cool treatment, they will now be moving and must have the soil kept fairly moist. Sun-heat should be made full use of by closing the lights early in the afternoon. Whichever way the plants are treated they should have a little shade in bright weather until the foliage is fully matured. When the evergreen varieties require more root-room, they ought to be repotted as soon as they have flowered.

CYCLAMENS.—Plants that were raised from seed sown in the latter part of last summer may be supposed to be in small pots. Give them now 3-inch or 4-inch pots according to the size they have attained. Manure of a cool nature, such as thoroughly decomposed cow manure, is the best to use for *Cyclamens*. The material should have been exposed to the air until it is black in colour and quite mellow, so as to crumble freely. Pot moderately firm. The plants should be kept close to the glass, and, if possible, the pots should be stood on fine coal ashes or other medium that will hold moisture. In this way the under sides of the leaves will be in the morning covered with drops of moisture, the presence of which is distasteful to red spider, thrips, and aphides. If the pots rest on dry shelves or stages it is a difficult matter to keep the plants clean. They should be syringed every afternoon at the time the lights are closed. To have the plants as large and strong as they should be at the end of the growing season, the temperature must be kept a little warmer than that of an ordinary greenhouse from the time the seed is sown up to the end of autumn. This to some extent necessitates their being grown in a pit or small house by themselves. Where *Cyclamens* are grown on the old cool and necessarily slower system, the seed may be sown now, so that the plants may have more time to attain size and strength, for on this depends their ability to produce a full head of flowers. The seed may be sown in ordinary large-sized seed-pans or shallow boxes. Use finely sifted soil of a like description to that recommended for potting the plants in. Do not put the seeds in too thickly, or the leaf-stalks will get drawn up so as to make them weak before the seedlings are large enough to prick off. The seeds may be covered a little deeper than those that are very small. Old plants that have done flowering should be put in cold frames, choosing a shady position for them, or they may be stood out of doors, where they will be out of the reach of much sun. Coal ashes is the best material to stand the pots on, as it will hold the moisture necessary to check insects, and it also prevents worms getting into the pots. The plants will require less water than when they were in an active state of growth, but the roots should never be allowed to become quite dry in the way that is sometimes practised. This is the principal cause of the corms often refusing to again make growth. *Cyclamens* also suffer during the time they are dormant after blooming through the attacks of aphides or red spider. These insects injure the leaves and cause them to perish before their time, thereby weakening the corms. With these plants, as with most other things, it is almost as necessary to keep them free from insects at the time of rest as when in full growth.

LILIES.—The summer and autumn flowering *Lilies* that are grown in pots should now be stood out of doors, as after this time there is little danger to be feared from frost, and the growth will be

more robust and healthy when the plants are exposed in the open air than if under glass. As they advance in size, the stems should be supported with sticks before they get so tall as to bend over. When neglected in this matter the leaves get fixed in a position that makes them unsightly afterwards. In potting any of the *Lilies* that throw out roots from the stems near the base above the bulbs the latter should be put low enough down and the pots filled to within 2 inches or 3 inches of the rim, so that when these roots begin to appear there will be sufficient room to admit of soil for covering them. Where this has been done these stem roots should be covered in time to prevent their perishing.

L. GIGANTEUM is not only one of the finest of all *Lilies* for pot culture, but also one of the most noble-looking plants that can be used in a greenhouse or conservatory. Where this *Lily* is well managed it does better and produces more flowers in a pot than I ever saw it do in the open air in even the comparatively few localities where it succeeds outside. The plants will now be pushing up their stems apace, and should be encouraged by liberal applications of manure water. This should be used weaker than some things would bear it. All other kinds of *Lilies* that I have grown in pots are also benefited by manure water from the time that their roots are moving freely. Unless the stimulant is applied early enough, it has little, if any, influence on the bloom. See that the foliage is kept quite free from aphides.

L. HARRISI AND L. EXIMIUM.—These are the two best forms of *L. longiflorum*, and are indispensable for winter and spring flowering. As the successional plants that have been forced go out of bloom they should be moved to a cold pit or frame for a week or two, so as to harden a little before standing them out-of-doors, after which the pots should be plunged in a bed of coal ashes. This will not only keep the roots that are closely packed against the inner surface of the pots in a healthy state, but it will materially lessen the labour in watering. This latter should be as well attended to as it was previous to the flowering if the bulbs are expected to be as good another year. The plants that are intended to bloom last will require nothing more than greenhouse treatment.

L. CANDIDUM.—This old out-door favourite is now coming much into use for pot culture. In experienced hands it does well with moderate forcing when not started too early or hurried too fast; but as the varieties of *L. longiflorum* already mentioned, do so well forced, it is best to let *L. candidum* come on more slowly. Over-potting is a mistake in the case of all *Lilies*, but this old sort seems to do with less root-room than most of the others. When small pots are used it necessarily entails closer attention in watering, and care must be taken that the roots do not get dry now when the tops are far advanced and the flowers coming on. It is requisite to be careful that no aphides are present. The insects get on the flower-buds whilst these are scarcely discernible, and also down amongst the crown of leaves. When thus snugly concealed it is next to impossible to kill them by fumigating; dipping in tobacco water is the best remedy, repeating the application until the insects are destroyed. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Bossiaea linophylla.—This is a member of a genus of Australian greenhouse shrubs, and a few days ago a specimen of it in the temperate house at Kew was a mass of the pea-shaped brown and yellow flowers. The branches hang down and make a rich drapery of bloom.

Saxifraga sarmentosa tricolor.—There is always a nice lot of this beautiful plant in the Forest Hill Nurseries. It is said to be an exceedingly slow grower, and I think that Mr. Laing should grow on some specimens and exhibit them at one of the meetings of the Royal Horticultural Society in order to bring this *Saxifrage* to the notice of the lovers of pretty and characteristic plants.—W. H. G.

Begonia corallina.—I am glad this plant is receiving the attention of Mr. Laing. It blooms almost the whole year round, and flowers equally well how-

ever strong it may grow. I am fully persuaded that no stove or intermediate house should be without a specimen. Its bunches of blooms are large, as also the individual flowers, which are bright coral-red, and the seed-pods are broadly winged with the same colour.—W. H. G.

Gloxinia virginalis.—This is a pure white, erect-flowered kind, which should commend itself to growers of these plants. It somewhat resembles a white variety named *Empress of India*, raised and sent out by the Messrs. Rollisson, of Tooting, some few years since. It is, however, a better flower, being of greater substance, and the limb is broader and of greater regularity. *Virginalis* is a superb variety, and well deserves recognition. I recently noted it flowering with the Messrs. Laing, of Forest Hill.—W. H. G.

Smut on Camellias.—Growers of *Camellias* all know that the plants, especially if in flower for a long period when they cannot be syringed, are apt to generate smut on the leaves and wood. This is objectionable in every way, and it is tiresome work sponging it off. An expeditious and effective way of removing it is to add paraffin oil at the rate of one wineglassful to three gallons of water and syringe the plants with this. If syringed every other day for a week the smut will entirely disappear.—J. Muir.

FLOWER GARDEN.

MIMULUSES.

A SEEDSMAN of large experience was greatly surprised the other day when here to find *Mimuluses* not only planted out in the open ground largely, but also in bloom. That was the 5th of May. The plants were put out as early as the second week in April, rather a trying period of the spring for flowers usually regarded as tender; but as evidence of the really hardy nature of *Mimuluses* when subjected constantly to outdoor culture, there may be seen wondrous big clumps just about to bloom. These have been on a west border and without any protection the whole of the winter. I have no doubt but that in more southern districts *Mimuluses* would do well outdoors during the winter at all times, but would, perhaps, suffer most when the weather became hot and the soil dry and parched. Generally, they do best on the cool side of a north wall, but if very strong plants be put out as early as the beginning of April, at least a couple of months of good bloom may be had from them before midsummer, whilst, should the autumn prove favourable, if the plants be neatly cut over, they will bloom profusely again in September. My plants did so last year, and were the second time of blooming if possible more beautiful than at the first, but the flowers were not so large. *Mimuluses* are very easily grown and they have this additional recommendation, that no other flower, not even the rich-coloured and spotted herbaceous *Calceolaria*, can equal them in the production of wondrously marked and superbly coloured flowers. The common expression "tiger spotted" is often applied to spotted flowers, but that appellation faintly describes the beauties found in a really fine strain of *Mimuluses*. It is also a special recommendation of these plants that they like a cool position. Now we cannot get many flowers that are very beautiful to bloom freely in cool places or in shady spots, but *Mimuluses* seem to delight in rather damp soil, and where the rays of the mid-day sun are shut out by a wall or fence. I like a west aspect, because I find the flowers never look more beautiful than when the sun, as it is declining in the sky, shines upon them. I rather think that all flowers look prettiest when the rays of light are softening, as the colours then are less glaring and more refined. The strongest plants I have are now clumps big enough to fill 8-inch pots, and are from side shoots pulled from the old stools in the late autumn and dibbled into a cold frame for the winter. Later plants and in larger quantity are from seed sown early in December in pans in a greenhouse, and kept growing simply in a cool temperature. When strong enough to handle, the seedlings were dibbled up into a bed of soil in the greenhouse and into shallow boxes also, and from these put direct into the open ground. So far the season has been kindly, still I have

always found the plants to be thoroughly half hardy, and thus they make a beautiful display of bloom early in May. A. D.

FLOWER GARDEN NOTES.

BEDDING-OUT NOTES.—This work being now in full swing, the following notes may prove helpful to those who have a lot of space to fill and but a few plants to do it with. I have come to regard the simplest mixtures of flowers as the perfection of the bedding-out system, and have put my ideas into practice, as will be seen by the description which follows of the planting of certain beds. The plants used in a large circular-shaped bed are the light blue *Agathæa cælestis*, the dwarf white *Viola* Countess of Hopetoun, and pink-flowered tuberous-rooted *Begonia*. These three kinds of plants are used in about equal numbers all over the bed, which is edged with variegated *Mesembryanthemum*, the whole producing as charming an effect as the greatest lover of effective flower-beds could wish to see. The *Viola* and the *Agathæa* require to be occasionally pegged down, and this operation displays the *Begonia* well, and thus breaks what would otherwise be a rather flat surface. Another extremely pretty arrangement, suitable for a bed of larger dimensions than the foregoing, can be had by employing the scarlet-flowered *Lobelia cardinalis* on a groundwork of the white *Centaurea candidissima*, *Heliotrope*, and blue *Ageratum* in mixture. For a bed of this size two distinct lines of plants as edgings should always be used, and in this instance the outer edging may either be the Gold Feather *Pyrethrum*, variegated *Mesembryanthemum*, or *Leucophyton Browni*, and the next line *Iresine*, of which the variety *Colemani* is by far the best. For permanent effect small shrubs, of which the Japanese *Retinosporas* are the best types, may now be used in conjunction with summer bedding plants. The shrubs are most suitable for employment as standards, and supposing the beds are of large size, say circles from 10 feet to 15 feet in diameter, there may be ten small shrubs, namely, a central one, then three, and in the outer line six. Yellow *Marguerites*, *Violas*, *Bluebells*, and mixed colours of seedling *Verbenas* make a fine mixture for association with the shrubs, and an edging of the white *Gnaphalium lanatum* adds to the massiveness of the arrangement. Two colours only—white and either blue or purple—composed what was known as the “shot silk” arrangement, and the surface was unbroken by standard plants. The old, but still good, variegated *Geranium Manglesi* and Purple King *Verbena* make the most perfect arrangement of this type of bed, and it is a great improvement if plants of *Iresine* be used as standards over the surface of the bed. I have used, instead of *Iresine*, *Grevillea robusta*, also variegated *Abutilons*, and though both do very well, the dark colour of the *Iresine* contrasts so well with the white variegation, and harmonises just as well with the purple *Verbenas*, that I give preference to it. Another economical mode of arrangement, say as regards *Dahlias*, is to plant them thinly in a mixture of various colours all over the bed, and as undergrowth, plant Harrison's Musk or Hardwick Yellow *Viola*, or both in mixture. The shade that the *Dahlias* afford to these plants admits of their being planted in the most sunny aspects. Tall-growing fine foliage plants of any kind that do well in the open air in summer may be planted in the same thin manner, and with either foliage or flowering plants as undergrowth. *Phlox Drummondii*, *Indian Pinks*, *Mignonette*, dwarf *Nasturtiums*, annual *Chrysanthemums*, *Salvia argentea*, and *Cineraria maritima* are all suitable for the purpose.

SPRING-FLOWERING SAXIFRAGES.—We have three Rockfoils just now in such fine flower as to justify an allusion to them. The first of these, *Saxifraga* (*Megasea*) *crassifolia*, is very unlike the ordinary kinds of Saxifrage. It has long, stout, and leathery leaves that are sometimes a foot long and from 6 inches to 8 inches wide, and the flower-stems are as thick as moderate-sized Rhubarb stalks and of a beautiful light red colour; the flowers last in good condition for a very long time. It is a fine plant for either the herbaceous border or for an

open aspect on the rockwork where bold and handsome foliage is required. It is readily increased by division of the roots. *Saxifraga cæspitosa* is of the true Saxifrage type, growing in dense tufty form, and on the rockwork or in front of herbaceous plant borders, where it can be made to do good service as a carpet plant, it spreads rapidly. At this season it is literally covered with its beautiful creamy white flowers, and continues flowering for about a month. If it flowered a month earlier it would be invaluable for spring bedding. The other kind, *Saxifraga hypnoides*, almost a counterpart of the preceding, is not quite so even in growth and does not flower nearly so freely, but the individual flowers are larger and slightly tinged with green. It is a good rockwork plant, and stands drought well, but it does best in a partially shaded and moist position.

HOLLYHOCKS.—Most of our plants have stood the winter in the borders where they flowered last year, and they are now growing away freely, I think better than those plants that were lifted and wintered in cold frames, but it is too soon to form any opinion of these, as they have only been planted a month. Some few that were left out have died, I think, from exhaustion through flowering, and not owing to the severity of the weather. I am confirmed in this belief by the fact that so far as my own memory serves me, and that of others who noticed the free and long time of flowering of certain plants, that it is these plants only that are dead. Hence the determination that this shall not occur again, and as a first step to its prevention, all the plants in a sufficiently advanced state of growth have had all the shoots (would-be spikes) cut off except two, and to this number only we shall adhere, be the plants ever so strong. Good mulchings of well-decayed cow manure will presently be given to all the plants, and water supplied with a free hand whenever the weather is dry.

W. WILDSMITH.

WINTERING CARNATIONS.

UNTIL we get a race of Carnations that are but little inferior in hardness to the common Pink, I shall for the future refuse to trust any valuable or scarce kinds in the open during the winter. So much has been written on this subject of late, and we have so frequently been assured that no greater mistake can be made than in massing up Carnations in frames, that last autumn I thought I would leave some of my stock in the open. I am not sorry to have done so, for it has afforded an opportunity of judging of the advantages or otherwise of protection. Some kinds, it is true, seem to bear full exposure to the elements very well, and one that has exhibited considerable powers of resistance in this way is the beautiful apricot-coloured Mrs. Reynolds Hole. In a general way, however, the difference between protected and unprotected plants is so great as to warrant the belief that the former must prove much more satisfactory at blooming time. The foliage of the protected plants is fresher and far better, and, what is even more to the purpose, the roots are more numerous and more active. I find that the roots of plants in the open remain inert during the winter, and in many instances they are hardly even now on the move. This is, of course, owing to the cold sodden condition of the soil. Plants taken from frames where they were laid in late in autumn in light sandy soil have an abundance of active fibres that will grasp the ground in a few days after planting. Where ill effects have been observable from wintering Carnations under glass, they have been coddled and probably have been put into small pots. There is nothing to be gained, but much loss of time incurred in planting them, and if the plants root freely, which they will do if healthy, by the time they are put out in spring they will be more or less root-bound. It is well known how reluctantly root-bound plants put forth fresh fibres into new soil, and when the ball gets dry it may remain so for some time, even when watering is regularly attended to, the water given passing too rapidly away through the loose ground to admit of soaking the old ball of roots. Where choice Car-

nations pass the winter well in the open ground the climatal conditions must be different from such as prevail here. I have the advantage of a light soil, and some of my plants were on ground somewhat raised above the ordinary level. I find, however, that in several instances I am worse off than at this time last year, many of the layers having died whilst a large proportion are so much injured, that but little can be expected from them either in the way of bloom or to propagate from. It is not cold that injures them, but a continuance of heavy rains with a low temperature that does the mischief. It is, I think, where the rainfall is least that Carnations are most likely to pass the winter in safety. J. C. B.

COLOUR IN AURICULAS.

TWO of the seedling self Auriculas exhibited by the Rev. Mr. Horner at the Auricula show gave promise of new breaks in colour. One was a rich coffee-red, the other a pure golden yellow. Yellows we have seen before; indeed, the old double yellow Auricula has flowers of a very pure hue, but then they have no form. Mr. Horner's new seedling has exquisite form and character. The coffee-red variety is a flower of first-class quality. Such a colour will indeed be a brilliant addition to the now too heavily hued selfs of our stage section of Auriculas. In Mr. R. Dean's collection of fancies was a huge flowered blue self named Blue Beard. This variety would doubtless be classed as coarse by the florist, but it has the merit of being very effective, as was evidenced by the admiration bestowed upon it by visitors. Still, it was a coarse flower, but if we could obtain that and others like it in abundance for common pot and border culture, how valuable they would be. Rich yellows we find just now in great abundance in *Polyanthuses*; indeed, the stoutest of the Auriculas can never hope to excel these rich-hued self *Polyanthuses* in our gardens, but blue shades are rare, especially the rich violet-blue ones, so dense and clear in a fine blue Auricula. Judging by the large flowers, again, rather coarse in character, which are now seen amongst the alpinists, it is evident that some effort is being made to create richer colours in that section also. The coarseness is at present tolerated to obtain the red hues sought for, and those who took note of the large red flower, named John Bright, in Mr. Turner's collection, will not fail to understand the desire to enrich the alpine Auricula with more fiery hues. It does seem odd that so far we find no yellows, at least no pure yellows, amongst good alpinists. These seem to be found only in the show section, or very indifferently in border flowers rejected from the show section. Not only would reds of rich hues, but good clear yellows also be acceptable in alpinists, but in the latter case they would have to be selfs throughout, as the centres of the best flowers now are yellow. Here, again, we find the golden hue of the centre of any of the best varieties to be far more attractive and pleasing than are the white or creamy-white centres of the best flowers which produce them. The golden centre in an alpine is as beautiful as is the dense pure white paste of the show Auricula, and although the white-centred flowers give many pleasing hues or shades in the grounds, yet none can excel a brilliant gold-centred flower, and especially when the ground is of some dense rich colour also. All edged or even laced flowers, necessarily, whilst giving much that is very beautiful, yet lack that striking effect which self flowers exhibit. It is hoped that Mr. Horner and other raisers of Auriculas will strive to produce rich colours in great variety, and if they in doing so should cease to produce edged flowers for a time, there will be no great loss, whilst the gain in brilliant colours in a beautiful flower may be great. A. D.

Apennine Anemone.—This is one of the loveliest of hardy flowers, and although an old inhabitant of our gardens, is not so frequently met with as one would suppose, considering how distinct and easy of culture it is. It is not one of those hardy flowers that requires good cultivation, but gives the best results when left alone. It should be

planted where it gets plenty of space to spread in, for it increases rapidly, and, like most hardy flowers of dwarf growth, must be seen in the form of large clumps to be thoroughly appreciated. In some places where it has been naturalised in the wild garden it forms in spring a charming picture. It does equally well in the open or under the partial shade of trees.—J. C. B.

FUNKIAS.

THE genus of Japanese plants known as *Funkia* perpetuates the memory of a German botanist named H. Funck, who died in the early part of the present century. It would be difficult to find a class of plants more beautiful in its way or more easily grown. *Funkias* are hardy perennials of the handsomest type, and it is not alone for their bell-shaped flowers that many cultivate them, but also for the characteristic foliage, which in some kinds is as massive and noble as that of a tropical plant, and in others delightfully variegated. The *Funkias* are liliaceous plants, and are very effective when planted

simplest way is to propagate by division of the crowns in winter, or in the spring. The latter season is the best, just when the plants are commencing to make new growth. It is scarcely necessary to add that only well-established, thoroughly healthy clumps should be divided, and then they should not be split up into single crowns.

F. Sieboldi is one of the best known and most striking of all the *Funkias*, the accompanying engraving of it showing its character remarkably well. It grows from 18 inches to about 3 feet in height, and has very large heart-shaped glaucous leaves that measure quite a foot across. The flowers are white, tinged with pale lilac in colour, and borne from ten to fifteen in tall racemes. This noble species came from Japan in 1836.

F. grandiflora is an exceptionally beautiful Plantain Lily, and should be extensively grown for the sake of its spikes of snow-white deliciously fragrant flowers. The large bold leaves, as broad as those of *Sieboldi* and delicate pale

prominent ribs than in *Sieboldi*. The growth is quick, and a spreading clump in a garden is magnificent, as the noble leafage is very dense and handsome. There are two variegated varieties, *marmorata* and *argentea*, that are prettily marked. *F. ovata* is the commonest of all; it is an old garden plant, and found in China and Eastern Siberia besides Japan. The leaves are broad, rich green, and the flower-stems about 1 foot or more in height, the colour of the flowers being white tinted with lilac. It is a robust grower, and soon makes a spreading mass. Those who care for variegated foliage will find the variety *marginata*, in which the leaves are distinctly margined with white, a good type of its class.

F. lancifolia is the species that may be recommended for the fronts of beds, borders, and rockeries, as it is a small-growing plant, the leaves each about 4 inches long, sometimes more, and only measuring about 2 inches wide; they narrow considerably towards both ends. The raceme of flowers is comparatively short, and does not stand up boldly and gracefully as in the other kinds. Of *lancifolia* there are two beautiful variegated varieties which should be grown. These are *albo-marginata* and *undulata variegata*. In the first of the two the leaves are margined with white, and in the other the edge is wavy and the leaf distinctly variegated.

The above-mentioned species and varieties comprise the richest gems of this genus. We may add one thing more, and that is the suitability of the noble *Sieboldi* for town gardens. For years there were two wooden tubs which stood in a front garden in Holloway, each containing a magnificent clump. Although exposed to the dust, dirt, and heat of a London garden, the leaves were as broad and rich in colour as in the choicest specimens grown in the pure air of the country.

SHORT NOTES.—FLOWER.

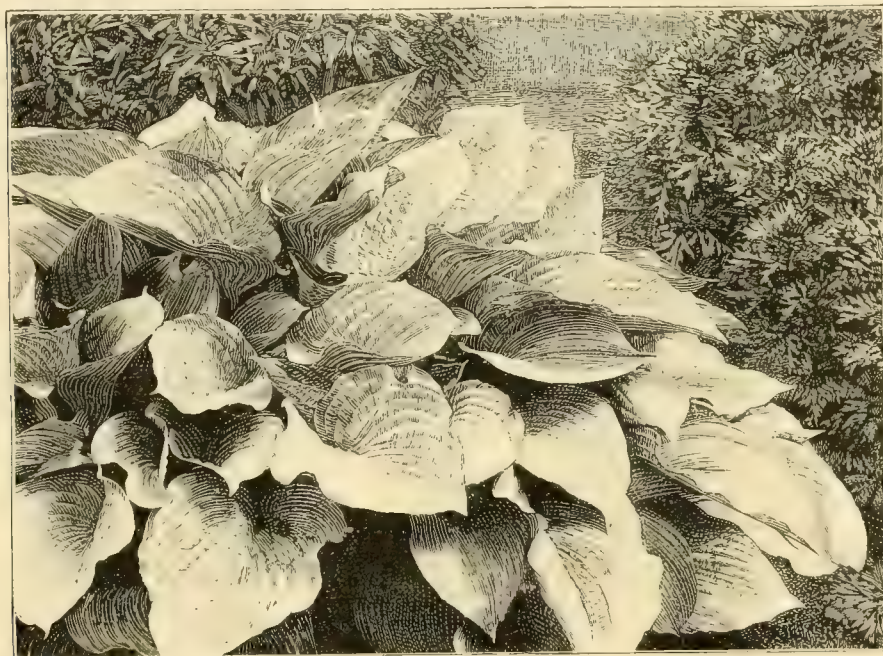
Tulipa stellata is closely allied to *T. Clusiana*; indeed, Regel has made it a variety. It is similar in form and habit, but without the deep purple eye, and having yellow instead of black filaments and anthers. It is widely distributed and very variable.

Wallflowers from seed.—The present is a most suitable time to sow seed that will produce plants capable of being transferred to the flower beds next October or November. They will all bloom in April and May, 1890. It is fortunate for growers that the best forms of Wallflowers come true and can easily be raised from seed.—J. MUIR.

***Tulipa Clusiana*.**—This, though an old and well-known plant, has become very scarce of late years. It is called the Lady Tulip. The flowers are of medium size, blush-rose inside with a deep purple eye, the centre of the outer surface of the segments being whitish with a band of deep rose on each side. It comes from the south of France.

***Humea elegans*.**—This plant is very ornamental as a centre for summer flower beds, as it attains a height of 5 feet or 6 feet and forms long, drooping, most graceful sprays of pale purple seed-like flowers. It does not do this until the second year, and to be fully effective seed should be sown now to produce plants that will be useful next year. We have sometimes failed to get the seed to germinate, but last year the young plants appeared in dozens, and we have now a nice lot that will be planted out in a week or two.—J. MUIR.

The Vernal Gentian (*G. verna*), so well known and so much admired, is now very beautiful. It hardly needs describing in these pages, and the only point worth noticing is that I find that plants raised from imported seeds are very indifferent, and sooner or later go off, while plants raised from home-saved seed sown in autumn form good permanent tufts, and give next to no trouble. The so-called species *G. angulosa* is surely much too near our old friend to be distinguished. It is certainly of a different shade of blue, the calyx larger, and



Siebold's Plantain Lily (*Funkia Sieboldi*).

in large clumps, as we may sometimes see them in the London parks and gardens. Nothing could be more striking or tropical in aspect than a mass of *F. Sieboldi*, which is represented in the accompanying engraving, and clumps on the border, higher and rougher parts of the rockery have a peculiarly beautiful effect, as much from the silvery glaucous colour of the leaves as from their width and vigour. The several varieties that have variegated leaves are also exceptionally pretty in small groups, as edgings to large beds, or for the margin of the rockery. At Kew the variegated *Funkias* are planted with admirable taste on the rockery, where during the summer their variegated leafage of white and green is conspicuously handsome. There is no garden but can find space for either a clump of the bold-growing plain-leaved types or the variegated forms, and the latter may also be potted up for the enrichment of the greenhouse with advantage. One point is easily overcome, and that is the cultivation. A well-drained, deep soil will grow the finest *Funkias*, and if an increase of stock is required, the

green, make this *Funkia* a strikingly handsome plant without the flowers. On light warm soils it does well and even blooms satisfactorily, but usually the flowers are cut off by frosts, and it is thus necessary to grow the plant in pots to obtain it in its full beauty. Tufts of it in well-drained beds and borders are not common in English gardens, but it may be grown in this way, and in Paris it is used with much success. We advise *Funkia grandiflora* to be grown freely where flowers of sweet scent and delicate colour are required in autumn. It is the same as *F. japonica*.

F. Fortunei is a very robust species, growing about 1½ feet in height. Its leaves are smaller than those of *Sieboldi*, and they have a distinctive bluish or glaucous tint. Another handsome species is *F. subcordata* that has several synonyms, as *Hemerocallis alba*, *H. cordata*, *H. japonica*, and *H. plantaginea*. It is an August flowering plant, with heart-shaped leaves about three quarters of a foot long and 5 inches broad. They are glaucous on the upper surface, but pale green beneath, and have less

the wings broader; but these variations might easily happen on a geographical form. *Angulosa* is a Caucasian species, while *verna* is one of the prettiest alpine of the British flora.—D.

PAUCITY OF BLOOM ON HARDY BULBS.

As the season advances this becomes more apparent and seems to extend to nearly all our hardy bulbs, even Crown Imperials, though the latter vary according to their position. For example, some strong patches on a west border are flowerless, while some not so strong on a south border are full of bloom. This points unmistakably to the scarcity of light during last summer as the main cause of the scarcity of blossom. The different results among *Narcissi* and *Hyacinths* thus far point in the same direction. The shadow and the cold were most potential in preventing flowering where the sites were coldest. White and other *Lilies* also seem far weaker than usual, and the common *Starch Squill* for the first time for many years has failed to bloom. But these failures among hardy bulbs seem to a large extent geographical, for within a few days I have seen beds filled with imported bulbs of *Hyacinths*, *Narcissi*, and *Tulips*, all that could be desired. This seems a little puzzling, for Holland is not exactly the brightest nor warmest climate in Europe.

Can it be that inferior culture has possibly as much to do with our paucity of bloom as the cold, sunless summer of last year? It is so generally assumed that English-grown hardy bulbs are likely to be inferior to Belgian or Dutch, that but scant efforts are made to grow English bulbs up to foreign standards.

Objection may be taken to this solution of the inferior state of English hardy bulbs this season. But as a fact they are mostly inferior, and it is only logical to assume that any extra deterioration of climate would make them still more so. The standard of culture is also low for bulbs in the open, as a rule. *Daffodils*, *Hyacinths*, *Tulips*, *Crocuses*, &c., planted in beds, borders, edgings on the Grass and in woods are mostly left to shift for themselves; and it is little wonder that at last the soil is utterly drained of food, and the blooms fail or the plants dwindle or perish. Such collapses among hardy bulbs and other plants are common enough, and are mostly credited to our sunless skies or dirty climate. Climate, indeed! These are cases of sheer starvation. A good top-dressing, a fresh start on maiden—that is, unexhausted—sites would speedily restore to blooming strength thousands of our starved-out bulbs.

Their flowerless condition proclaims their weakness in a manner that cannot go unnoticed and can hardly be misunderstood, and most powerfully appeals to the cultivator for more food at once and without a day's delay to enable them to flower again next year. Fortunately, this cool and dripping spring also favours the growth of the leaves, which seem stronger and more numerous than usual. If the latter are well fed and carefully matured, next year's blooming is safe.

Even the scarcity or absence of the blooms this season furnish almost a pledge of their plentifulness next year. For is not the early removal of the blossoms, almost before they reach full beauty, one of the favourite devices of the Dutch growers to make the bulb stronger and the blossoms yet more plentiful the following season? It is not for nothing, far less in the mere wantonness of folly, that the great growers flood our markets with bulb blooms at what seems to us ruinous prices, or even convert the flowers into manure on the spot. Their prompt removal enables the leaves to develop to the uttermost the size and quality of the bulbs, and to lay up in good time and in full measure, in embryo, a yet richer harvest of beauty for the succeeding season.

No one who stays to contrast such rational far-reaching culture with the barbarous root-starving and seed-producing *régimen* to which bulbs are all too generally subjected in England can be surprised at the contrast between the products of Dutch and English grown bulbs.

Were only two cultural canons strictly enforced, our out-of-door bulbs might sooner be pulled up to something like the Belgian level. The first is never to allow a bulb to seed; the second, never to allow a leaf to be bruised, covered over, or cut off until it is dead ripe, which means that it has finished its work for this season, and laid the sure and certain foundation of next year's blossoming.

D. T. F.

PRIMULA SIEBOLDI.

THOSE who visited the Town Hall, Manchester, on April 30, on the occasion of the annual exhibition of the National Auricula Society, enjoyed a rare opportunity of seeing something of the beauty of the new varieties obtained by Messrs. Ryder and Son, Sale and Manchester. They staged as many as forty-two pans filled with nice young plants in flower, just in the height of their beauty, and the blossoms were much more developed than when some of the varieties were seen in London a week previously.

It is now some years since the seedling forms of *P. Sieboldi* were first produced in this country. The principal raisers have been Mr. A. Dean, Bedford; Mr. James Allen, Shepton Mallet; and, later, Mr. George Geggie, of Bury, Lancashire; M. Victor Lemoine was also fortunate in raising new varieties. Mr. Geggie, who was formerly in business as a nurseryman at Bury, has now the charge of the *Primula Sieboldi* of Messrs. Ryder and Son's at Sale, and he is still producing new varieties from seed.

Of the new varieties shown at Manchester, the following were the most attractive: *Alba magnifica*, pure white, with fringed petals; *Bruce Findlay*, purple; *Mrs. Ryder*, white, tinted with blush-pink on the reverse; *Queen of the Whites*, pure white, smooth on edges, flat, and well displayed; *Harry Leigh*, lilac; and *Mrs. F. Spooner Woodward*, white, the reverse blue; a very good selection indeed. Of older varieties mention should be made of *Brilliant*, crimson-purple, fine and striking; *General Gordon*, deep lilac-pink; *Miss Nellie Barnard*, bright crimson, of the character of *laciniata*, but brighter in colour; *Polly*, bright purplish rose; *Princess Beatrice*, pure white, handsomely fringed; and *Victor*, pale magenta, or rosy red. This makes up a collection of a dozen varieties that cannot fail to please the most fastidious.

I often wonder this beautiful *Primrose* is not more grown, for it is quite hardy, and requires only a little careful treatment to have it in fine form. The plants shown both at South Kensington and at Manchester were in small pots, and a number of these placed together made up a pan. Supposing an order is given for a dozen of these plants in small pots, they are generally sent out before they come into bloom. They should be at once repotted into pots 3 inches in diameter, placed in a cold frame, and watered sparingly until the roots begin to work in the soil. When the buds begin to appear the time of flowering can be a little hastened by placing the plants in a cold greenhouse, or in one in which artificial heat can be supplied only in a small degree. *P. Sieboldi* is a plant that seems to be very impatient of forcing; indeed, the colder the temperature in which the plants flower the better. When they have done blooming it is a good plan to plunge the pots to the rims in a bed of Cocoa fibre or ordinary soil, and allow them to remain until Christmas. Then the roots can be shaken from the soil and divided. Propagation is also effected by means of the rhizomes, which extend themselves below the soil and throw out roots which reach down a considerable way in good soil. A good compost can be made up of loam, leaf soil, some well-decomposed manure, and sand to keep it open.

It may be added that the varieties are all deciduous; they lose their leaves in autumn, but soon become active after Christmas has passed. New varieties are obtained by means of seed, but seed is produced very sparingly, and sometimes a plump-looking seed-pod is found to be disappointing.

I do not think the usefulness of *P. Sieboldi* and its varieties for cutting purposes is half enough

appreciated. I am told the flowers last fresh in water for a considerable time, and all of them are elegant and beautiful. There is not one of them that is not far in advance of that somewhat disappointing flower, *P. japonica*. R. D.

THE DAHLIA.*

THE Dahlia, of which there are several species, although probably not more than one is materially responsible for the varieties now cultivated in gardens, is a native of Mexico, where it was originally found growing in sandy meadows at an elevation of 5000 feet above the sea by Hernandez, physician to Philip II. of Spain; and it is consequently natural enough that the plant should have made its first appearance in Europe at Madrid, where *Dahlia variabilis* was flowered by Professor Cavanilles in the Royal Gardens from seed received from Mexico in 1789, the Professor naming his acquisition in honour of Andreas Dahl, a distinguished Swedish botanist and pupil of Linnaeus. At that time Lord Bute was English ambassador at Madrid, and in the same year—that is to say, just 100 years ago—Lady Bute sent seeds home to the Royal Gardens at Kew, and thus first introduced the Dahlia into England. Seed was also sent in 1804 by Lady Holland, who brought it in that year from Madrid, and it was among the seedlings then raised in the gardens of Holland House under the care of Mr. Buonaniti that the two first double varieties seen in Europe were obtained. These varieties have been sometimes referred to as the first double Dahlias; but if report be true, double flowers must have been known in Mexico long before the Dahlia was introduced into Europe at all, for in the "Floricultural Cabinet" for 1858 it is recorded that "Figures of a single and double Dahlia have been found in an old work on the natural history of Mexico, published at Rome in 1651. In this work there is a very correct figure of a double Dahlia under the name of *Cocoxochitl*, with violet-coloured ray florets and a very conspicuous yellow disc."

Of other species the stately *Dahlia arborea* is not hardy enough to be grown out of doors in this country, and is not generally considered to be worthy of house room. It appears doubtful whether *Dahlia coccinea* can be maintained as a good species; and though frequent attempts have been made to employ the pretty little *Dahlia glabrata* (of which seeds were sent from Mexico to the Royal Horticultural Society by George Frederick Dickson, and of which a good figure was published in the *Botanical Magazine* in 1840) as a means of obtaining plants of dwarf habit, the varieties raised, while sometimes of small stature, have rarely been valuable, on account of their weak flower-stems, whereby the flowers, being more or less pendulous, are ineffective on the plant. A footnote to the page on which the description of *Dahlia glabrata* occurs in the 26th volume of the *Botanical Magazine*, giving the reasons why the name of the plant should be pronounced "Dahlia," and not "Dalea," is worthy of the consideration of the Dahlia-growing public. For practical purposes, therefore, the Dahlias of gardens may be regarded as varieties of *Dahlia variabilis*—perhaps the best-named plant in the world; and a good figure of an early variety of this unstable flower may be found in the first volume of the *Botanical Magazine*, where a large single flower is portrayed having rich velvety crimson petals (as the ray florets are generally called by gardeners for convenience) 2 inches long, but decidedly narrow, and with a not very conspicuous yellow disc, whose diameter is hardly more than a seventh of that of the whole flower. This plant is described as having been received from France, where, about 1800, the cultivation of the Dahlia was energetically undertaken for the sake of the tubers, which were said to be eatable. They proved, however, too acrid either for man or beast, and the French growers then turned their attention to the flower, with the result that for some years the number of new varieties imported from Paris was considerable.

As soon as double flowers were obtained the

* Read at a meeting of the Horticultural Club by Mr. T. W. Girdlestone.

singles seem to have been entirely discarded; at any rate, they disappeared from the catalogues, and the florists waged a war of extermination against the yellow eye of the natural flower. In the "Annual Dahlia Register" for 1836 there is an interesting series of excellent coloured plates of the Dahlias most in vogue among exhibitors at that time, but of all the three or four dozen varieties figured there are only three or four that have the quilled petals that characterise the modern show Dahlia. Nearly all the flowers are flat-petalled, being of much the same character as what are now becoming so popular as decorative Dahlias; and when it is stated that *picta formosissima* was frequently seen in winning stands, at any rate up till about 1840, those who have grown that grand old Dahlia recently will easily realise the extent of the development of the modern show Dahlia. This development must, nevertheless, have been rapid between 1840 and 1850, for in a treatise on the Dahlia by Robert Hogg, published in 1853, there occur some coloured plates by Andrews of some of the flowers then most fashionable, which do not differ materially, except in point of size, from those of the present show type, though nearly all lack finish and refinement. A careful examination of these plates should make it easy to disprove the statement, which has been so often made, that show Dahlias are no better now than they were thirty years ago. If the statement were true, the question would immediately arise, Why are not these older varieties exhibited? A glance at Mr. Mawley's careful records of the Dahlias exhibited during the last six years at the National Dahlia show reveals the fact that hardly one of these winning flowers is of earlier date than somewhere in the '70's.

Very early in the day varieties with striped or spotted flowers seem to have been obtained, but they were generally inferior in form and size to the self-coloured blooms. Presumably on this account a distinction was made between show and fancy flowers, so that the latter might be exhibited by themselves, and their improvement encouraged. The distinction has been a puzzling one to many beginners in Dahlia culture at various times, not only because fancies so often come self, but because a flower with a light tip is a fancy, but a flower with a dark tip is not. In the "Floricultural Cabinet" for 1860, an article on new Dahlias signed "D." begins as follows: "Tell me where does fancy dwell?" (this is given in inverted commas, presumably as a quotation, but the author's name is not mentioned) for certainly it is most puzzling to tell what are the principles on which the separation has been made—white with a purple tip is a Dahlia, but purple with a white tip is a fancy. Very odd! However, the division is made, and there, I suppose, it will remain, so we must abide by it." However, the distinction served its turn, and now that fancies have been raised to the level of the best show sorts, the separation of the striped and tipped flowers from the selfs has been to a great extent abolished at the exhibitions of the National Dahlia Society. In addition to these two classes, now merged in one under the appellation of show Dahlias, there are three other types, recognised in these days even by exhibitors—namely, the pompon, the decorative (or Cactus), and the single Dahlia. Of these the first has flowers similar in form to the show type, but much less in size; the second are most admired when possessing flat petals, the type being Dahlia Juarez, which was imported (I believe) direct from Mexico, by way of Portugal or Spain, and whose petals are flat, pointed, and slightly twisted; while the single Dahlias represent the natural form of the flower in the wild state, only greatly improved in outline and substance.

The culture of all Dahlias is simple in the extreme, as they will grow in almost any soil or situation, but in the case of the show type considerable experience is needed to know which varieties should for exhibition purposes be vigorously thinned out and disbudded, and which will only thereby be rendered coarse and ungainly; for the points of merit in a show Dahlia remain the same as when first laid down any number of years ago, namely,

first form, then colour, and lastly, size; for it is only "when other properties are equal that size will determine the preference," and "in no instance should either form or colour be sacrificed to size."—(Vide "Floriculture," by J. Mantel, F.L.S., about 1834.) There is another important point that was insisted upon by the older florists, but which has often been neglected by modern raisers to the injury of the reputation of the Dahlia as a garden plant, namely, that "the flower should be erect and stand completely above the foliage." Varieties are not infrequently met with having flower-stems so weak that the flowers are pendulous and quite ineffective on the plant; in fact, habit of growth in Dahlias of all classes is a matter which ought to obtain the most careful consideration of all raisers.

It may perhaps be of interest to enumerate the twelve best fancies and eighteen best show Dahlias for exhibition, according to Mr. Mawley's analysis of the National Show for the past six years. They are: Twelve best fancy—Gaiety, Mrs. Saunders, Rev. J. B. M. Camm, Chorister, Flora Wyatt, Henry Eckford, Mrs. N. Halls, Professor Fawcett, George Barnes, Duchess of Albany, General Gordon, John Forbes. Eighteen best show—Mrs. Gladstone, Hon. Mrs. P. Wyndham, James Cocker, Harry Keith, Henry Walton, William Rawlings, Goldfinder, J. T. West, Mr. L. Harris, Mrs. W. Slack, T. J. Saltmarsh, Ethel Britton, Prince of Denmark, Mrs. Langtry, Prince Bismarck, Colonist, Joseph Ashby, James Vick.

The mode of exhibiting show Dahlias on green boards is regrettable, but it is not easy to see what to propose instead. So it must go.

All the other sections, however, pompon, decorative, and single, are exhibited with very telling effect in bunches of about ten (or six) flowers each. And now that ingenious wire frames have been devised for the staging and safe travelling of the bunches, there is comparatively little trouble in exhibiting them, and it may be hoped that amateur competitors will rapidly become very numerous in the classes provided for these sections at the autumn shows.

The statement frequently made that it is not worth while to grow named varieties of single Dahlias because just as good may be obtained from any packet of seed is absurd. Seedlings may be raised without the least difficulty by the thousand, but not one in a hundred will be worth growing, and intending exhibitors are counselled not to depend for flowers to show upon their own seedlings.

Among singles, no one should omit to plant Amos Perry, Enchantment, Formosa, Mr. Kennett, Walter Ware, and Mrs. J. Coninck; and amongst the most beautiful of the decorative Dahlias are Charming Bride, Prince of Wales, Henry Patrick, King of Cactus, Empress of India, Lady Marham, and Mrs. Hawkins, in addition of course to Juarez.

The year 1889 being the centenary of the introduction of the Dahlia into England, the National Dahlia Society propose to hold a Dahlia conference on the first day (September 6) of their great exhibition of Dahlias at the Crystal Palace, when it is desired that there should be displayed as complete, and if possible historical, a collection of Dahlias as can be gathered together. It is confidently hoped that all florists will afford the National Dahlia Society their heartiest support, and then there will be no doubt that the celebration of the centenary of one of the most invaluable garden plants ever introduced will be worthy of the record and development in English gardens of what has been not inaptly styled the queen of autumn flowers.

Primula rosea.—In THE GARDEN of May 11 (p. 430) I see that "W. W." considers this plant too delicate to withstand unprotected our winters. I have lived four years in Northamptonshire and have never seen any ill effects from the frost. Last winter I consider was the most trying I have experienced, and the plants here, without any protection whatever, have been all one could wish.—G. G., *Floore*.

Coronilla glauca.—In Somersetshire this plant may occasionally be seen flourishing grandly in the open air, but, of course, it is given the protection

of a wall, and the situation is generally well sheltered. In such positions the plants are more or less in flower from early spring until autumn, but it is in the spring that they are the most attractive. I met with some vigorous plants a few days ago associated with the broad-leaved Myrtle, and thought the combination a very happy one. The bright yellow flowers and light green foliage of the Coronillas contrasted well with the sombre-hued leaves of the Myrtles. The plants in question are probably nearly twenty years old.—J. C. C.

PROPAGATING.

TEA ROSES.—It is generally supposed that most of the Tea Roses succeed best when grafted on the seedling Brier, and this may be the case with a few sorts, but many of the most useful varieties will do well on their own roots. Indeed, they are preferable to grafted plants, for the reason that, instead of being troubled with wild suckers, the plants propagated from cuttings throw up strong young shoots from under the surface; these help to renew and strengthen the plants. It is important that the cuttings should be put in as early in the season as possible, so that good plants may be established before the winter comes on. Plants that have been forced for early bloom will provide good material for cuttings. In making the latter they should be cut off quite close below a joint and one leaf removed, but in doing this, care should be taken not to damage the bud. Cuttings may be put into 5-inch pots, putting from eight to twelve cuttings round the pots and keeping them close to the outside. Peat and sand in equal parts should be used, heavier soil being liable to break off the roots when the plants are potted off. The cuttings will root freely in a close propagating pit where there is a moderate bottom-heat. They should be removed to a more open position as soon as rooted, otherwise they will start into weakly growth. After being exposed for a short time they will be ready for potting off. A good position to give them a start after potting is on a half-spent hotbed. If the pots are plunged in this the roots will soon take hold of the new soil. The plants will require to be kept close and shaded for a few days, after which they may be gradually exposed. In a few weeks they will be ready for potting on into about 5-inch pots. Good rich loamy soil should be used and the plants potted firmly. If plunged in an old hotbed they will be all the better. Under proper treatment good strong specimens may be established by the autumn, and if these are stood out in the open and the wood well ripened they will make good plants for flowering in pots or for next season's bedding. A batch of plants propagated annually to take the place of those that have done two or three years' service will give far greater satisfaction than growing on old specimens year after year. Of course, I more particularly refer to those grown in pots.

STATICE.—The greenhouse species and varieties of this genus are very distinct, and keep up a good display for a considerable time. It is, perhaps, as exhibition plants that the Statice are best known. At almost every summer exhibition large specimens may be seen, and useful as such plants may be, smaller plants are certainly to be preferred for many purposes. Although not quite so readily propagated as many subjects, young plants may be obtained from cuttings without much difficulty. Early in the spring is the best time for propagating, but it is not yet too late. Cuttings may be obtained from the weaker growing shoots of old plants. Previous to taking them, all the old leaves should be cleared off close to the stems. After being properly cleaned, it is better to leave them for a day or two. Short pieces, with just sufficient stem to keep them firm, succeed best. They should be put in singly into small pots, using light sandy soil with a little extra sand at the base of the cuttings. The pots should be plunged in the close propagating pit where there is a moderate bottom-heat. The cuttings take some time to root; therefore care should be taken that they are not crowded up. Very little water should be given until they are well callused,

when more may be supplied. As with most subjects that have to remain in a close pit for any length of time, damping off often occurs, but this may be prevented by keeping the leaves clear of the plunging material and giving plenty of room. *S. profusa*, *S. Butcheri*, and the larger-growing *S. Holfordi* are three of the most useful Staticeæ.

A. H. E.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

MAY 11.

THE best show that has been held at the Crystal Palace for many years was that of Saturday last. It was excellent in more ways than one. There were many more entries than last year and the plants were better grown. The most conspicuous falling off is always in the amateurs' division, and the present occasion was no exception to the rule. Those who admire specimen stove and greenhouse flowers, Ferns, and fine foliage plants will have no cause to complain of the display; but it would have varied the exhibits more and produced a lighter effect to have had a greater abundance of hardy flowers, which were confined to about two miscellaneous groups.

The splendid specimens in the class for six stove and greenhouse plants in bloom shown by Mr. Chapman, gardener to Mr. J. Spode, Rugeley, reminded one of the exhibits that were seen years ago before the growing of specimen plants lost much of its interest. *Tremandra ericæfolia*, *Hedera tulipifera*, and *Erica profusa* were the best. Mr. C. Turner, of Slough, carried everything before him in the classes for Azaleas. His nine specimens in the class for these were as well flowered as any we have seen, the plants smaller somewhat than usual, and therefore less formal and stiff. *Roi d'Hollande*, red; *Duchesse de Nassau*, red shaded violet; *Duc de Nassau*, brilliant crimson; *Reine des Fleurs*, salmon-pink and white; and Mrs. Turner, salmon-pink, margined with white, were a mass of bloom. Those from Mr. H. James, Castle Nursery, West Norwood, are worth mentioning for their fine culture, although eclipsed by the Slough plants. The first prize for eighteen Azaleas went to Mr. Turner. Mr. James was the only exhibitor in the class for nine Ericas and he was awarded second prize. There was no competition in the classes for Pelargoniums of the show and fancy types, but it would have been hard to beat Mr. Turner's plants, even if there had been a contest. In the fancy section such varieties as Mrs. Langtry, white, upper petals bright rose; *Roi des Fantaisie*, The Shah, and Jenny Howlet were densely flowered, and particularly striking in the class for show kinds was the plant of Empress of Russia, which has almost black flowers, margined with white. Mr. Turner had to give way to Mr. D. Phillips, Langley Broom, Slough, in the class for eighteen Pelargoniums of the show and decorative sections, the specimens of the latter exhibitor being small, but exceedingly well grown.

Gloxinias were the best feature amongst the flowering plants. There were several entries in the class for twelve, and sturdy specimens full of bloom were shown. Those from Mr. J. Hopkins, Lynwood Gardens, Gipsy Hill, were much the best. Mr. Long, gardener to Mr. H. C. Barker, Streatham, had eighteen excellent specimens of herbaceous Calceolarias, the flowers varied in colour and the plants not too large.

Roses were finely exhibited in the class for eighteen by Messrs. Paul and Son, Cheshunt, whose bush specimens were as fresh and beautiful as could be desired. Edouard Morren, Cheshunt Hybrid, Innocente Pirola, Mons. Margottin, Charles Lawson, Alphonse Souper, Beauty of Waltham, Alba rosea, and Ulrich Brunner were the most conspicuous for beauty, especially the last-mentioned variety which seems a Rose for all seasons and methods of culture. Mr. W. Rumsey, Waltham Cross, who was second, showed Ulrich Brunner, Beauty of Waltham, Marquise de Lyon, and John Stuart Mill in splendid condition. It was surprising

Orchids were not more numerous. There was only one competitor in the class for a group, viz., Mr. A. Howard, gardener to Mr. H. Little, The Barons, Twickenham; *Cymbidium Lowi*, Cattleya Skinneri, and *C. citrina* were in good flower. Mr. Jas. Douglas, Great Gearies, Ilford, showed the best nine specimens, including well-flowered examples of *Odontoglossum Roezli*, *Dendrobium nobile*, and *Cypripedium villosum*. Mr. Henry James, who was second, had a good plant of *Odontoglossum citrosimum* roseum, in which the flowers are shaded with rose in the lip, and *Lælia Russelliana*.

Foliage plants were represented by the usual type of plants—Ferns, *Dracænas*, *Crotons* and *Caladiums*; but although there were many poor specimens, some were of great excellence and served to show that there is an inclination to again bring specimen plants of this kind into favour. Mr. Penfold, gardener to the Rev. Canon Bridges, Beddington, had specimens in the classes for Ferns and fine-foliaged plants, that quite eclipsed those of the other exhibitors. He was first in both classes. Mr. Offer, Handcross Park Gardens, was a frequent prize-winner, showing *Crotons* remarkably well; while Mr. J. R. Bird, gardener to Mr. A. Causton, Lodge more, W. Dulwich, was first for *Dracænas*. It goes without saying that the nine *Caladiums* of Messrs. J. Laing & Sons, Forest Hill, were magnificent. Three of the brightest kinds were *Ludemannii*, green, veined with crimson and variegated with white; *Candidum*, silvery grey, and *Sancho-nianthum*, green, centre crimson. It would be better if shorter names were used. Mr. H. James was the only competitor in the classes for *Sarracénias* and *Nepenthes*. An admirable group of plants was that from Messrs. J. Laing & Sons, in which were several choice Orchids, as *Cattleya Schroederi alba*.

Single specimens were, as a rule, good. Mr. W. Chapman had the finest stove plant, and Mr. Douglas the best Orchid, exhibiting *Dendrobium nobile*. The first prize for a single specimen greenhouse plant went to Mr. C. Turner, who had *Azalea Comtesse de Flandre* one mass of bloom. Mr. J. Lambert, gardener to Mr. H. W. Segelcke, Herne Hill, was to the front in the class for a fine foliage plant.

There were classes for bouquets and similar arrangements, in which Messrs. Perkins & Sons, Coventry, and Mr. Thomas Butcher, South Norwood, were the leading prize-winners. A very choice box of cut stove and greenhouse flowers was put up by Mr. Henry James, who was first. There were good blooms of *Cattleya Schroederi*, *C. Lawrenceana*, and *Odontoglossum citrosimum*.

AMATEURS were well represented as far as names go, but the plants were far from good. Messrs. Offer, Chapman, Phillips, and Penfold were the principal prize-takers. The *Gloxinias* from Mr. C. Nunn, gardener to Mr. J. Soames, Woodland Lodge, Greenwich Park, were admirably grown, the plants strong and the flowers freely produced.

Special prizes were offered by Messrs. Sutton and Sons for six specimen *Gloxinias*, and Mr. J. R. Bird was the most successful, Mr. J. Hopkins being second. For the best brace of Cucumbers the first was Mr. Thomas Lockie, Windsor. Messrs. Carter and Co., High Holborn, also offered prizes for the best brace of Cucumbers, and Mr. Thos. Lockie was again the winner of the first prize.

MISCELLANEOUS GROUPS were numerous. An interesting collection of herbaceous plants was put up by Messrs. Paul and Son, Broxbourne, comprising the best of the hardy flowers now in season. A large bank of Daffodils came from Messrs. Barr and Son, Covent Garden. The flowers of the trumpet varieties were exceedingly fresh. Messrs. J. Laing and Son had a group of tuberous Begonias, a few of which were certificated; and from Mr. J. Walker, Thame, Oxon, came a magnificent box of *Maréchal Niel* Roses, the flowers large, faultless in shape, and richly coloured. A showy collection of *Anthuriums*, comprising principally *A. Scherzerianum*, was put up by Messrs. J. Peed and Son, Roupell Park. Mr. F. Hooper, Vine Nursery, Bath, showed Pansy flowers and cut Roses; and Messrs. Carter and Co.

a fine bank of *Cinerarias*, interspersed with plants of *Lilium Harrisii*. They also exhibited specimens of their giant strain of *Mimulus*. A distinctly coloured Stock named *Mauve Queen*, the flowers mauve, came from Mr. J. Brown, gardener to Mrs. Waterlow, Great Doods; also a good type of *Mignonette* named *grandiflora erecta*. Mr. R. Miller, Southdown Nursery, Shoreham, exhibited regal *Pelargonium Pearl*, a white sport of *Mme. Thibaut*, the flowers pure white. Mr. J. Bird had a group of *Mignonette*.

First-class certificates went to Messrs. J. Laing for the following double-flowered tuberous Begonias: *Duchess of Teck*, primrose-yellow; *Stanstead Gem*, crimson; and *Claribel*, white centre, lower petals salmon pink. Mr. F. Hooper was awarded a certificate for *Pink Her Majesty*, a very free-blooming, dwarf, sturdy plant, the flowers larger than those of Mrs. Sinkins, quite as white, and very sweet; and Mr. T. Lockie received a certificate for *Cucumber Lockie Perfection*, which is a good type.

A full prize list is given in our advertising columns.

ROYAL HORTICULTURAL.

MAY 14.

THE meeting of the Royal Horticultural Society, held on Tuesday last as usual in the Drill Hall, Victoria Street, was worthy of the month of May. There were rich collections of the choice flowers of the season and many single exhibits of much interest and beauty.

FIRST-CLASS CERTIFICATES were awarded to the following:—

LÆLIA DIGBYANA-MOSSIE.—The name of this magnificent hybrid is a key to its parentage. It is the result of a cross made by Mr. Seden between *Lælia*, better known as *Brassavola*, *Digbyana* and *Cattleya Mossiæ*, the former being the pollen parent. From two such conspicuously distinct Orchids as these we might expect a striking progeny, and in this *Lælia* we have the beauty of both admirably combined. The plant bore one flower, which has more the character of that of a *Cattleya* than a *Lælia*, and a splendid lip enriched with the delightful fringed margin characteristic of *Digbyana*, whilst it retains its size and substance. The colour is soft pink, overlaid in the front portion of the lip with small splashes and a central stripe of rich magenta, this just showing a tint of green. When the flower opened first this colouring was wholly green, but gradually changed to yellow. The narrow sepals and wider petals, but not so broad as in *C. Mossiæ*, are rich pink, shading at the edge to a deeper colour, and as yet they are the weak part of the flower, but will become bolder as the plant increases in strength. As regards growth, it is intermediate between the two parents; the leaves stiff, almost sword-shaped, and rich green, with the purplish shading on the under sides as in *B. Digbyana*; they are not so wide as in *C. Mossiæ*. A silver medal was also awarded it. From Messrs. J. Veitch and Sons, Chelsea.

ODONTOGLOSSUM EGREGIUM.—A beautiful *Odontoglossum* of the *Andersonianum* type. A small plant was exhibited bearing a raceme of nine flowers, in which the wavy sepals and petals are thickly and richly blotched with brown over a greenish ground colour, shaded with magenta. It is a bright and handsome flower. From Mr. F. G. Tautz, Shepherd's Bush.

Botanical certificates were given to the following Orchids: *Ponthieva maculata*, a curious species, of which an interesting description is given in THE GARDEN of April 6, 1889. *Acineta maculata* is a rare kind, unlike other *Acinetas*, in which yellow is the prevailing colour. In this form the flowers are profusely spotted on a dull pink ground with maroon, this being richer on the lip. A plant of it bore two of the pendent spikes. Both of these Orchids came from Mr. Bickerstaffe, gardener to Sir Trevor Lawrence, Bt., Dorking. *Brassia caudata*, also certificated, was shown by Mr. T. White. The flower has a greenish white lip and petals of considerable length. From Mr. F. W. Moore, Royal Botanic Gardens, Dublin, came *Saccolabium cernuum*, a curious, and certainly not beautiful, species,

the flowers small and greenish in colour. Mr. W. Gordon, The Nurseries, Twickenham, received a botanical certificate for a *Calanthe* named *Traceyana*, described as a new species from Japan. It is in the way of *veratrifolia*, the leaves rich green and abundant, and the small flowers of a mauve shade.

In addition to the above awards for Orchids, first-class certificates were given to the subjoined plants:—

PINK HER MAJESTY.—A beautiful and most promising Pink, with much the character of Mrs. Sinkins. The flowers are quite as large and full, pure white, sweet, and with cut edges to the petals. The plant is also of strong habit. From Mr. F. Hooper, Vine Nursery, Widcombe Hill, Bath.

TUBEROUS BEGONIA DUCHESS OF TECK.—A very double, large-flowered variety of a distinct and telling primrose tint. From Messrs. J. Laing and Sons, Forest Hill.

TUBEROUS BEGONIA STANSTEAD GEM.—This is quite as full and double as the foregoing, but of the richest crimson colour. From Messrs. J. Laing.

DRACÆNA DOUCETTI.—An ornamental and distinct plant in the way of *D. australis*. The narrow leaves are green margined and variegated with creamy white; it is not spotty, like many variegated plants. From Messrs. J. Veitch.

CRINUM KIRKI.—A cut spike of this handsome Crinum was sent by Mr. Ross, gardener to Sir G. Macleay, Pendell Court. It is a Zanzibar species and first flowered at Kew, we believe, in 1879. The flowers are borne about eight together and are white, with a central band of bright carmine down each of the segments—a contrast to the crimson-coloured anthers. They are also very fragrant.

ROSE SILVER QUEEN.—A standard plant of this new Hybrid Perpetual Rose was exhibited by Messrs. Wm. Paul & Sons, of Waltham Cross. It is apparently an excellent Rose for standards, and if we judge the individual flowers alone, we can give it unqualified praise. The colour is of the same shining pink as seen in Captain Christy, but the flower is smaller, more compact, and fuller than in that variety. It is evidently a Rose of undoubted merit, though when fully expanded the flowers seem liable to show the yellow centre. We shall expect to find the variety Silver Queen take a high place amongst light-coloured Perpetuals.

CUNONIA CAPENSIS.—Flowers of this were exhibited by Mr. G. Wythes, Syon House Gardens, Brentford, where there is a tree 20 feet to 30 feet high in the conservatory. The flowers are white and in spicate racemes. It was introduced from the Cape of Good Hope early in the present century.

AWARDS OF MERIT went to Mr. R. Dean, Ealing, for—

MIMULUS GRANDIS, a variety with flowers of a dazzling crimson colour, the centre of the lower petals lined inside with golden hairs. The plant, which was a mass of bloom, was lifted from the open ground.

PANSY GOLDEN CROWN.—A superb spring-bedding variety, the flowers large and of a rich golden-yellow colour, with a central blotch of deep purple. It is very dwarf and free.

Hardy flowers comprised chiefly Tulips and Daffodils. The various kinds of Tulips, comprising a fine series of the curious Parrot varieties put up by Mr. Walker, of Whitton, showed not only the suitability of Ham and Whitton for the culture of Tulips, but also that they can be grown as well in England as in Holland. There were bunches of flowers from English as well as Dutch grown bulbs to show that in our own country Tulip culture is not an impossibility. The flowers betrayed severe traces of the effect of hail and heavy rains, some of them being much disfigured and bruised. Besides the Parrot Tulips, marvellous for brilliant and bizarre colouring and grotesque shape, there were such noble kinds as *Gesneriana*, *Didieri*, *crimson*; *Narbonensis alba*, white margined with crimson; the rich yellow *retroflexa*, one of the finest of all the species of Tulip; *cornuta* or *acumi-*

nata and *elegans alba*, a perfect gem, the flowers pure white with a thin edge of crimson; it is exceptionally chaste and beautiful. Also worth mentioning were *vitellina*, *fulgens*, *Rose Luisante*, rich carmine; and an unnamed form of the *Gesneriana* type, the flowers medium in size and rich yellow. A silver Banksian medal was awarded. Messrs. Barr and Sons, Covent Garden, had a rich bank of *Narcissi*, composed principally of the Poet's varieties, *ornatus* and *recurvus* versus being especially beautiful. *N. Perfection*, a trumpet variety, is worthy of note. It has a sulphur-coloured trumpet as large as that of *maximus*, and broad, massive white segments. A good form of *Johnstoni* named Mrs. Milner was also shown. The flowers are far richer in colour than those of the type. Besides Daffodils there were fine flowers of *Tulipa fulgens*, *retroflexa* and *cornuta*; also a good collection of early Irises. A silver medal was given. A small, but remarkably well-grown collection of hardy flowers came from Messrs. Paul and Sons' nursery at Broxbourne. There were masses of the Foam Flower (*Tiarella cordifolia*) and magnificent clumps of *Trillium grandiflorum*, *Ramondia pyrenaica alba*, *Haberlea rhodopensis*, *Epimedium niveum* and *Lamium aureum*. Messrs. Ryder & Son, Sale, Manchester, had a number of plants of *Primula Sieboldi* in small pots, to show the great freedom of flowering displayed by this hardy Primrose. Snowflake, white; Beauty, bright crimson; and Maiden's Blush, white and mauve, are well marked varieties. Four kinds of *Primula Sieboldi* were shown by V. Lemoine, Nancy; *Obelisque* and *laciniata rubra* were richly coloured. Mr. R. Dean had a superb tuft of *P. Sieboldi laciniata* lifted from the open border. A few flowers of seedling alpine *Auriculas* of dingy colours came from Mr. J. W. Wilson, South Cave, East Yorks. A small, but interesting collection of hardy flowers was sent from the Royal Gardens, Kew, and consisted of early Iris, *Narcissus Bernardi*, of which full particulars will be found on p. 447, and *Lotus peltorhynchus*, with scarlet flowers. There were also *Allium Jesdianum*, rose, and several hardy Orchids, of which several notes have appeared recently in THE GARDEN. Amongst the kinds exhibited was the large, velvety-brown-lipped *Orchis Bertoloni*. Mr. F. Ross exhibited *Rogiera cordata*, which has a dense head of pinkish flowers.

ORCHIDS were fairly numerous. We were glad to see some contributions from the collection at Heaton House, Cheshunt, of which Mr. B. Searing has charge. He exhibited a splendid group of *Masdevallias*, the plants large, full of flowers, and admirably grown; *M. Harryana*, blood-red variety, and one named *Comet*, rich scarlet, were of intense colouring. In the centre of the group was a magnificent plant of *Phalenopsis grandiflora*, carrying about fifty flowers of faultless size, shape, and colour. There are few men who know better how to manage Moth Orchids than Mr. Searing. A silver-gilt medal was awarded. Sir Trevor Lawrence, Bart., had a small group of choice kinds, comprising *Dendrobium tortile roseum*, in which the twisted sepals and petals are of a soft rose, the lip very pale sulphur-yellow, just tipped with magenta. There was a good plant of *Lycaste Harrisoni Buchananiana*, the sepals and petals washed with dull rose, lip veined with brown on a yellow ground, and the crest orange; and also one of the now well-known *Cypripedium bellatulum*. *Dendrobium signatum* promises to become a very free-blooming Dendrobe; the flowers are of a kind of buff-yellow, the lip velvety-purple at the entrance to the throat, surrounded by green. The Wallflower-scented *Epidendrum glumaceum*, *Cypripedium Curtisi*, and *Odontoglossum excellens chrysomelatum*, the flowers yellow with large blotches of rich brown, were also shown. In addition to these were two *Anthuriums* of striking character; these were *A. Leodense*, the spathe large and rich blood-crimson; and *A. Burfordiense*, which has a very broad, handsome spathe of rich crimson colouring; it is of the *Andreanum* type. Messrs. Heath and Son, Cheltenham, exhibited a buff-petalled *Odontoglossum citrosimum*, which is not half so pretty as the variety *roseum*, and a collection of choice cut Orchid blooms came from Mr. W. Hall,

Upper Tulse Hill. There were splendid varieties of *Lælia purpurata* and *Cattleya Mendeli*, including a flower of *C. Blunti*, in which there was not a trace of colour of any kind, except just at the throat, where there is a suffusion of yellow. It is a chaste and beautiful flower. Spikes of a large and richly coloured variety of *Cattleya Mendeli* and *Lælia purpurata* came from Mr. Fraser, gardener to Mr. R. B. White, Arddarroch, N.B. Mr. F. G. Tautz showed the spotted *Odontoglossum Schillerianum*, a fine form of *O. crispum*, and *Cypripedium Carrieri* and *C. Measurianum* came from Mr. Measures, Camberwell. The first mentioned is a hybrid between *Veitchi* and *venustum*, and has much of the character of *venustum* in it. A hybrid *Masdevallia* named *M. caudata* (Shuttleworthi) *Estradæ* was shown by Messrs. Veitch and Sons; it is a cross between the two named, and has more the character of *Estradæ* in the flowers than *caudata*; the colour is purplish maroon, the tails of the sepals being yellow. A double *Amaryllis* named *multiplex* that resembles *equestris*, and is brilliant orange-scarlet in colour, came from this firm, also *Asplenium amabile*, a graceful South African Fern.

ROSES were represented by two striking groups. Messrs. William Paul and Sons, Waltham Cross, had a silver-gilt medal for a large bank of bush plants and cut flowers; Mme. Gabriel Luizet, John Laing, Queen of Queens (rich rose), Her Majesty, *Violette Bouyer*, Garden Favourite (brilliant carmine), and St. George (H. P.), the flower rich crimson shaded with purple-violet, were worthy of note for their freshness and beauty. Messrs. H. Lane and Son, The Nurseries, Berkhamsted, were awarded a silver medal for an excellent group of leading varieties.

Mr. C. Turner, Slough, had a silver medal for small specimen Azaleas, and Messrs. Veitch & Sons for a collection of Japanese Maples, *Cydonia Maulei*, and *Aciphylla squarrosa*. A number of small plants of the crested *Pteris cretica nobilis*, referred to in THE GARDEN (p. 462), came from Mr. H. B. May, of Edmonton.

A new Broccoli, called *Multum in Parvo*, was shown by Mr. Gilbert, of Burghley. It has the appearance of an ordinary Cabbage, the leaves enclosing the flower-head. Four of Vilmorin's varieties of Radish came from the Chiswick Gardens, and excellent examples of *La Grosse Sucrée Strawberry* were exhibited by Mr. W. C. Leach, Albury Park Gardens, Guildford, the fruits large, well coloured, and richly flavoured; they were grown in 4½-inch pots without artificial heat. Wood wool for packing soft fruits and flowers was shown by Mr. George Putney; it seems too coarse for the purpose.

In the afternoon a lecture upon Irises was given by Professor Michael Foster, F.R.S.

ROYAL BOTANIC.

MAY 15.

THIS society was doubly fortunate on the occasion of its first summer show; the exhibition itself was interesting, though small, and there was not a drop of rain to mar the pleasure of visitors. The large tent looked as it usually does on such occasions. There were many fine banks of flowers, and the various specimen plants were tastefully disposed, the Azaleas making rich blocks of colour. These were better grown and more freely flowered than we have seen them for years, especially those of Mr. James, Castle Nursery, Norwood, and Mr. Turner, Slough, who always come to the front in classes of this character. We should have liked more hardy flowers, but as the flush of Daffodils and Tulips is over, this may account partly for their scarcity.

The best collection of hardy herbaceous plants came from Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, who had superb masses, just what ought to be exhibited, not small scraps that do not show the proper character of the plants—*Saxifraga Camposi*, the Foam Flower (*Tiarella cordifolia*), *Pæonies*, *Pancreatum illyricum*, the crimson-coloured *Spiræa palmata*, *Lilium giganteum*, admirably grown; *Trillium grandiflorum*, *Trollius asiaticus grandiflorus*, which has larger flowers than

the type; and *Dielytra spectabilis alba*, which as shown has pink flowers, but the true form is of the purest white. The following varieties of *Primula Sieboldi* were worthy of note: *Intermedia alba*, pure white; *Administration*, brilliant rose shaded white; *Magenta Queen*, rich rose-crimson; *Crimson King*, splendid rose-crimson; *Nellie Ware*, very free, fine rich pink. Messrs. Paul and Son, Old Nurseries, Cheshunt, were second, exhibiting *Tulipa Gesneriana*, *Scilla nutans violacea*, very large bells of a rich violet-blue; *Geum miniatum*, *Trollius europæus*, *Epimedium niveum*, *Anemone sulphurea*, *Thalictrum aquilegium rubrum*, which has large heads of pale mauve flowers; and the large-flowered *Corydalis nobilis*.

Messrs. Paul & Son, Cheshunt, were first in the class for a collection of alpine. *Saxifraga Camposi*, *Ramondia pyrenaica alba*, *Aubrieta tauricola*, which has very rich bluish-violet flowers, produced in a dense mass; *Alyssum saxatile* and *Edraianthus serpyllifolius*, deep blue, were the choicest.

As mentioned before, Azaleas were unusually fine; the specimens smaller than usual, but handsome for that very reason. Mr. Turner in the class for six had admirable specimens of such varieties as *Comtesse de Flandre*, *Reine des Fleurs*, *Etendard de Flandre*, *Ferdinand Kegeljan* (rich red), and *Duc de Nassau*, carmine. Mr. Albert Offer, Handcross Park Gardens, Crawley, was first in the amateurs' class, exhibiting unusually fine specimens of *magnifica*, *Leopold I.*, red; Mrs. Turner, salmon-pink; and *Baron Stigula*, rich red. Mr. Charles Turner was first in the open class for twelve specimens, Mr. H. James being second, and both showed plants of high culture. Mr. James won the first prize offered for twelve stove and greenhouse plants, and although a large class, the specimens were of excellent all-round quality. *Azalea magnifica*, a splendid white variety; *A. Magnet*, rich red; and *Erica Cavendishiana* were the finest. There were admirable plants exhibited by Mr. W. Chapman, gardener to Mr. J. Spode, Hawkesyard Park, Rugeley, in the class for ten stove and greenhouse specimens in bloom; amongst them a good example of the crimson-flowered *Erica profusa*. In the corresponding class for six, Mr. Chapman was again the most successful. *Pelargoniums* were not so good as we have seen them at the Botanic, and the competition was confined to Mr. Turner and Mr. D. Phillips, Langley Broom, Slough. In the nurserymen's class for six specimens, Mr. Turner was first, having densely-flowered plants of *Gold Mine*, *Lady Isabel*, *Kingston Beauty*, and *Mons. Desmoulin*. In the amateurs' division, Mr. D. Phillips was the most successful, as also in the class for six fancy varieties, amongst which were *Prince Teck*, *The Shah*, *Mrs. Porter* and *Pilgrimage*. Mr. James had the finest six specimens of *Cape Heaths*.

FERNs and fine-foliaged plants were of the usual character. Mr. James was again a prominent prize winner. He was first in the nurserymen's class for fine-foliaged plants, having amongst other things a grand specimen of *Latania borbonica*, and in the amateurs' division Mr. Albert Offer was first. He had two excellent plants of *Croton undulatus* and *C. Warreni*. Mr. Offer had the best specimen Ferns.

ROSES were fresh and beautiful for the season, but we should have liked to see more of them. Messrs. Paul and Son, Cheshunt, were first in the great class for twenty specimens. The plants were finely flowered, especially the varieties *Alba rosea*, *Magna Charta*, *François Levet*, *Francisca Kruger*, and *Innocente Pirola*. Mr. W. Rumsey, Waltham Cross, was second.

ORCHIDS were not so good nor so plentiful as usual. They occupied the usual bank which they have done for years; it would be a relief to see them in some other position at the next show. The first prize in the amateurs' class was taken by Mr. A. Howard, gardener to Mr. Little, Twickenham; *Thunia alba*, *Cymbidium Lowi*, and varieties of *Lycaste Skinneri* were well flowered. Mr. Howard was also to the front in the class for twelve specimens, having a well-flowered plant of *Lycaste Skinneri grandis*, the petals bright rose, sepals

white. In the corresponding class for nurserymen, Mr. James was the most successful. The specimens of *Odontoglossum citrosimum roseum*, *Lælia purpurata*, *Dendrobium nobile*, and *Oncidium sarcodeum* were worth a note for their fine culture.

The herbaceous Calceolarias of Messrs. H. Cannell and Sons, Swanley, who were first in the class for twelve, were splendidly flowered, and represented an excellent strain.

The miscellaneous class is always a large one, and on the present occasion contained some of the finest things exhibited. Messrs. Wm. Paul and Son, Waltham Cross, had a magnificent collection of bush Roses, and also cut flowers similar to those which were exhibited at the Royal Horticultural Society's meeting on the previous day. The new Hybrid Perpetual, *Silver Queen*, was amongst the number, and a standard plant of a Tea kind, named *Corunna*, the flowers coppery pink and of excellent shape; *Rose (H.P.) Crimson Queen* is very handsome, with its rich crimson, maroon-shaded flowers (silver medal). Messrs. Laing & Co., Forest Hill, had a choice group composed principally of tuberous Begonias and Orchids. *Oncidium sarcodeum maculatum*, yellow, richly spotted brown, is a fine variety; and amongst the Begonias, *magnifica*, a single variety, crimson in colour; *Claribel*, double, rich salmon except in the centre, where it is yellow (silver medal). A silver-gilt medal went to Mr. B. S. Williams, Upper Holloway, for a splendid group of Orchids in which were fine specimens of *Calanthe veratrifolia*, *C. masuca*, *Cymbidium Lowianum*, *Lælia purpurata*, *Cattleya Mendeli*, *Oncidium concolor*, *O. Marshallianum*, *Cattleya citrina*, *Aerides Fieldingi*, and *Dendrobium Dalhousianum*. Mr. Williams also showed specimens of *Rhododendron Williamsi*, the flowers being produced in small compact heads; the petals are white with the upper ones tinted with yellow. He also had plants of the prettily crested *Adiantum versailleense*; *Anthurium paradisæ*, in which the spathe is creamy white, tinted with a pinkish colour; *A. Scherzerianum atro-sanguineum*, a variety with a very rich crimson spathe; and *Nephrodium pallidum cristatum*, a graceful pale-coloured Fern.

Messrs. Cannell and Sons exhibited several new tuberous Begonias. The plants were as noticeable for their splendid habit as for the richness and size of the flowers. *Imogene*, salmon-rose, a lovely variety; *Mrs. G. Goschen*, the flowers lemon-tinted; *J. Douglas*, a rich rose-coloured variety; and *J. Marshall*, brilliant crimson, were the finest. All are double kinds, in which Messrs. Cannell excel. A rich orange-red coloured single type was *C. T. Welsford*. Messrs. Barr and Son, Covent Garden, had a large bank of *Narcissi*, the more important kinds in which are noted in our report of the Royal Horticultural Society (bronze medal). A magnificent display of the *Bermuda Lily* (*Lilium Harrisii*) was made by Messrs. Carter and Co., High Holborn, the plants splendidly flowered and well grown. From the same firm also came plants of their giant *Mimulus* strain and *Cinerarias* (silver medal). Messrs. J. Veitch and Sons had a group of Japanese Maples, *Asplenium scandens*, a graceful Fern; the double-flowered *Rhododendron balsameiflorum album*, *Gloxinia electra*, rich scarlet; and *G. Sidonie*, purple shaded with a paler colour at the margin (silver medal). Messrs. Sander and Co., St. Albans, showed a small group of choice Orchids. Amongst the number, *Odontoglossum hebraicum* excellens, the flower of excellent shape and blotched with brown on a pale yellow ground, and the singular *Catasetum discolor* were marked out for certificates. Mr. G. T. White, Winchmore Hill, exhibited a group of Orchids consisting of *Brassia caudata*, well flowered plants of *Masdevallia Lindeni*, and fine varieties of *Cattleya Mendeli*. A group of the same class of plants also came from Messrs. Hugh Low and Co., Clapton, containing excellent plants of *Cypripedium bellatulum*, *O. niveum*, *C. hirsutissimum*, *Cattleya Lawrenceana*, and several *Dendrobies*. Varieties of *Primula Sieboldi* came from Messrs. Ryder and Co., Sale, Manchester, and *Pelargonium Pearl* from Mr. Miller, Shoreham. A silver medal was given to Messrs. J. Peed and Sons, Roupell Park, Norwood

Road, for a group of *Anthuriums*, and also to Messrs. H. Lane and Son, Berkhamsted, for an excellent display of pot Roses of the leading varieties. Messrs. John Standish and Co., Ascot, showed Japanese Maples (silver medal), and Mr. A. Offer, miscellaneous plants (bronze medal). Mr. F. Hooper exhibited *Pink Her Majesty*, fully described in the report of the Royal Horticultural Society, and Mr. Samuel Hill, Forest Gate, a *Coleus* named *Eureka*, the leaves broad, deep crimson, shaded with magenta. Mr. Thomas Lockie, Windsor, showed *Cucumber Lockie's Perfection*.

Space prevents individual mention of the certificated plants, but the best things are noted in the report.

A full list of prizes is given in our advertising columns.

The Water Lily house at Kew is open now for the summer, and contains an excellent collection of tropical Water Lilies and other aquatic plants. *Nymphaea stellata* and its varieties, including a pure white one, are flowering freely, and the brilliant yellow-flowered *N. tuberosa flavescens* should be seen. The flower displays several shades of yellow; the sepals palest of all; but the petals are rich primrose, which passes into a deep self yellow in the corona. It is to be hoped that this Lily can be established in our open-air ponds and lakes. A coloured plate of it was given in THE GARDEN, March 31, 1888, under the name of *Nymphaea Marliacea*. It is a seedling raised in the nursery of Mons. Latour-Marliac, Temple-sur-Lot, Garonne. *Limncharis Humboldti* is also blooming freely, and a coloured plate of this will be found in THE GARDEN, May 21, 1887. A pretty little aquatic, named *Colomba aquatica*, with small yellow flowers, will please many.

Death of Prof. Reichenbach.—The news of the death, at the age of 65, of Heinrich Gustav Reichenbach, the greatest authority on Orchid nomenclature, will be received with profound regret by all interested in the plants of which he made a lifelong study. His death was not quite unexpected, as for years past he has been in indifferent health, and on this account alone was prevented from attending the great Orchid conference held in the conservatory at South Kensington in 1885. Since 1841 he has devoted part of his energies to Orchids, but it was not until 1865, after the death of Lindley, that he filled the leading position in the Orchid world. His descriptions of new species and information generally on Orchids were a source of immense interest and pleasure, besides being of incalculable value. He was for many years director of the Hamburg Botanic Garden, and his name was always associated with the great horticultural or botanical congresses held from time to time throughout Europe. His herbarium is one of the richest in the world, and it is to be hoped it can be secured for our national collection. Though known in every country as the foremost orchidist, Prof. Reichenbach's knowledge of plants generally was extensive. We have lost a man whose place it will be very hard to fill.

Gardening in the Transvaal.—Can any reader of THE GARDEN recommend a useful book or periodical treating of gardening in the Transvaal (near Pretoria), where standard Apricot trees are grown? What sorts of seeds of vegetables, &c., are best sent from England?—I. N.

BOOK RECEIVED.
Bulletin de la Federation des Sociétés d'Horticulture de Belgique.

Names of plants.—*Tullimarr*.—*Omphalodes verna*.—*Read*.—Please send again under numbers.—*G. Flemevell*.—Your *Cypripedium* looks like a small *C. Lowi*.—*David Tiley*.—Flowers too much smashed to identify. Please send again.—*Romser*.—*Sparmannia africana*.—*Constant Reader*.—1, *Piptanthus nepalensis*; 2, *Berberis Darwini*; 3, *Huechera glabra*.—*Miss Robinson*.—*Viburnum macrocephalum*.—*Anon*.—1, *Woodwardia radicans*; 2, *Nephrodium molle*; 3, send better specimen; 4, *Forsythia Fortunei*; 5, *Saxifraga sarmentosa*.

WOODS & FORESTS.

THE BARKING SEASON.

WITH the exception of planting ornamental trees and the formation of young plantations there is, perhaps, no period during the year fraught with so much anxiety to the forester as that of the barking season. This arises in a great measure from the limited space of time that the trees are in the best condition for yielding the finest bark as well as from our uncertain, changeable climate, for if once Oak bark gets thoroughly saturated with rain it loses a large percentage of the astringent quality which it contains, and is thus reduced in value. Oak trees are generally in good condition for peeling when the buds and leaves begin to expand, but this varies considerably in different parts of the country, as well as in the size and healthy condition of the trees to be felled. Every forester should therefore satisfy himself as to the proper time to begin operations, as no fixed rule can be given to suit all localities alike. I have sometimes found Oak to be in prime condition for peeling in the south, while in the far north the trees were not ready until the season was some few weeks further advanced. As soon as the trees are ready, no time should be lost in making a commencement, for the sooner stripping and harvesting are completed so much the better. On the other hand, although early peeling is desirable, yet the work should never be begun until the bark can be removed with the greatest facility and without the aid of beating with a wooden mallet, as this not only creates additional work and expense, but likewise bruises and damages both the appearance and quality of the bark to a large extent. The quality of bark that has been loosened with a mallet is likewise very easily deteriorated by rain, as I have occasionally seen it after a wet night get quite mouldy and full of black inky spots before it could be dried. Of course some branches and pieces are occasionally met with where the bark cannot be removed without the mallet; the less hammering the better. The barking season proper should only last about a month, and under any circumstances it should never be prolonged after the trees are beginning to be in full foliage, otherwise it will be at the expense of inferior bark as well as reduce the reproductive power of the stools in the formation of strong healthy suckers from the roots to form the succeeding crop of trees. Trees from twenty to thirty years old when in good health and grown in a sheltered early situation generally produce the best bark, and if well saved it should have a bright creamy colour, and snap over by pressure without bending.

In thinning Oak plantations of any extent, two species are often found growing mixed together, and as the timber of one of these, namely, *Quercus sessiliflora*, is inferior in quality to that produced by *Q. pedunculata*, the former should always be selected for removal as far as possible at the time of thinning. The distinguishing characters of these are that *Q. sessiliflora* produces its fruit and leaves without foot-stalks, while those of *Q. pedunculata* are supported on foot-stalks. As these varieties cannot be distinguished in early summer at the time of barking, I have found it to be an advantage to select and mark the trees to be removed when in full leaf the previous year. In cutting down coppice wood, as well as in cases where all the trees are to be removed, this precaution is unnecessary. In some localities I have occasionally found the stems of the trees infested to a certain extent by several species of Mosses and Lichens, and as these are injurious to the quality

and appearance of the bark, they should be removed by a scraper previous to stripping, which will also have a beneficial effect in promoting the drying. When felling the trees the bark should first be removed to a distance of about 2 feet from the base of the stem upwards. Small trees, some 6 inches or 8 inches in diameter at the butt end, may be felled with an axe, but such as are of a larger size had better be felled with a cross-cut saw, which will economise time and timber to a considerable extent. In all cases where the roots or stools, as they are sometimes called, are intended to reproduce a second crop of timber, care should be taken not to strip and remove the bark too far down the base of the stump, otherwise there is great risk of destroying many of the latent buds which form the embryo of the future tree. In order to prevent water from lodging on the top of the root and causing rot, the margin of the stool had better be dressed all round in a uniform manner with a sharp adze, care being taken to leave the centre rather higher than the margin to attain that end. The tools used for felling and barking are few in number—light and heavy axes, cross-cut and hand-saws, hand-bill, barking-iron or duck-mouthed chisel, wooden mallet, and adze for dressing the stools. These vary in shape and size in different parts of the country.

The bark is generally removed from the stem and large limbs of the tree in pieces about 3 feet long, but branches of different shapes and sizes down to 1 inch in diameter should be peeled, and for the convenience of the workers they should be cut into lengths of about 2 feet. When the bark is ready it should be removed at once and placed upon wooden stages erected in an open, airy situation to dry. In cases where such a place cannot be had in the plantation I have found it to be an advantage to take the bark outside, where it could be fully exposed to the influence of sun and wind. These stages are erected by placing a series of forked sticks in pairs right opposite each other along the line for the stage. A small piece of wood should then be placed between and resting upon these forks as a base, and a few small poles laid upon these along the line to form a platform for the bark. In saving Oak bark it is a matter of importance not to expose the inner side to the weather, as this is found to have a detrimental effect on its quality. In order to guard against this, the smaller sizes had better be placed upon the stage first and the largest pieces placed upon the top, outside uppermost, as a protection against rain and the adverse influence of the atmosphere. The stage may be about 2 feet from the ground to admit a fresh current of air to promote the drying process. As soon as the bark is sufficiently dry, no time should be lost in having it delivered to prevent risk and loss by rain or damp weather. J. B. WEBSTER.

Layering Oak stools.—In filling up Oak plantations, the advantages of layering from suitable stools can hardly be realised by those who have never practised it upon a large scale. The support which the layers derive from the parent stool causes them rapidly to outstrip the growths from acorns or from plants recently moved. By selecting two years' shoots and carefully layering them in cultivated ground, and at the end of the second year again layering the young plants, a considerable space around the original stool may be filled up in a few years; and one great advantage of the system is that there is no fear of wind-waving, even where most exposed, while the support which the new plants derive from the parent stool not only promotes rapid growth, but also enables layering to be carried on upon sites where from poverty of soil trees cannot be planted with any

prospect of success. Layers may be cut away at the end of the second or third year, according to the quality of the soil; but when it is intended again to layer them from those first formed, no cutting away should take place until the process is finished.—J.

How to make wood last.—A writer in an American paper says: "I discovered many years ago that wood could be made to last longer than iron in the ground, but thought the process so simple that it was not well to make a stir about it. Posts of any wood can be prepared for less than 1d. apiece. This is the recipe: Take boiled linseed oil and stir in pulverised coal to the consistency of paint. Put a coat of this over timber, and there is not a man that will live to see it rot."

Oak plantations.—Filling up plantations with acorns is a system that may be followed with advantage in a season when acorns are plentiful, and when from the quantities lying upon the ground vermin are not so likely to attack those planted. Acorns may be dibbled into all open spaces as soon as they fall from the trees. By paring off the surface with the planting mattock, and afterwards stirring the soil with the opposite end, pointed like a pick, three or four acorns may be dibbled into each selected spot at a depth of about 2 inches, the ground being closed with the foot. The young plants will require to be kept clean for a year or two, when superfluous trees may be removed to the nursery, or used for filling up elsewhere. When planted in spring, choose the end of March or beginning of April; but the acorns used should have been well kept.—A.

Quality of Scotch Fir timber.—Very little, if any, notice has been taken of how far the different varieties of the Fir influence the quality of the timber. That there are two descriptions of timber in this country is undoubted. One is red in the grain and resinous; the other white, woolly, and not so resinous, with annual rings larger, indicating a quicker growth—the produce of *P. montana* and *syvestris* respectively. There is no doubt but that certain soils will alter and modify the character of the timber, but the two varieties grown on the same soil will exhibit these characteristics. The quality of Scotch Fir timber is not of so much importance, except for home estate use, at the present day, as so much is used for temporary purposes in which the quality of the timber is of little consequence.—J. S. R.

Bog Oak, popularly supposed to have been submerged in the bog, or peat, since the deluge, when taken up is perfectly black from the action of the peat or bog-water. It is very rarely obtained in a sound state, and in most cases the outer portions of the tree or log are rotten, and useless even for fuel. When laid up for use, care must be taken that it is not placed in the open air, lest it may, from the sun's rays, become open and shattered into chips from end to end. To preserve it, it must be put into some cool place, and left to dry gradually, and when properly seasoned, it must be cut into lengths of from 2 feet to 4 feet, and these lengths be split again and the sound parts removed from the unsound. It takes from four to six years to season some specimens, as in many instances the wood is found at a depth of 8 feet and sometimes 10 feet under the surface. When properly seasoned, any portion requiring to be glued becomes as hard as stone, and is firmer and less liable to give way than any portion of the manufactured article. The finish is not quite perfect until the article has been for some time in use, and the longer, the finer the article seems to be, no matter whether used as a personal or table ornament.

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No. 914. SATURDAY, May 25, 1889. Vol. XXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

THE FUTURE OF HAMPSTEAD HEATH.

It happens, fortunately, that the large addition lately made to Hampstead Heath as a public open space for Londoners has coincided with the transfer of the Conservancy of the Heath from the defunct Metropolitan Board of Works to the new-born London County Council, and it is an omen for good that the Parks and Open Spaces Committee of the Council has chosen the Earl of Meath as its chairman. Lord Meath, better known before his father's death as Lord Brabazon, has done immense good by his work in adding to the open spaces within the metropolitan area. This good work he will continue; but his influence with the County Council will add enormously to his power for good, and nowhere can his knowledge and influence have more effect than in the preservation and beautifying of Hampstead Heath; in rescuing it from the miserable failures of the late Board, in stopping their tree-logging, their interference with public rights of highway, their impediments to free exercise and recreation of the public, and their dotting prominent spots with absurd evergreen plantations surrounded by ugly palings. Now that the area of the Heath has been doubled, we have nearly 500 acres of beautiful undulating land which, as it is well or ill dealt with, may be made a beauty and a joy for ever, or another glaring example of the bad taste and worse management which led to the fall of the Board of Works under a torrent of denunciation.

Now, without going into details, let us take a hasty and preliminary glance at what ought to be done.

Hampstead is so very unlike any other park lands of London, that few will doubt the wisdom of preserving what natural and picturesque beauty now belongs to it, and this can only be done by departing from the usual formal way of arranging the public gardens in Central London. The aim should be to preserve its picturesque character, while affording every convenience to the people of the district and of all London for enjoying its beauties. The Heath still retains much of its old picturesque beauty. The aim should be to make all the new parts to harmonise as far as possible with the old. But the districts around are growing rapidly, and ways of access that seem ample at present will not be long so. Besides, the Heath is doubled in size, and as it may easily be made one of the most beautiful public parks, the people of London will frequent it more and more as soon as they know what a noble extent of ground is theirs in the most airy and picturesque suburb of London, and how fine and varied its surface.

In no way can easy access and full enjoyment of the Heath be so well and easily obtained as by the formation of a bold road around it, so made as to meet all wants of the kind for many years to come, and which would remove all danger of some foolish man cutting up the Heath by making roads across it. In France, and indeed elsewhere, the too usual course is to destroy all breadth by driving roads across the central spaces. That way would be the surest to spoil the bold and quiet beauty of Hampstead Heath.

The opposite plan of having a noble tree-planted road around the boundaries, not necessarily following the margin, but wherever the best grades allowed it to follow the natural lie of the ground, would meet every want and would have several advantages. 1. Opening up the Heath to the surrounding district and to all London. At present only pedestrians can see the charms of various parts; whereas a road worthy of the spot would form one of the finest drives near London. 2. The planting necessary for the road and pathways would form the best and most ornamental screen to the houses built or to be built on the margin. The trees of the drive should be of the most stately kinds of those that thrive in London, and could be easily expanded here and there into groves of vigorous trees so as to conceal in a few years all ugly buildings around. 3. The many trees would give abundant shade so necessary in a public park, and where it would be most wanted and least inconvenient. 4. While preventing cutting up the Heath with roads and leaving the whole of the vast central space open, every effort might be made to keep to the natural formation of the ground and get the greatest amount of picturesque beauty from it. 5. Holiday crowds now very much cut up and disfigure the surface, from the fact that there is no road space in some of the more important parts of the Heath. If this were provided, people would not cut up the surface as they do now, making many parts bare. 6. By combining a carriage drive, a ride or "rotten-row" for horsemen, and roomy footways, all well planted, in one scheme, the plan of the Heath would be simplified, and while making it more animated towards the boundaries, would leave the centre to be traversed by informal paths connecting the new and the present roads. No one who knows the Heath and thinks of its capacities will doubt that the true way is to preserve and increase its natural charms. This can never be done by the formal clumps, fencings, and false lines common about London and in most other town parks. Such things, however facile to the designer's pencil, I hold to be absolutely unnecessary. It is possible and even easy to have every public want met in a public park without having a single false line visible or anything to be seen that can offend the eye, even of the artist. There is a good deal of ground covered with rubbish heaps in the part just added to the Heath which should be reduced to the general or natural undulations of the land, but some bold bluffs of earth should be preserved in the

present state, planting some native trees above them, and using a post-and-rail Oak fence to prevent accidents. The use of the iron fence is fatal to landscape beauty, and should not be permitted here, at least in the prettier and wilder parts. The formal and stupid ring of Rhododendrons, or the feeble mixtures of the ordinary shrubbery, would be out of place on Hampstead Heath, for which the natural vegetation of our country is enough. If we have a sandy bank to clothe, surely Furze, Sloe, or Hawthorn are far better fitted for it than the evergreen mixture common in London parks. Besides the trees necessary for the road, ride and footways, and which must include the Plane and the Acacia and Canadian Poplars to keep out unsightly buildings, there need not be any but British trees and shrubs used in the place—that is, if trouble is taken to find suitable trees. For instance, no trees in the world would be so fit for the wet hollows in the Heath as the white Willow and the yellow and red Osiers—all native trees. When these British trees are well grown or old, no foreign tree—not even an old Olive—is so "paintable" or so delightful to a skilful draughtsman or true artist.

W. R.

NOTES FROM SMYRNA.

TO THE EDITOR OF THE GARDEN.

SIR,—As I observe that my notes on *Chionodoxas* have proved of interest to some of your readers, I will avail myself of your kind permission to give as clear a description as I can of some of the many bulbous plants that I have found growing in this country.

The *Crocus* may be met with very generally in Asia Minor, and Mr. Maw's very correct and vivid descriptions not only of the flowers themselves, but also of their habitats, afford to admirers of this genus the very best information they could wish for. I will, therefore, refer alone to what I believe is a new variety, which one of my collectors has just brought me. The *Crocus Mouradi*, as I will call it, till Mr. Barr and his friends class it better, is found growing on the Mourad-dagh, which towers so majestically over the highlands of Oushak, some thirty miles to the north-east of this well-known carpet manufacturing centre. This *Crocus* has an oblate corm 1 inch broad, three-eighths of an inch high; four sheathing leaves, the highest about 5 inches above the bulb; seven or eight proper leaves, each one-eighth of an inch broad; stamen pale orange, 1 inch long, anthers three-quarters of an inch, whitish yellow; flower bright orange, apparently more brilliant than in *C. chrysanthus* and *aureus*. The flowers show just above the sheathing leaves, with the proper leaves projecting about $2\frac{1}{2}$ inches above. It is of very vigorous growth.

The next widely distributed bulbous plant is the *Scilla*. It is to be found, so far as I have been able to observe, from the Troad on the north right down to the Taurus on the south, with scarcely any variations in the flowers. On the Taurus, however, you find a break in this monotony, and with *Scilla bifolia taurica*, I believe, commences the zone where many an interesting and new kind of this flower will eventually be secured. This spring one of my collectors brought what I hope will prove an acceptable addition to the series, and which I have named for the present *Ante taurica*, from

the mountains on which it was found. From the Mourad-dagh comes also a very handsome bulb of this genus, which I have named *trifolia*, owing to its always having three leaves. The flowers, numbering from twenty to thirty, stand clear of the three broad leaves, each 1 inch in breadth by 2 inches or 3 inches in length, and form a pretty pyramid of deep blue somewhat like the *Scilla peruviana*, only more graceful in every way, and not so closely packed.

My business occupations prevent my describing at present any other plants, but I hope to send you now and again a few more contributions on the flora of Asia Minor.

Before closing, might I ask Mr. Maw where he found *Chionodoxa Forbesi*, as I have been unable to come across it at all?

Smyrna.

EDWARD WHITTALL.

* * Many thanks. We will always be pleased to publish any notes you may find time to send us.—Ed.

ROSE GARDEN.

T. W. GIRDLESTONE.

MADAME GABRIEL LUIZET.

PERHAPS the most surprising contribution to the recent discussion anent Mme. Gabriel Luizet is the remark of the present amateur champion, Mr. R. N. G. Baker, that with him the blooms of this Rose are sometimes rather thin. How delightfully sunny a place must Exeter be, where even a Rose of such size and fulness as Mme. Gabriel Luizet may sometimes expand too rapidly. Yet it is only another instance of the difficulty of recommending the best Roses for general cultivation, on the strength of their behaviour in any one locality. Mr. Baker's garden furnished another case in point last season, when he staged in his winning collection at the Crystal Palace probably the finest bloom ever exhibited of *Gloire de Bourg-la-Reine*, than which no Rose is more glorious in colour, but which has long since been discarded by most exhibitors in the south of England as lacking size and fulness.

With the exception, however, of this reservation from the sunny south, there is complete unanimity in placing Mme. Gabriel Luizet in the very front rank of Roses, whether for exhibition or otherwise, the plant being admitted to be most vigorous and free-blooming, producing flowers exquisite in colour, form, and fragrance. Mr. Lindsell's description of it as an "always-good-alike" Rose is endorsed by nearly all growers, for not only is the flower magnificent when at its best, but it may be obtained in perfection with an ease and certainty unequalled by any other Rose, unless, perhaps, its twin *A. K. Williams* or *La France*.

The defect mentioned by Dr. Budd, namely, that the flower sometimes "buttons" in the centre, might almost be considered as the fault of the season rather than of the Rose, for the plant grows early and strongly, so that in the case of a late frost in April or May the lusty shoots get checked, and, consequently, produce flowers faulty in shape and lacking finish. For all practical purposes the plant, as everyone points out, is perfectly hardy, but yet it is a fact that the shoots' pith is not infrequently discoloured for some way down, and if the shoots be not pruned below the discolouration, although the vigour of the plant is such that the buds will break and even produce flowers, these will in some way lack perfection either of form or colour. There is no doubt that the finest blooms are obtained from hard-pruned plants, but it is a good plan where the wood is sound and the pruning is done early,

say about the middle of March, not to cut too hard at first, in case of a late frost. For if the growth be advanced and the frost severe, the flower-bud will probably be destroyed altogether, when the shoot will stop growing; and then it will be desirable that there should be a few sound eyes below to break afresh, without having to trust to base-buds, which not infrequently result in a coarse growth and rough flowers.

It cannot be denied that her proneness to mildew is a conspicuous defect in Mme. Gabriel Luizet's constitution, but as the pest rarely makes its appearance until after the plants have flowered, beyond their unsightliness in autumn there is not often much harm done. The plants, moreover, display a delightful impartiality in the matter of soil, situation, or stock, thriving well on all or any, but there are one or two things that are worth noting. In the first place, as Mr. Rumsey points out, Mme. Gabriel Luizet flowers more freely on light than on heavy soils; also when grown on Manetti, a stock on which, in common with the Baroness Rothschild family, this variety flourishes, the flowers are earlier than when grown on Brier, but the plants on Brier are less liable to be disfigured by mildew. Splendid standards of Mme. Gabriel Luizet may be grown without difficulty, and Mr. Lindsell draws attention to a point of considerable importance to exhibitors, namely, that to obtain maiden blooms it is necessary to bud on seedling Brier stocks rather than on Manetti. The reason of this, no doubt, is that the buds on Manetti start early, get checked by a late frost, and then devote all their pent-up maiden energy to growing instead of blooming.

As a pot Rose and for forcing Mme. Gabriel Luizet is highly praised by both Dr. Budd and Mr. Rumsey, being described as the best of its colour and class, and as making a splendid specimen plant, a fact that visitors to the spring exhibitions of late years cannot fail to have observed.

On the Rose's character, however, as an autumnal bloomer, less diverse opinions have been expressed than might have been anticipated, there being a considerable majority in favour of its description as a summer Rose. Thus Mr. Baker says that with him, Mme. Gabriel Luizet has never bloomed in the autumn; Mr. Lindsell calls it "a magnificent summer Rose, but nothing more"; and Mr. Fuller makes a novel and ingenious suggestion, that the Rose is not a good autumn bloomer on account of mildew. Mr. West mentions the development of late blooms in a dry sunny situation, but Mr. Flight, of Winchester, is the only grower who refers to the seeming change in the Rose's character which has so often been the subject of comment among rosarians. Mr. Flight remarks, "The first two years I had this Rose I did not find it bloom a second time, but since that time it has produced an abundance of autumn flowers." This is the point to which allusion has so frequently been made, namely, that certain Roses appear to develop an autumnal blooming quality which when they are first distributed they do not possess. Mme. Gabriel Luizet was sent out by Liabaud in 1877, that is to say, was first sold to English amateurs in the spring of 1878, and for several years was looked upon as absolutely a summer Rose. Some years ago, however, when the cultivation of the variety had become general, a stray bloom in the autumn was from time to time reported, until now, upon well-established plants, an abundant autumnal flowering is in many places the rule rather than the exception.

Other Roses in which the same thing has

been recently observed are Mrs. George Dickson, and, most conspicuously, *Gloire Lyonnaise*. In no case is the non-perpetual character first observed altered in the important point that the strong sucker-like shoots thrown up from the base of the plant never acquire the power of producing flowers in autumn; but established cut-backs make a second late growth, which in many gardens blooms so freely, that few Hybrid Perpetuals are now more highly esteemed as autumnals than the beautiful and deservedly popular Mme. Gabriel Luizet.

Tea Roses after flowering.—Will any correspondent kindly inform me the best way of treating Tea Roses in pots after they have done flowering so as to ensure a crop of bloom during the coming winter and spring? I shall also be glad of the names of twelve large free-flowering kinds for such work.—B. E.

* * When Tea Roses in pots have done flowering under glass they should be gradually hardened off in a cold house or pit, and then plunged out of doors in some sheltered situation throughout the summer. It is a good plan at the same time to remove a portion of the soil in the pots and to give a liberal top-dressing. Many cultivators remove all flower-buds that appear during the summer, and although in the case of Tea-scented Roses this is hardly necessary, it is no doubt desirable. At the end of September the plants should be repotted in a rich compost, a good part of the old soil being shaken away and the roots pruned where necessary. Treated in this way the same plants may be successfully forced for several years. Twelve of the best varieties for the purpose are Anna Olivier, Caroline Kuster, Catherine Mermet, Etoile de Lyon, Hon. Edith Gifford, Innocente Pirola, Jean Ducher, Mme. Lambard, Marie Van Houtte, Niphetos, Perle des Jardins, The Bride.—T. W. G.

Roses too close to the glass.—Many Roses are grown in greenhouses and conservatories in such a way as to clothe the roof, but I notice that many plants, some of our own amongst the number, are so close to the glass that when the flower-buds push forth in the spring months they soon come in contact with it. This accumulates moisture, harbours green-fly, and soon ends in the blooms being spoiled. There is no profit nor satisfaction in this result, and as many Roses are now going out of bloom under glass, the defect should be remedied before they make their new growths. The best way is to fix a light iron and wire trellis, 1 foot or 15 inches from the glass, and train all the growths under this. Where the latter are crowded on the roof it may be necessary to cut many of them away; this will not harm the plants, but may induce them to emit some strong shoots, which, in the case of such Roses as *Maréchal Niel*, are the best that can be secured for flowering next year.—J. MUIR.

SHORT NOTES.—ROSES.

Maréchal Niel in the open air.—South Wales is generally supposed to be favourable to the development of many of the choicer kinds of vegetation and flowers, but I have rarely seen the *Maréchal Niel* Rose a success in the open. The growths, as a rule, are scraggy and the flowers far from perfect. Indeed, I am of opinion that this fine Rose cannot be cultivated to any great perfection in the open air.—J. MUIR.

Tea Rose Kaiserin Friedrich.—A bloom of one of the new German Dijon Teas, *Kaiserin Friedrich* (Drögemüller), kindly sent by Messrs. Paul and Son, Cheshunt, indicates the fact that a useful addition has probably been made to the section, the flower being very full, well formed, and distinct in colour; but the Dijon climbers, unlike the pure Teas, are not always seen to advantage under glass, and it will therefore be necessary to reserve a definite opinion until the plant flowers out of doors.

Ants destroying Roses.—Can any reader suggest a means of destroying the army of ants which threaten to devour the best part of my crop of Roses? Wherever the side buds have been taken

off the ants set to work, and finally bore into the base of the centre Rose itself. I have lately given all my Roses a top-dressing of farmyard manure and kiln dust, and am now wondering whether I imported the ants with it. The plants otherwise look very well, and with fair weather will probably make a good show.—COLIN ROMAINE.

Tea Rose Mrs. Jas. Wilson.—From Messrs. Alexander Dickson & Sons, of Newtownards, Ireland, come blooms of their new Tea-scented Rose Mrs. Jas. Wilson, very beautiful both in form and colour. The flowers are of a pale primrose-yellow shade (which will probably be much deeper out of doors), margined externally with rose colour, and as the examples now received were cut from plants that had only been grafted ten weeks, the variety is evidently very free, and easy to force. In addition to charming colour, the flowers have depth and a good high centre, while the petals have a tendency to recurve somewhat at the margins, after the fashion of the exquisite Catherine Mermet. The plants are growing vigorously, and, as far as can be seen at present, quite bear out the raisers' description of carrying the blooms on stiff, erect shoots, and thus displaying them to conspicuous advantage, so that altogether Mrs. Jas. Wilson is likely to prove an extremely valuable addition to the Tea-scented Roses.

PROPAGATING.

VITIS HETEROPHYLLA.—Under good treatment this curious little variegated vine makes a very useful subject for pot culture. Although quite hardy, it is only when grown under glass that it is seen to the best advantage. It makes a most effective pot plant, and the long slender shoots are of great service for cutting. Unlike most vines, this may be propagated from the young shoots in spring. When the plants first start into growth very little variegation is seen, and it is before the shoots have grown long enough for much of the white colouring to be seen in the young leaves at the points of the shoots that the cuttings should be taken. They may be taken off nearly close to the old wood, and if put in the warmest part of the close propagating pit, they will soon strike root. Light sandy soil should be used. The plants will not be of much service the first year; therefore they may be treated liberally and grown on as freely as possible without regard to the variegation. The young plants should be grown on in a warm moist position, stopping them from time to time. Towards the autumn they may be removed to an open position outside, where the wood will get well ripened. When the frost has stripped off the leaves of the plants, the latter may be cut back and stored away in a dry place in a cool house, where they may remain until required for starting them in the spring. When starting the plants in spring they may be treated in a similar way to young vines, but as soon as they have got well into growth they should be removed to a light open position and an intermediate temperature. The plants must not be allowed to get too dry, and no manure should be given nor any encouragement to make growth freely. If well exposed, the tips of the shoots and side laterals will gradually develop leaves with more and more white in them until the points are almost pure. After they attain to this stage they will not improve much, but later on the small white leaves will fall off and the plants will probably start into fresh growth again, and produce foliage with more green in it.

CISSUS DISCOLOR.—This is another useful variegated climber, the rich, deep green and purple variegation contrasting well with the foliage of the above-mentioned Vine. It may also be propagated at this season, short lateral shoots being taken, or longer growths cut up in lengths. There will be little difficulty in getting these to root if placed in the stove propagating pit. Water should not be given too freely until the cuttings are well callused. The plants should be grown in the stove, using good rough porous soil for potting them in. Useful little specimens may be grown in 5-inch pots, and

as soon as the plants are potted into this sized pot three or four 2-foot sticks should be put round close to the outside of the pots and tied together at the top. The shoots should be trained round these, commencing at the bottom, and keeping them close enough for the foliage to fall over and cover the space between. By the time they reach the tops of the sticks very pretty pyramids will be formed.

FICUS REPENS.—This plant deserves to be more extensively grown than it is at the present time. It is one of the most useful plants we have. It is, perhaps, most at home when grown on a wall in an intermediate temperature. It succeeds admirably in a shady position, and forms a beautiful covering to what might otherwise be a bare wall. As a pot plant for furnishing an edging for a greenhouse stage, it is most useful, and for hanging baskets it is also of great service. As this plant can be used for so many purposes, a stock should always be grown on. The best mode of propagating is from cuttings taken from plants while they are growing freely. The short tips of the young shoots will strike root freely if put in light sandy compost and placed in the stove propagating pit. Although this Ficus may be propagated from the older wood, cutting it up in short lengths, the young tips are preferable, as they start away freely, and as soon as they have made a little growth they will give another batch of cuttings. Four or five plants should be grown on in each pot if specimens are required quickly.

A.

NOTES OF THE WEEK.

Tulipa persica is the richest and showiest Tulip in bloom now. It is a dwarf, interesting kind, the flowers bright yellow, about the size of half-a-crown, and scented like the Wallflower. It is in full beauty in hardy plant nurseries round London.

A charming Iris is a variety of the dwarf *I. pumila* known as *atro-vioacea*; the rich purple flowers cluster amongst the sturdy foliage. It is strange more do not grow the early Irises, well represented by *I. pumila*.

The dwarf Iris Chamæiris is one of the principal flowers of the week in the hardy garden. It is dwarf, very free, and the rich purple flowers, of an unusually deep shade, appear well above the leaves. This and *pumila atro-vioacea* are two gems.

Irises at Chiswick.—Those interested in garden Irises should visit the Royal Horticultural Society's gardens at Chiswick in the course of a few days. There is a rich collection of the leading germanica types. The gardens are now open on Sunday afternoons.

Aubrietia Leichtlini.—We have seen this new Aubrietia several times this season, and feel convinced that it is one of the most popular early hardy flowers of the future. It was blooming with great freedom this week in Messrs. Barr and Son's nursery at Tooting.

Pentstemon Scouleri is an uncommon, dwarf, semi-shrubby plant, now blooming on the Chiswick rockery. The flowers do not appear very freely, but individually they are large, slaty-purple in colour, and arranged in dense terminal racemes. It is a *Pentstemon* that should be on every rockery of any size.

Spiræa astilboides as a pot plant.—This handsome *Spiræa* when grown in pots is very useful for the greenhouse. Arranged amongst some *Primula japonica* in the greenhouse at Kew, the lovely panicles of pure white flowers of the *Spiræa* are shown off to advantage and make a pretty combination.—G.

Cheiranthus mutabilis is a somewhat uncommon *Madeira* Wallflower, from whence it was introduced the latter portion of the last century. The flowers are very pale when they first open, but change to a rich purplish tint, and have an exceedingly sweet fragrance. It is a choice Wallflower for the rockery.

Miltonia (Odontoglossum) vexillaria is well grown at Devonhurst, Chiswick. Mr. Wright, the gardener there, has a specimen carrying forty spikes, with an average of five flowers to each. It is a brightly coloured variety. There are very few handsomer Orchids than this when grown into a large specimen.

The Lyre Flower (Dielis spectabilis).—This is forced in such quantities for the enrichment of the

greenhouse in early spring, that it is a pleasure to see it grown well in the garden borders. There are several splendid clumps at Chiswick now flowering well. The racemes of pink, lyre-shaped flowers amongst the green, Fern-like foliage are exceedingly bright and graceful.

Iberis gibraltarica.—This makes a block of colour in the garden. It is one of the most free blooming of the *Iberis*, the flower-heads large and white, just tinted with rose. The growth is straggling and the leaves very dark green. It does well in pots, but we prefer to see it on the rockery.

Rhododendron Aucklandi hybridum.—Messrs. Charles Smith and Son, Caledonia Nursery, Guernsey, send us two trusses of this *Rhododendron* with the following note: "We send you a fully opened truss and a smaller head, to show the delicate colour of the flowers when they are opening. This plant is of a robust habit."

Tropæolum azureum.—This tuberous *Tropæolum* was very beautiful a few days ago in the Paxton house at Chiswick. The flowers are of a lovely azure-blue, about as large as a penny, and stud the slender twining growth. It makes a choice pot plant. *T. violæfolium* is regarded as the same. *T. tricolor* is another beautiful Chilian species.

Pelargonium Jubilee was conspicuously beautiful in the stand of Mr. Hayes, of Edmonton, at the Gardeners' Orphan Fund Fête. It is a French variety, the plant of compact habit and one mass of bloom. The flowers are of a delightful shade of rose, in which a little salmon is infused, and blotched with blood-crimson on the upper petals. It is a splendid market variety.

Genista præcox is now a mass of bloom in those gardens fortunate enough to have a specimen. It is a beautiful spring-flowering Broom, making a cloud of pale yellow in the later days of May, and proving remarkably ornamental on the rockery. There is a specimen at Chiswick near the large vinery, and it is one of the most beautiful things we have seen this season.

Iris tingitana.—This beautiful Iris was flowering in the open ground in Messrs. Barr and Son's Tooting nursery the other day. It is a magnificent Tangier species, and the subject of a very interesting note from Dr. Michael Foster in THE GARDEN, Feb. 11, 1888, p. 119. The flower is almost twice as large as that of the Spanish Iris, noble in form, and delightfully coloured. The lip of the falls is broad, white, with a suspicion of blue, and enriched by a glowing orange signal that is in bold contrast to the delicate lavender styles and standards.

Odontoglossum triumphans.—From Mr. Jacob, of Sheen Park, comes a flower of a grand form of this beautiful species. It is almost as large as that recently received from Mr. White, of Ard-arroch, and is a fuller and, consequently, a rounder bloom, rich in colour and heavily blotched. We are glad to find this species is finding more favour with growers than it did, and such forms are certainly well deserving attention, as we consider this is one of the very best of the yellow-flowered species.

Single Pæonies from Tooting.—We have received a splendid gathering of single-flowered Pæonies from the Tooting grounds of Messrs. Barr Son, the flowers of several colours, some pale, others brilliantly tinted. The following were worth a note: *Officinalis alba plena*, a semi-double variety, the flowers of which when opening are of a rose tint, but die off white; *rosea plena*, very fine Anemone-flowered kind, the colour magenta-crimson; *tenuifolia*, both single and double forms; *Sabini*, rich crimson, single; *Peregrina* Brilliant, bright rose-magenta, a beautiful single variety; *decora elatior*, same colour as the one previously mentioned, but with larger flowers. There is no handsomer plant flowering now than the Pæony, and we are pleased to find the single kinds grown more largely than hitherto.

Bauera rubioides makes a neat little plant for the side stages of the conservatory. Arranged amongst other things, its graceful habit renders it most attractive. The flowers are rather small, but produced in great profusion and of a pretty pink shade. Cuttings strike readily if placed in sandy soil under a bell-glass, and should be potted off singly as soon as rooted, using a compost of loam and peat in equal proportions. When once established

the plants commence to bloom under ordinary greenhouse treatment, but should be plunged in ashes out of doors during summer, so that the wood may be thoroughly ripened.—G.

Lord Derby Apple when in bloom is one of the most effective, with its deep rosy flowers. In this part of the south coast there may have been as good a display of fruit tree blossom before, but there never can have been a better, as whether it be old decrepit trees, or those planted during the past winter, all are laden with bloom or embryo fruits, for the set of Pears, Plums, Cherries, &c., is the best I have ever seen.—J. GROOM, *Gosport*.

A note from Dublin.—Lovely weather here now, hot and sunny with frequent showers, and everything growing most luxuriantly. Tulipa Gesneriana in variety, T. fulgens, T. retroflexa, &c., have been gorgeous, so also Trollius, Iris, and Peonies. Clematis (Atragene) alpina is our best flowering shrub at the present time—quite a beautiful Tree Anemone, and very happy on a western wall. I saw the white form recently at Kew, but although rare, it is not, I think, so good as the blue.—F. W. B.

Daphne Cneorum.—This is one of our most lovely hardy evergreen shrubs, and deserves a place in every collection. Its bright rose-pink-coloured flowers are now very beautiful, and will remain so for some time. Being of a trailing habit, it is suitable for edging beds of taller growing shrubs, such as Leicophyllum buxifolium. This Leicophyllum has small white flowers on terminal heads like the Daphne and is well suited for the purpose, as both thrive in peat and under similar conditions, as may be seen in the American garden at Kew.—F. G.

Narcissi at Dublin.—The Narcissi are not quite over yet. N. poeticus recurvus is at its best, and we have N. Bernardi, N. stellaris, N. patellaris, and N. p. plenus, N. gracilis, and N. tenuior to come. Our first Narcissus, N. papyraceus (forced), flowered Nov. 1, 1888, so that we now reckon on having these flowers seven or eight months out of the twelve. Italian wild N. poeticus flowered here in the open border in March, and forced Italian bulbs N. Umberto I. bloom quite readily in January and February.—F. W. B.

Trillium virginicum.—I have just counted forty-seven expanded blooms on my Trillium virginicum, which is truly a magnificent specimen this year. It has been for several years undisturbed in a low shady position, and is planted in peat and loam. I find the seedlings of Fraxinella alba take a long time in making good-sized plants. This is now the third year with mine, and they are still very small. The parent plant deserves all the praise you have bestowed upon it (GARDEN, May 18, p. 458).—H. M., *Bromsgrove*.

The Fire Bush (Embothrium coccineum).—There is now in full bloom in the gardens of Mr. W. Waterfield, Easton House, Starcross (about 8 miles south-west from Exeter), a fine specimen of the Fire Bush Tree (Embothrium coccineum). The tree, which is fully 17 feet in height, is in vigorous health, well proportioned, and planted on a grassy sloping bank facing east. It is covered from top to bottom with beautiful tufts of vivid scarlet flowers, which Mr. Back, the head gardener, says it never fails to produce year after year. It would amply repay a visit from anyone within reasonable distance, as it is seldom so fine a specimen is met with so far out of Cornwall.—A. H. TEED.

Pansies from Rothesay.—I send you a few sample blooms of Pansies from my collection here.—MICHAEL CUTHBERTSON, *Public Park Nursery, Rothesay*.

* * * The blooms sent are richly coloured, of large size, and show good cultivation, but we think the recent development of the Pansy is in the wrong direction. They lack the form, delicacy, and refinement that the flower should show, and often does show, in its purer simpler colours. Spread out on a show table these would look very well, but for people who care for their gardens better things can be done, and we hope Mr. Cuthbertson will show what can be done in simple coloured Pansies, not as big as saucers, but harder, purer in colour, and so admirably fitted

for the flower garden. If such varieties as Mrs. Mackie or Mrs. Griffiths and D. McBean, all rich shaded purple flowers sent by Mr. Cuthbertson, could be fixed as open garden flowers, they would gain by losing their greatly exaggerated size—3 inches across. The beauty of all the Viola race lies not in size, but in colour, form, and delicate odour.—ED.

Pimelea ligustrina.—This delightful species, which is by no means common, is one of the most beautiful of all the Pimeleas. Its free Privet-like growth renders it distinct from all the other species. The pretty globular heads of straw-coloured flowers, which are so much admired, render it a great acquisition for the greenhouse. Pimelea ferruginea and its variety P. diosmaefolia both have pink flowers, and when well grown they make most desirable plants for the conservatory, lasting in bloom a long time. Some well-flowered plants of these are now very attractive in the greenhouse at Kew.—G.

Flowers from Straffan.—Herewith I send you a few odds and ends. Polyanthus King Theodore is very sweet scented, but the heat of yesterday and to-day (70° in shade) has marred the beauty of the blooms. Ribes aureum, not often met with, has a very sweet, spice-like fragrance. Magnolia Lenné, like many other hardy shrubs this year, is scarce of bloom, and the flowers are only half their usual size. Acer polymorphum atropurpureum and dissectum are lovely in a green glade with Poet's Narcissus. The small Viola is the one which the Hon. Mrs. Barton collected on French Pyrenees, and if you should know it, kindly name it.—FREDERICK BEDFORD, *Straffan House, Kildare*.

* * * Your Viola is the Rouen Violet (Viola Rothomagensis), not seen so frequently as it might be. It is a very beautiful variety.—ED.

The Mexican Orange Flower (Choisya ternata).—We have here plants of this Choisya growing in various positions, some covering the back wall of a small unheated house. In this position it grows quickly and makes a dense wall covering, the leaves being of the deepest green, and forming a capital contrast to the blossoms, which are but sparsely produced this season. Growing at the base of a dwelling-house with a warm southern aspect, this plant is smothered with bloom at the present time, many of the flowers measuring 6 inches in diameter. Anyone requiring a good evergreen climber cannot do better than plant this Choisya, provided a position can be given it where the growth will become thoroughly ripened, as upon this depends its flowering.—SOUTH HANTS.

Orchis Morio from a Sussex pasture.—I send a rich gathering of Orchis Morio in great variety. I have always been charmed with the exceeding beauty of the green-winged Orchis, which is especially abundant in some of the poorest Sussex pastures. The field from which these flowers were gathered appears at a short distance to be mantled in a rich purple robe. As one approaches, the delicate scent so characteristic of this species is easily detected. It is, however, by close inspection that we see the rich and varied hues, deep and delicate markings, varying through shades of pink, rose, lilac, crimson, and purple. One variety worthy of special mention had a large lip of the purest white, whilst another, equally beautiful, had one of a deep rose colour. It would be possible to select a score of distinct varieties. Upon a square yard of ground I counted sixty-one spikes, and there must be countless thousands in the field.—A. H.

* * * A rich gathering of Orchis Morio, and showing considerable variation in the colouring of the flowers.—ED.

The spring of 1889.—To those who are interested in the various seasons of trees, so far as their bud development is concerned, the spring of 1889 will be noticeable as one of the latest on record for all or nearly all exotic trees and shrubs. There is naturally, as usual, a great individual difference, but taken collectively we may class them as about three weeks later than the average. Thus the Pterocarya—about the earliest of all, and in some seasons quite green by the third week of

April—is this year a contemporary of the Beech; Magnolias are proportionately late; very little life is to be seen on the Gymnocladus, the deciduous Cypress, or the Fringe Tree; whilst latest of all is the North American Custard Apple, only within the last day or two showing signs of any swelling of the buds.—E. BURRELL.

Dendrobium Falconeri.—Enclosed are a few flowers of Dendrobium Falconeri, which is considered a shy-flowering Orchid. Under the following treatment, however, I find it flowers freely: The plants are hung up at the end of a vinery, where the sun shines fully on them all day. They remain in this position till the autumn, and are then put to rest with the other Dendrobies and kept very dry till the following spring. The only fault with D. Falconeri is the short time the flowers last, but the lovely colour of the blooms well repays any trouble one may take with this grand variety.—WM. CLARK, *Eversley, Herne Hill*.

Primula Sieboldi.—A rich series of varieties of this Primrose come from Mr. Ware, Hale Farm Nurseries, Tottenham. There are few flowers gayer and more welcome in their season than those of P. Sieboldi. The best varieties sent were Magenta Queen, which has flowers of a rich crimson-magenta, the eye white; violacea, violet shade; intermedia, self magenta; Nelly Ware, the petals white, save for the rose colouring on the back; lilacina marginata, mauve-lilac; and rosea alba, rose and white, very pretty. None, however, were richer or finer than the type, the flowers being brilliant magenta. From their flimsy character it might be thought that the flowers of P. Sieboldi quickly fade when cut, but they last fresh in water for many days.

Asparagus from old beds.—Having noticed some correspondence in THE GARDEN (May 18) about Asparagus beds and the time they will last if tended with care, it has struck me that your readers might be interested to know that I have at present in my garden Asparagus beds which were planted more than fifty years ago, and which have continued to bear well ever since. We have daily a large dish of Asparagus for dinner from these beds; it is most delicious, and that you may judge it is of good quality, although planted so long ago, I send you a few as samples.—C. E. GOODHART, *Langley Park, Beckenham, Kent*.

* * * Remarkably fine heads, each about 7 inches long, the diameter on an average being half an inch. Fresh and crisp.—ED.

Hardy flowers at exhibitions.—It is gratifying to see that hardy flowers are frequently shown in large clumps at the exhibitions—a vast improvement over the poor weakly scraps often seen there, and which convey but little idea of the true character of the kinds represented. More encouragement still might be given to this class. Specimen Azaleas, Ericas, fine-foliaged plants, &c., have lost the interest they once had. They become essentially monotonous when the same plants are made to do duty at several exhibitions. By having an abundance of hardy and alpine flowers we introduce freshness, variety, and unusual beauty into a fast-declining fashion. Thus a new lease of life is given to it.

A fine Wood Lily (Trillium grandiflorum).—I enclose two blooms of a Trillium grandiflorum, which grows in my garden. I planted one bulb under a low growing Apple tree about six years ago, and there are this year thirty-two blooms upon the plant. The soil is a very light granite one with no peat in it (though peat is, I see, often recommended for this plant). I have had the Trillium photographed, as it may interest you to see to what a large size it has grown, and hope to send you the photo. in a few days. I tried the original bulb in an open sunny border for two or three years, but it did not increase till I planted it in its present position under the partial shade of the Apple tree. The height of the plant is about 20 inches, and it covers about 2½ feet square of ground.—A. STEWART, *Shambellie, Dumfries, N.B.*

* * * Very fine specimens of the Wood Lily. The foliage is remarkably strong and healthy, and proves that the treatment suits it.—ED.

PARHAM PARK.

PARHAM PARK is Lord Zouch's noble domain. The house nestles in a luxuriantly wooded park within the shadow of the Downs. It is Elizabethan, having been built by Sir Thomas Palmer about 1540. It shortly afterwards passed into the hands of the Bisshopp family, who became the Lords de la Zouch. When Queen Elizabeth visited Cowdray in 1592 she also visited Parham, but whereas Cowdray's former glories are now departed and the historic old house is a ruin, Parham remains as a noble connecting link in the chain of past events. Externally the house is soft and grey with age, and dyed a beautiful colour by the growth of many silvery and golden Lichens which spread into cushions upon the weathered face of the native sandstone.

The sole glory of the fine old house is the park that surrounds it. Parham seems almost

groups of mighty Elms, and also many noble isolated specimens. The trunks of some of the Elms are of enormous size, while others are of great height, and almost every group has an aged monarch, whose enormous stem, wrenched asunder by a fierce blast, has taken a new lease of life and is almost hidden by the myriads of little branches put forth. To the west is seen a nice sheet of water, while southwards another sheet is hidden by the foreground of trees and the rising surface. It is seen, however, when walking in the park, and upon its bank stands a group of several large Poplars, whose leaves, incessantly trembling with the slightest breath of air, suggest the sound of falling water.

In the more distant portions the park has great diversity of surface. It winds away towards the Downs, which are seen in a long unbroken line, now towering above the highest trees in the park and anon sinking gradually,

moved in the time of James I., by Lord Leicester's steward, to Penshurst, in Kent. Two hundred years later, when some trees in that chase were felled, the herons migrated to Michel Grove, near Arundel, whence, twenty years ago, having been disturbed, they transported themselves to Parham. They assemble early in February, repair their nests, of which there are now fifty-eight, lay early in March, and watch over the young during summer. The trees are never entirely deserted during the winter months, a few of the more backward birds roosting among the boughs every night.

To enjoy the full beauty of Parham and the country around, the visitor should alight at Amberley Station, Parham being about two miles therefrom. The road winds along at the foot of the Downs all the way. On the right they limit the scene, but afford much beauty, both in their imposing and precipitous escarpments of chalk and their verdure-clad slopes. To the left is a far-extending landscape, but the



Parham Park, Sussex. Engraved for THE GARDEN from a photograph by W. F. Page, Shoreham.

as some out-of-the-world spot, unaffected by its changes and slow in adopting modern ideas and improvements so far as regards gardening. There is a walled-in kitchen garden of 4 acres, and that is all. It is the finest kitchen garden I have ever seen. One very small house is the only glass erection. Therefore, except that the trees have grown more venerable, the Parham of to-day does not materially differ from the Parham of 300 years ago. The picturesqueness of the park is enchanting from whatever point it is seen. The noble mansion looks out upon the park east, south, and west, on the north side being a large square walled-in courtyard where carriages enter. From the south front the park spreads away far and wide, a large piece of greensward in the foreground being ultimately lost as it winds back between and under the great groups of venerable trees. There are

till portions seen between the trees through a framework of rich foliage form natural pictures. Between groves of trees are enormous ferny dales, where Bracken has taken sole possession, growing several feet high and completely covering acres of ground. In one part of the park Hawthorns predominate, forming great groves. Here, again, may be seen decrepit, Lichen-clad specimens falling to the ground through sheer age and weakness, while young ones arise to take their place. Those in the prime of life were carrying enormous crops of fruit, the masses of red in October being in striking contrast to the mounds of white in June. Westward the park merges into a great Pine wood, which covers the side of a hill. In its depths is located a famous heronry, which, like everything at Parham, has its history.

From Coity Castle, in Wales, the birds were re-

eye soon lights upon Parham, which, so freely is it wooded, appears to stand in a great wood, although really there is the fine expanses of greensward previously alluded to. When the visitor has walked right through the park to the village of Storrington beyond, one thought at least will suggest itself, namely, that the natural beauty of the present combines to make Parham, with its past history, a fine example of "the ancient homes of England," and full of interest at the present day.

A. H.

An effective arrangement.—One of the most effective arrangements of flowering plants of a simple kind that I have ever seen was made the other day with Henry Jacoby Geranium and Allium neapolitanum. The site was a low, old-fashioned fireplace in a front hall with plenty of light, the hearth and fender space being covered with well-flowered plants of the Geranium, amongst which

were examples of the Allium. Five bulbs of the latter were placed in a 3-inch pot, the spikes being about 18 inches high and each surmounted with a good flower-head. The contrast was charming, and at night the effect was especially brilliant.—X.

STOVE AND GREENHOUSE.

WORK IN PLANT HOUSES.

GREENHOUSE.—CANNAS.—Many of the new varieties of Canna that have been raised within the last few years are such an improvement on the older sorts in both the character of their growth and in their flowers as to make them well worth cultivating for greenhouse and conservatory decoration. Some of the new kinds do not grow more than 3 feet high and bear large, handsome flowers, which vary considerably in colour. The form of growth is such as to afford an agreeable contrast to that of most of the other occupants of plant houses. To do justice to them they should not be pinched for room, 8-inch or 10-inch pots not being too large to afford the necessary support. Plants that were started in a little heat and were afterwards divided and put into 6-inch or 7-inch pots, should now be moved to those in which they are to flower. Fresh turfy loam with about one-seventh of rotten manure and some sand added is the material to grow them in. The plants should from this time be kept in a cool house or pit, where they can have plenty of air, with their tops near the glass so as to prevent them getting drawn. They should have a thin shade in the middle of the day to keep the leaves from scorching. As the soil gets filled with roots manure water should be given regularly. Syringe freely overhead to keep the foliage clean and free from insects.

BRUGMANSIAS.—These plants are usually seen planted out with their tops covering the back wall or the end of a conservatory, or in the form of large bush or standard specimens, yet they will flower in quite a small state. To have them of this size, it is necessary to propagate them from cuttings or from seeds each year, as the plants make a free and rapid growth and soon attain a good size. Cuttings should be made of the young shoots, which should be taken off with a heel when about 6 inches long. Put them singly in 3-inch pots filled with sand. They will soon strike if confined in a cutting frame or under propagating glasses. When well rooted move them into 5-inch pots. Let them have fresh turfy loam, to which add about one-seventh of rotten manure and some sand. Keep the plants in a genial growing temperature for a few weeks after potting until they have begun to move freely, when ordinary greenhouse treatment will suffice. In July put them in the pots in which they are to remain until next summer. When to be raised from seed, the latter should be sown any time during the spring—it is not yet too late. Sow in an ordinary seed-pan, which must be drained and filled with a mixture of sifted loam, leaf-mould, and sand. Cover the seeds a little deeper than would answer for those that are smaller. Stand in a warm house or pit, and shade the surface from the sun until the seedlings appear, when let them have plenty of light, but continue to give shade. As soon as large enough to handle put the seedlings singly into 3-inch or 4-inch pots, and keep them in a genial temperature. Later on move them into pots one or two sizes larger and keep them growing on until the autumn is well advanced, so as to admit of their becoming strong before winter, during which season they should be kept in a greenhouse. Large plants that are growing in pots or tubs, and that were cut in last autumn after they had done flowering or early in spring, should now have as much of the surface soil got away as can be removed without destroying the roots. Replace it with new, composed of about three parts fresh loam to one of rotten manure, with some sand. Brugmansias are gross feeders, and when their roots are confined this proportion of manure will not be too much for them. The plants should be stood in a house where they will be under the influence of full light

during the summer. Treated in this way they may be expected to flower in September.

TUBEROUS BEGONIAS.—Plants raised from seed sown in winter must be moved into the pots in which they are to flower as soon as they are large enough. If the roots are confined in small pots too long during their early stages, it will stop the growth to an extent that will prevent their flowering being of much account this season. In raising these Begonias from seed, it is better to aim at obtaining varieties that have a compact habit of growth, with a free disposition to bloom and produce flowers of moderate size, rather than very large ones. Small foliage is also an advantage, as also are stout stalks that will hold the flowers erect. Tubers that were started late with the intention of giving successional bloom should be moved into the pots in which they are to flower. A cold frame, with the lights drawn off, except during heavy showers, is the best place for them until they come into bloom.

STOVE.—POINSETTIAS.—Where large heads of bloom are wanted it is necessary to propagate Poinsettias early enough to admit of the plants getting strong before autumn, as on this will depend the bracts attaining their full size. The shoots should be taken off with a heel when they are about 6 inches long. They are best put singly in small pots half filled with a mixture of sifted loam and sand, the rest all sand. Keep the cuttings close enough to prevent the leaves flagging, and let them have a warm stove temperature, with shade. As soon as they are well rooted move them into 6-inch pots and keep them through the summer in a house or pit where there is sufficient heat maintained for the more heat-loving stove subjects. After the old plants have produced as many cuttings as required, they should be turned out of the pots and have most of the soil shaken away. Give them pots a size or two larger than those they occupied last summer. These old stools may be grown on with three or four shoots each if desired, or they may be confined to single stems.

EUPHORBIA JACQUINLEFLORA.—This is seldom met with in the best condition. It is neither necessary nor advisable to give it so much root-room as most stove plants need. As advised recently, it is best to strike three or four cuttings together. When these have got well established in the pots in which they have rooted, move them just as they are without separating them or disturbing the roots. Six-inch or 7-inch pots are as large as it is requisite to give the plants, but from the time the roots have fairly entered the new soil manual stimulants must be given regularly. Surface dressings of Clay's Fertiliser should be applied from time to time with weak soot water at short intervals. The heads of the plants should be kept close to the glass. A brisk stove heat is necessary during the summer, with shade in the middle of the day. It is better neither to stop the shoots nor bend them down in the way sometimes done. The plant is naturally a spare, erect grower, little disposed to branch out, and does best when let to take its course in this respect. Old plants that after furnishing the necessary quantity of cuttings were partially shaken out and replaced in the same pots will shortly require a shift. Eight-inch pots will be large enough for them, provided they receive due attention with the stimulants recommended for the younger stock. From two to three shoots are enough to allow to each of these older examples.

BOUVARDIAS.—It is now time to decide how the young plants that were struck from cuttings in winter are to be grown on through the summer. If to be kept in pots they should be moved to those they are to remain in before the roots get cramped for room. Six-inch or 7-inch pots, according to the size the plants have attained, will be large enough, as much may be done to assist them with manure water later on when the roots have got well hold of the soil. A mixture of loam, rotten manure, sand and leaf-mould is the material for them. If the plants are not sufficiently furnished, it will be well to again pinch out the points of the strongest shoots, but it is a mistake to carry the stopping operation so far with Bouvardias as is sometimes

done. A limited number of strong branches, say eight or ten for plants grown from cuttings this spring, are better than a larger quantity of weak ones. After potting, the plants should be kept a little closer for two or three weeks than they require to be later on by limiting the amount of air admitted. Keep them as near the glass as circumstances will permit. The pots should be stood on a moist bottom, which will not only assist the growth of the plants, but will help to keep them free from insects better than if they were stood on boards or open stages of any description. Shade from the sun in the middle of the day when the weather is bright, and syringe overhead regularly each afternoon when the lights are closed. The closing should be done long enough before the sun is off the glass to shut in a genial warmth. If the plants are at all backward, it is still more necessary to attend to this regularly through the early part of the summer. Plants that after flowering during the autumn and winter were cut back and have since made fresh growth, if not already repotted, should be now attended to. Much of the old soil should be shaken away. Plants of this description will require 8-inch or 10-inch pots to carry them through the season, and they may at once be put in these. In most cases cut-back plants of this character will not need stopping, as if in a good healthy condition they will already have enough shoots to furnish them. When the plants, either such as have been struck from cuttings or older ones, are to be turned out in pits or frames, the beds should be made of good rich soil, similar to that advised for pot culture. See that the material has sufficient sand in it, so that it will be free and light enough. By this means when the plants have to be taken up for potting in autumn they will lift without the roots being much broken. When Bouvardias are grown in this way it is necessary to avoid planting them too closely together. As a rule they will attain one-third more size than when in pots; consequently it is necessary to allow for this, or they will be crowded in a manner that will injure their lower branches. T. B.

Primula Princess of Wales.—Unfortunately, this double-flowered Chinese Primula is difficult to grow well. The blooms are beautifully fringed, pure white and most useful for button-hole bouquets. It is dwarf and slow in growth. It evidently needs a special form of treatment to obtain the best results. I am very successful in the growth of the old double white, which flowers abundantly from November to May, but I cannot say the same of the variety Princess of Wales. If any readers of this paper who have grown it well would give their method of cultivation, I should be grateful.—E. M.

Crossandra undulæfolia.—Although the flowers of this Crossandra are by no means of a vivid tint, yet they are of a very distinct bright orange-salmon shade. It is a soft-growing plant, somewhat in the way of the Aphelandras, and the flowers are borne in a terminal spike. Like them, too, the plants are apt to run up thin and naked when old, so that continual propagation by means of cuttings is necessary. This is not at all a difficult matter, as cuttings formed of the young growing shoots strike root readily enough during the spring and early summer months. A very good plan is to group several of these small plants so obtained in a pot or pan, and thus form an effective specimen. Its flowering season is not limited to any particular time of the year, for it will bloom during both winter and summer if in a good light position in the stove or intermediate house.—H. P.

Anthropodium cirrhatum.—Few greenhouse plants give less trouble than this New Zealand liliaceous subject; like the old-fashioned Agapanthus umbellatus, it will flower in a more satisfactory manner when allowed to remain undisturbed for years than it will if repotted every season. Insect pests, too, do not trouble it and the plant is almost hardy, so that if kept safe from frost but little more is needed during the winter months. It is a free-growing subject, forming a clump a good deal after the manner of some kinds of Iris, but the

leaves are broader and more recurved. So ample is the foliage, that in this respect alone a flourishing mass is very ornamental. The blooms are star-like, pure white (except the orange-tipped stamens, which stand out conspicuously from the rest of the flower) and borne in large open panicles, which overtop the foliage.—H. P.

Leptospermum bullatum.—This is a pretty, free-flowering member of the Myrtle-bloom family from Australia, and I noted it flowering freely in the Messrs. Low's nursery at Clapton. It belongs to a set of plants which used to be largely represented at Kew. It has pure white flowers well suited for button-holes, &c., whilst as a pot plant in the greenhouse it is very beautiful. Mr. Casey, at Mr. Low's, also informed me that this plant has proved to be hardy in the open air at Lymington.—W. H. G.

Combretum purpureum and Ipomæa Horsfallii.—In THE GARDEN of April 20 (p. 366) "T. B." speaks of striking these plants from cuttings. I have been connected with the trade for nearly forty years, and have had to increase the stock of these plants, but I have never yet seen a single specimen of either which had been obtained from a cutting. I have myself tried times without number, but never have been able to root them. If "T. B." has himself struck them, I should be glad to know the process which has led to his success. If the plants he speaks of as rooted from cuttings are in the trade, I should be glad to know where, so that I may be able to examine them, as at present I must confess to be an unbeliever in the statement.—H. T. P.

Rhododendron Daviesi.—This is an extremely valuable greenhouse Rhododendron, raised and sent out by Mr. Davies, of Ormskirk, some six or eight years ago, and said to be the result of a cross between the two Javanese species, *R. javanicum* and *R. retusum*. It is a free-growing variety, which should be stopped when young, otherwise it is very liable to run up tall and get bare at the base. The leaves are very dark green, while the flowers are in shape about midway between those of *R. retusum* and the more open ones of *R. javanicum*. They are freely borne, and their colour, a bright orange-red, causes them to stand out conspicuously from the rest of their class. I believe the same cross was employed some years previously by Messrs. Rollisson, of Tooting, who put the variety into commerce under the name of Prince of Wales, but it appears to have almost dropped out of cultivation, which circumstance is to be accounted for by the fact that it was by no means a vigorous growing plant, and besides that the flowers were not quite so brightly coloured as those of Daviesi. *R. Daviesi* should certainly be grown by everyone who has a collection of greenhouse Rhododendrons, however small.—H. P.

Tabernaemontana coronaria flore-pleno.—This chaste and beautiful plant is included in almost every average collection of stove plants, but rarely is it seen in a really thriving condition. It is too often found in a shady part of the stove where it drags out a miserable existence, producing a few flowers each season from its weak attenuated stems. Why it should be thus despised has always been a mystery to me. Given a fair chance, no plant is more capable of repaying what little extra trouble is taken in its cultivation. Its character is such, that of itself it soon forms handsome little bushes, while the dark shining foliage is very ornamental. The sweet-scented, pure white flowers are second only to those of the Gardenia or Tuberose, some people regarding them as even more elegant and refined. Besides this, the plants are very free-flowering. They may be had in flower early in February, and yet they last well into the late spring months. To obtain, however, such results, regard must be paid to their special wants. Much root space is not required, a 10-inch pot being ample for a large specimen. Care must be taken to pot firmly, using a fair amount of drainage. The best soil to use is equal parts of peat and loam, with a good dash of sharp sand. If the loam is of a light nature, less peat might be used. Kept close and syringed daily, the plants will soon fill the pots

with roots, when they should be assisted with weak liquid manure. The plants should also have the advantage of a sunny corner, where they will make strong short-jointed growth thickly set with bloom-buds. As autumn approaches the plants may have more air to mature the wood, but they must not be kept too cool, or the warty excrescences on the leaves will turn black, giving them a very dirty appearance. If mealy bug is troublesome it may be destroyed by using methylated spirits. Should aphides put in an appearance, they may be got rid of by syringing the plants with soft soap.—J. C.

CAMELLIAS.

AMATEUR cultivators of Camellias who cultivate a few in pots in a house of mixed plants are often found complaining that the buds of their plants drop, and that they fail to flower the latter satisfactorily. I had a neighbour who was very fond of these flowers and spent a good deal of money upon them; but with all his care, he rarely succeeded in getting a bud to expand. There may be several causes at work to produce this result, but I think one of the chief is bad watering. I have noticed in the case of some amateur cultivators that they proceeded on the principle of giving a little water daily, just as one would have a meal, and without any consideration as to the requirements of the plants and the state of the weather. A little water applied frequently has been characterised as one of the worst forms of mismanagement. It serves to keep the soil soddened, then it becomes sour for some way down the pot, while it may happen that the lower part of the ball remains dust-dry. What should be observed is never to give a plant water until it is really required, and then thoroughly soak it. Another frequent cause of the buds dropping is owing to the Camellias being in unsuitable soil. Many persons, knowing that Camellias do not do well in a strong heavy soil, will make up a compost of loam and peat. For a time the peat acts mechanically in keeping the particles of loam apart, but eventually, when certain conditions of the soil have been fulfilled, the plants become unhealthy. Sods from a sandy loam, cut thinly and pulled to pieces when quite fresh make a good soil for Camellias, and if not sandy enough can be made so by adding some coarse silver sand. Camellias will do well in pure peat, but they need the help of some manure or soot water when growing. Plants that have been subjected to too high a temperature and become weakly will also drop their buds, and it is, perhaps, forgotten that in the southern and western parts of the country the Camellia is hardy, and it is not at all necessary to force it in heat. The sudden change from a greenhouse to the open air, when the plants are sometimes unusually dry and at other times sodden with rain, produces an unhealthy condition and causes the buds to drop. I think there was excellent sense in the advice the late Mr. J. R. Pearson once gave. "Never turn a Camellia out of doors if you have room for it under cover. It will, perhaps, never have occurred to everyone to think how great must be the change from a dewy night to the atmosphere of a house deprived of its moisture by condensation." R. D.

The Cape Primrose (Streptocarpus).—The various sorts of Streptocarpus are well suited for growing in an intermediate house, as their requirements are by no means exacting, and they are remarkably pretty when in bloom, added to which a few plants when well established will continue to flower for a very long period. Some of the species have been known for a number of years, but they had almost dropped out of cultivation till the introduction of the wonderful *S. Dunni*, which first flowered at Kew in 1886. This plant has one huge leaf as much as 2 feet long and more than 1 foot in width. The flowers are of a kind of terra-cotta tint, quite different from those of any species of Streptocarpus introduced up to that time. Thanks to Mr. Watson, of Kew, some very beautiful hybrids claiming *S. Dunni* as one of their parents were soon raised, and the following year two of them, *Watsoni* and *Kewensis*, were exhibited at the Royal

Horticultural Society, and to each a first-class certificate was given. Of the older kinds, *S. Rexi*, with lilac-purple blossoms, *S. parviflorus*, in which the flowers are white, and *S. polyanthus*, with small pale blue blossoms, are about the best. All the Streptocarpaceae can be readily raised from seed, which should be sown in a stove temperature early in the season. If the plants are grown on freely, they will form large specimens full of flower by July or August. To obtain them earlier, a good way is to sow the seed about midsummer (or a little before), and winter the plants in pots 3 inches or 4 inches in diameter, then if the plants are shifted into larger pots in the spring they will by May commence to flower freely. Any good light soil suits them perfectly, and planted out as an edging to the beds in the succulent house at Kew, they show their adaptability for such a purpose, and form when in flower a very beautiful feature. Besides seeds, they can also be increased by leaf cuttings; but this method is rarely followed, as seeds are so freely borne; and besides this, seedlings give a very pleasing variety, as out of two or three dozen, the product of the same plant, it is sometimes difficult to pick out two exactly alike.—H. P.

Rhododendron Championi.—This interesting species was introduced from Hong-kong in 1881, and we recently noticed it in bloom in the Chelsea nursery of Messrs. Veitch. When it was first brought over great things were expected of it, especially as a pot plant for the greenhouse, but so far it has proved disappointing. Until last year, we believe, no flowers were produced on the plant at Kew, although it had been carefully cultivated to induce it to bloom. The habit is everything that can be desired—bushy, leafy, strong, and free, the leaves leathery, of the deepest green, and coated on both surfaces with glandular hairs. There are a few specimens at Chelsea that are very handsome from a foliage point of view, but unfortunately the flowers are seldom seen. They are pure white save a few spottings of ochre on the upper petals, spreading, and about 4 inches across, the lobes of the calyx being covered with long white hairs. A species of Rhododendron with such a splendid habit and mass of healthy leaves should prove of value in hybridising. As it stands at present, there is no room for it in our gardens.

Lotus peltorrhynchus.—For growing in a hanging pot or basket in the greenhouse this is one of the most desirable plants we have, as it is very pretty and quite distinct from anything else. The leaves of this are small and narrow and of a silvery grey tint, against which the orange-scarlet-coloured flowers stand out most conspicuously. They are of a peculiar lobster-claw shape, and are borne for a considerable distance along the pendulous shoots. It is a native of Teneriffe, and has been for the last two or three seasons grown at Kew, but I am not aware of its being in general cultivation. There is another very pretty species of Lotus, though less showy than the preceding, viz., *L. Jacobæus*, which forms a much-branched, but slender-growing plant, with hoary foliage and a great profusion of deep velvety-purple (almost black) blossoms, whose distinct tint is further intensified by contrast with the light-coloured foliage. This Lotus requires the protection of a greenhouse, and even then in the neighbourhood of London the winter fogs often injure it severely; but on the return of spring it grows away freely, and cuttings then produced will strike without difficulty. Besides this, it can be easily raised from seed; but plants obtained in this manner vary somewhat in the colour of the blossoms, and for this reason, when a very good form is obtained, it is advisable to propagate it by means of cuttings. If planted out during the summer it will grow and flower well.—H. P.

Azalea amœna Caldwelli.—In many places this is grown to the exclusion of the older *A. amœna*, from which this variety differs in the flowers being double the size, and the habit of the plant not so free. It can be quickly grown into neat little bushes, and when laden with blossoms is extremely useful for many purposes. This Azalea will root readily from cuttings, and plants of it can therefore be often obtained that are without the

long naked stem, which is such an objectionable feature in some of the Indian Azaleas imported from the Continent. Besides *A. amena* and the above-mentioned variety, some of the hybrids raised between this class and the Indian Azaleas are remarkably pretty and free-flowering.—H. P.

FLOWERING PLANTS FOR WINTER.

To have at hand during the months of December, January, and February a good stock of well-grown flowering plants that will be acceptable alike for the decoration of the show house and for cutting from is so desirable, that I need not dwell on the necessity of making preparations. Carnations are one of the first things to be considered, as they are always welcome, and the three most thoroughly useful varieties in their respective colours are probably *Alégatière*, *Miss Jolliffe*, and *Pride of Penshurst*. Cuttings may be struck in heat in a compost of leaf soil and silver sand, shifted on as required, and grown in a cool pit until the autumn, when they should be transferred to an airy house with a minimum temperature of 50° until required for the conservatory. Winter-flowering Begonias, again, are very useful, and last a long time in bloom. There are many serviceable varieties, two of the most showy being the old fuchsioidea and *Davisii*. A good plan is to place four or five cuttings in a 3-inch pot, and transfer to the size in which they are to flower as soon as the cutting pot is full of roots. They may be grown on with the Carnations during the summer months, but require later rather a higher temperature to thoroughly develop their flowers. Zonal Pelargoniums are indispensable in this selection, and may be grown on during the summer in the manner already indicated. There are not many varieties the flowers of which combine the two essentials for winter-flowering—a freedom of bloom and of sufficient substance in petal to stand well in a cut state. Three of the best are *R. V. Raspail* and *Guillion Mangilli* among the doubles, and the old *H. Jacoby* as a single. A few *Marguerites* are very useful both to associate with the bright colours of the Pelargonium and for occasional cutting. Personally I prefer the small-flowering, fine-foliated variety. Two old-fashioned plants now very seldom seen, and of which a few cuttings may be struck later on to grow along with the foregoing, are *Sparmannia africana* and *Lasiandra macrantha*. Old plants of these will soon become leggy, but if they are struck every year as early as possible and allowed to come along during the summer with plenty of light and air, they will make nice stocky stuff for the winter and throw some good flowers. *Mignonette* will furnish the scent for winter cutting; there are many ways of doing this, each grower having his particular plan of growing it. The above are a few things that can be relied on to furnish a display during the dull months of the year. One more plant, and a very old favourite with many people, that may accompany the foregoing is *Humea elegans*. This may be sown with the first batch of *Calceolarias*, and grown on quickly literally without the slightest check, as anything approaching the pot-bound stage is fatal to the well-being of the *Humea*. It must be remembered that, although all the plants included in this short list are comparatively easy of culture, they require a considerable amount of attention to keep them well up to the mark, and to have in readiness good bushy stuff ready to burst into flower as soon as the *Chrysanthemums* are over. A pit that has been devoted to Potatoes will answer well for them during the summer months; this, with a cool bottom, plenty of air, and careful attention to the watering, is a brief summary of the summer treatment. As soon as the weather changes and the nights become cold, the plants must be removed to a light airy house, where, as I have previously said, a rather dry temperature, with a minimum of say 50° to 55°, can be maintained. Perhaps I ought to have included the *Bouvardia* in the above list, as it requires exactly similar treatment through the summer months, and is an invaluable flower for winter button-holes. There are, of course, many other plants equally useful, but I think the above-named might reason-

ably be included in any list of hardy and thoroughly useful winter-flowering plants. In connection with the Pelargoniums, I shall be glad to know if any reader has found any of the newer double varieties as serviceable as the two named in this list. Two thoroughly good sorts in the pink and white shades, to possess all the good points of *R. V. Raspail*, would be a wonderful boon to all who have to supply a lot of cut flowers through the winter months.

Claremont.

E. BURRELL.

TREES AND SHRUBS.

SKIMMIAS.

A MOST exhaustive and interesting series of articles have lately appeared in the *Gardeners' Chronicle* relative to the genus *Skimmia*, which has been for a long time in a state of great confusion, that reached its climax when some beautifully berried specimens were exhibited at one of the winter meetings of the Royal Horticultural Society by Mr. Foreman, of Eskbank, under the name of *S. Foremani*, and awarded a first-class certificate by the floral committee. With regard to the beauty of the specimens, the merit was certainly worthily bestowed upon them, but if the plants were, as stated, the result of a cross between *S. oblata* and *S. fragrans*, the bestowal upon them of a botanical name was



Skimmia japonica of gardens.

altogether wrong, for in the first place the two so-called species are really the male and female forms of one, and consequently, if no mistake was made, they could not even be classed as hybrids. This circumstance induced Dr. Masters to thoroughly investigate the subject, and with the great resources at his command, it may now be regarded as definitely cleared up. In the first place, the *Skimmia* most commonly met with, viz., the dwarf branching form with lanceolate leaves and hermaphrodite blossoms, that bears its crimson-coloured berries in great profusion, and which has up till now always been regarded as *S. japonica*, turns out on investigation to be not the true *S. japonica* of Thunberg, but the plant regarded as such by Hooker, Lindley, and subsequent writers; while that upon which the name of *S. oblata* was bestowed by the late Mr. Thomas Moore is identical with Thunberg's *S. japonica*. The result of all this

investigation is that the different *Skimmias* now in gardens are *S. Laureola*, a Himalayan species, far less ornamental than any of the others and very rarely met with. The fact of its being rather tender is also against its common cultivation. Then we have *S. japonica* of Thunberg, which is the plant generally known as *S. oblata*, a neat-growing evergreen shrub, that succeeds remarkably well even in smoky districts. In this species the flowers are dioecious, the male form being that usually known as *S. fragrans*, of which an illustration is herewith given, and which is a really pretty flowering evergreen



Skimmia fragrans. Male form of the true *S. japonica* of Thunberg.

shrub at this season, and also a first-rate town plant. To induce *S. oblata* to berry freely it is necessary to plant a specimen of *S. fragrans* in close proximity thereto, though even in the case of isolated plants of *S. oblata* an occasional berry will be produced. The next species is that so long known and so generally recognised as the true *S. japonica* (here illustrated), upon which Dr. Masters has bestowed the name of *S. Fortunei*, that of *japonica* being already given by Thunberg to *S. oblata* of gardens, which is really a Japanese plant, while *S. japonica* of gardens is a native of China. Other doubtful names are thus dealt with in the article in question—*S. oblata ovata* and *S. oblata Veitchii* are both forms of the true *japonica*, while *S. fragrantissima* is the male of the same species. Then we have Mr. Foreman's variety, regarding the parentage of which Dr. Masters is inclined to think there may have been some mistake, and that its parents are, perhaps, *Fortunei* (*japonica* of gardens) and *japonica* (usually known as *oblata*). A second kind raised by Mr. Foreman is named *macrophylla* from the large size of its leaves. Some years previously, however, Mr. Rogers, of Southampton, raised a *Skimmia* in the way of, but distinct from, that certificated as *Foremani*, which he calls *Rogersi*, and states that he has propagated and distributed a great number of plants, which from the profusion of berries borne by them are very valuable for many purposes.

T.

Foliage.—What a wealth of luxuriant foliage is to be seen on all deciduous trees this year. How truly is the long winter of barren branches atoned

for in the wondrous beauty seen in the spring when the trees are being clothed with leafage and of such varied form and dense shading. It seems doubtful whether Nature, although she furnishes greens so liberally, yet presents a more lovely hue than is found in the soft green of the Beech foliage as lit up by the declining sunshine. All Nature looks more beautiful when the sun throws its rays obliquely than when it is high above our heads. It would be interesting to learn from a colour student how many diverse shades of green Nature furnishes. We may find in the variation between the tints of the young shoots of *Picea Nordmanniana* and its old leafage almost myriads of shades, all beautiful, though none are more so than are the lighter shades. Not only does the beauty of the spring leafage, so gloriously luxuriant this year, give compensation for winter barrenness, but it presents forms of beauty which even tropical countries can hardly furnish or excel. What with many trees rich in bloom of many diverse hues and the abundant leafage of many diverse tints, the earth beneath the trees rich in most luxuriant verdure, or carpeted with myriads of flowers, our native scenery presents delightful attributes, which can hardly be too highly estimated. Ample leafage means good growth and roots in good condition, whilst full of promise for the coming season.—A. D.

Management of shrubby *Spiræas*.—One of the finest collections of hardy flowering and ornamental trees and shrubs in this part of Britain is at Westonbirt, the seat of Mr. Holford, in Gloucestershire. Amongst the numerous gems planted by that gentleman, I noticed and was much struck by the charming condition of his shrubby *Spiræas*, and in reply to my inquiry was told by Mr. Chapman that the majority of them are cut down to the ground, if not annually, quite frequently. For clean growth, fine foliage and magnificent flowers, I may safely say I never saw anything to equal them. How often in old gardens do we see large straggling shrubs and bushes literally choking and strangling each other, with legs long and bare, a tuft of leaves near the tops, and flowers conspicuous by their absence. In some instances the plants are retained as screens, an office they have long since ceased to fulfil; but in the majority of cases, as at Westonbirt, they might be made fresh and beautiful, first, by thinning out the rubbish, and second, by cutting down those worth keeping.—W. C.

***Portlandia pterosperma*.**—Among the many novelties collected by Dr. Edward Palmer, during the past season in the region about Guaymas upon the eastern side of the Gulf of California, is a *Portlandia* which promises to be a valuable acquisition if it can be secured for cultivation. This genus belongs to the Rubiaceæ, an order which supplies such ornamental shrubs as the *Gardenias*, *Bouvardias*, *Rondeletias*, &c., and received its name in honour of the Duchess of Portland, who in the last century was a friend and patron of botany and made a fine collection of rare and valuable trees and shrubs for the adornment of her grounds at Bulstrode. The first species described, *P. grandiflora*, is a native of Jamaica; was introduced into England in 1775, and was figured in the *Botanical Magazine*, t. 286, in 1795. It is there spoken of as a beautiful stove plant, not of difficult growth and flowering freely, blooming when not more than a foot high, its flowers uncommonly large, showy and fragrant. Seven other species have since been added from the West Indies and Mexico, of which the *P. platantha* was also figured in the *Botanical Magazine*, t. 4534, in 1850. This is a similar shrub, with dark green and glossy evergreen leaves and very large, funnel-shaped white flowers, "flowering in a very dwarf state and almost always in blossom." The present species, as it is found growing in the deep cañons of the mountains about Guaymas, is a shrub or small tree, from 2 feet to 10 feet in height. The foliage differs from that of other species in being rather thin and deciduous, instead of leathery and evergreen. The flowers are numerous upon the young slender branches, a pair appearing at nearly every node. They are pure white and exceedingly fragrant, funnel-form in shape, and

nearly 3 inches in length. The triangular lobes of the limb are folded edge to edge in the bud, so that it is strongly angled before opening. The plant fruits freely and seeds were obtained, but these have failed to germinate. The surest and quickest mode of propagation would doubtless be by cuttings. The size, beauty and fragrance of the flowers and the free-blooming habit of the plant make it very desirable as an addition to our greenhouses, and it will probably prove to be hardy in the Gulf States or even farther north.—*Garden and Forest*.

TREE NOTES FROM HOLWOOD PARK.

SWEET OR SPANISH CHESTNUT.—Of this handsome and valuable timber-producing tree there are some symmetrical and bulky specimens, and of these we may make particular note of one growing in the grounds at Keston Lodge and at but a short distance from where the public path divides Holwood and Keston. At 3 feet from the ground the stem has a girth of 14 feet 3 inches, while the total height of the tree is 78 feet, and the branches extend for fully 70 feet. Another tree of the same kind, but of finer proportions, although not of so great stem-girth, occupies a conspicuous position amongst some noble Beeches on the margin of one of the lakes at Holwood. Sixteen feet in length of the butt of this fine tree contains exactly 100 feet of wood (these dimensions are rarely surpassed, at least in a clean, well-formed stem), the stem girth at 8 feet up is exactly 10 feet, while the branches cover a spread of fully 60 feet in diameter. There is an increasing demand for good Chestnut wood, it being largely used in the making of furniture, as well as, but particularly in certain parts of the country, coffins; indeed, for this latter purpose, good clean stems of fairly large proportions will often fetch from 2s. to 2s. 6d. per cubic foot.

THE YEW, as in most places of antiquity, is represented at Holwood by some goodly, well-branched specimens, as well as by not a few gnarled, hollow-stemmed, and dilapidated-looking trees that at once impress one with thoughts of bygone days and a reverential feeling of age and respect. A densely-branched and very ornamental tree of this kind in conspicuous in the south park, for it stands in solitary seclusion and sends out its lithe well-furnished branches for a length that almost exceeds its height. At 2 feet from the ground the stem has a girth of 20 feet 5 inches, while the branches cover a spread of 57 feet. A neat iron fence surrounds this giant tree, and well protects it from injury by either man or beast. On the margin of the duck pond is a gnarled and weird-looking Yew, whose half hollow stem when tapped we found to be 13 feet 2 inches in girth at a yard up. At no great distance from this patriarchal specimen of the Yew is one of the most peculiar cases of the junction of two trees—an Oak and a Yew—that has yet come under my notice. The stem of the combined trees, which is of perfectly normal outline, is 7 feet 11 inches in girth at 3 feet from the ground level, and 7 feet 10 inches at 5 feet up. The Yew portion rises to 15 feet in height, and has a branch spread of 36 feet; while the Oak, whose height is 35 feet, has a diameter of spread of branches covering 54 feet at the widest part.

Both stems are so amalgamated, that were it not for the difference in colour of the barks the point of junction would hardly be detected, and this is rendered all the more mystifying, as the combined stems form one that is of gradual taper and well rounded for the entire length, or until that point from which the branches ramify. For fully 5 feet up, at which point two large limbs are cut out by the Oak, the Yew takes up from 2 feet 2 inches to 2 feet 5 inches of the total girth of the stem, but how far the wood of the Yew extends inwards cannot be ascertained—at least without doing serious injury to the health of the tree.

At 2 feet from point of junction with the main stem the two large limbs sent out by the Oak girth respectively 4 feet 7 inches and 4 feet 9 inches, and as they grow outwards in opposite directions, or

nearly north and south from the main trunk and in bow shape, have an appearance that is as peculiar as it is unusual in tree growth. The Yew stem almost encircles the northern limb, and with it is completely amalgamated, the barks being quite level and as if inarched at the point of junction. When viewed from the public path, from which it is only 11 yards distant, these combined trees present a most curious and unusual appearance, but particularly when the Oak is destitute of leaves, the co-mingled deciduous and evergreen branches being the most noticeable. How this union of the two trees, but particularly a Conifer and a hard wood, had been brought about would be difficult to determine; but in all probability they had intentionally, as both the Oak and Yew are of about the same age, been planted closely together when seedlings, and so grown on as one stem, owing to their close contiguity. Tying of the two stems together may probably have been resorted to; indeed, this is rendered more than probable, owing to their nearness to the public path. That this peculiar union of a Yew and Oak attracts some attention from pedestrians on the footpath hard by is only too evident from the numerous cuts and scars that have been inflicted on the stem at that point where the two barks meet and are so evenly joined together.

THE BIRCH, although springing up naturally in all directions, does not generally attain to a great size at Holwood, the finest specimens, with one or two exceptions, being those at and around the Roman camp and alongside the lakes. Immediately to the right of the green drive and where it crosses the ramparts of the camp is a fair example of the Queen of the Forest, as the Birch is designated, and which at a yard from the ground measures 12 feet 2 inches, and has a spread of branches covering a diameter of 57 feet.

Amongst other remarkable trees are two specimens of the Horse Chestnut, raised from seed brought by the Earl and Countess of Derby from Ferny, Lake of Geneva, March, 1873. These trees are growing at the top of the concrete pond at Keston Lodge and on the margin of the carriage drive. Both trees are in excellent health and growing rapidly, the largest being 18 feet in height and with a stem which girths 14 inches at a yard from the ground. There are likewise a number of Oaks raised from acorns planted for Mary, Countess of Derby, by Thomas Carlyle, in October, 1875. The largest of these is only about 8 feet in height, the majority 6 feet, and they are not in a very healthy or flourishing condition, which can hardly be due to the quality of soil, as others of the same kind growing in close proximity have attained to goodly proportions.

Of the new and rarer Coniferae there are numerous fine examples, particularly *Wellingtonia gigantea*, *Abies Nordmanniana*, *A. nobilis*, *Araucaria imbricata*, *Junipers*—various species; *Cedrus Deodara*, *Sequoia sempervirens*, *Cypresses* of kinds, *Thuja gigantea* and *T. occidentalis*, *Pinus excelsa*, and many others. The deciduous *Cypress* (*Taxodium distichum*) and *T. Montezumæ* are represented by a couple of fine specimens growing on the lawn at Hollydale, while of that lovely, distinct and still somewhat rare Japanese Conifer, *Cryptomeria elegans*, there is a stately and well-furnished tree, which at present enlivens with its bronzy-crimson hue the well-kept grounds immediately in front of Holwood House.

A. D. WEBSTER.

Veronica Hulkeana.—This is a favourite plant of mine, and about twenty years ago I raised a number of seedlings, some of which were grown in pots, and others planted out at the foot of a south wall. Both did well and flowered profusely. It is very different from the more common forms of the New Zealand Speedwells, represented by such as *V. speciosa* and the numerous hybrids raised therefrom, for *V. Hulkeana* is of rather erect habit, while the flowers are borne in large terminal branching panicles. The individual blooms are of a very pleasing shade of pale lilac, rather an uncommon tint among plants now in flower. As an instance of the different subjects taken in hand by

the London market grower, I may mention that a couple of years ago I saw a number of plants of this *Veronica* for sale on a costermonger's barrow.—H. P.

Bauera rubioides.—This little New Holland shrub will continue to flower for months together, and although not so showy as many other plants that require much the same treatment, it is well worthy of a place wherever subjects of this character are grown. This *Bauera* forms a small much-branched bush, the slender shoots of which are clothed with narrow leaves and studded with saucer-shaped blossoms about three-quarters of an inch in diameter and of a pleasing shade of mauve-pink. I have had it in flower by the middle of February, and the same plant has bloomed till midsummer.—H. P.

Cytisus laniger.—A fine plant of this old-fashioned half-hardy shrub occupies a snug corner in the shrubbery at Montys Court, near Taunton. Many years ago this *Laburnum* was thought worthy of a place under glass, but it is rarely to be seen now either indoors or out, yet there are few more distinct and attractive yellow-flowered, hard-wooded plants than this. It is when it is grown in the open air, with plenty of space for its roots and branches, that it does best. With regard to its hardiness, I can only say that it was always considered to be only half-hardy; therefore it is not likely to stand out of doors during a severe winter in the northern counties. The plant in question is about 2 feet high, and has probably stood in the same position for twenty years.—J. C. C.

The cut-leaved Walnut.—Seldom, indeed, do we see this most distinct of trees planted out in our parks and grounds. This is to be regretted, for it is as handsome as it is uncommon. The noblest specimen I have seen has been planted unknowingly in a Larch plantation, and it was certainly an object of great beauty, the massive head rising to a height of nearly 50 feet. A tree of such distinct foliage as this cut-leaved Walnut will undoubtedly, sooner or later, come into general favour. Soil suitable for the typical tree is all that is necessary for the cut-leaved form, while, judging from what I have seen, it is quite as hardy and accommodating. It is not yet too late in the planting season to become possessed of a specimen of this interesting and highly ornamental Walnut, and I feel quite convinced that whoever indulges in a plant will, years hence, be proud of his purchase.—A. D. WEBSTER.

Cerasus Mahaleb.—The blooms of this graceful May-flowering tree are borne in the greatest profusion. It is by no means of slow growth and reaches a height of from 20 feet to 30 feet. A mature specimen forms a somewhat full roundish head of branches, while the branchlets are partially drooping, thus imparting a very graceful character to the tree. The flowers, and in fact the whole plant, including the wood, is very strongly scented, too much so indeed to be agreeable. This *Cerasus* is used as a stock on which to graft some of the Cherries, but besides this its ornamental qualities rank high, and the fact that it will flourish even in dry, sandy and stony soils is another great point in its favour. It is a native of the middle and south of Europe, and, according to Loudon, has been grown in British gardens since 1714, but is now quite an uncommon tree.—T.

Hydrangea volubilis.—Under the cumbersome name of *Schizophragma hydrangeoides* this plant was awarded a first-class certificate by the Royal Horticultural Society some four years since. It is a native of Japan, from whence Messrs. Veitch introduced it, I believe, through their collector, Mr. Maries. The greatest peculiarity connected with it is that, unlike other *Hydrangeas*, it is quite a climbing plant, so much so that where the stems press against a suitable surface, they push forth roots after the manner of Ivy. The greater part of the head of flower consists of the small fertile blooms, the large showy sterile ones being limited to a few scattered around the outside portion of the cyme. This *Hydrangea* may be grown as a wall shrub, or it presents a very distinct appearance when planted on a large, bold rock-

work, as it will attach itself to the stones, and, as a rule, flower freely. When treated as it is in the temperate house at Kew, viz., planted out and allowed to assume the character of a somewhat rambling shrub, it is very pretty when in flower, as in this way the foliage is in no way injured by winds or frosts, which sometimes disfigure the young leaves when in the open ground.—H. P.

EVERGREEN SCREENS.

To screen buildings or other objects that tend to mar the landscape in any way is a matter of much moment, particularly when such occur in the park or pleasure ground. For such a purpose trees are often entirely out of place, and recourse must be had to the taller-growing evergreen shrubs, or, perhaps, it may be small-growing Conifers. The Holly and Yew are two of the best screen plants that can be employed, for not only may they be planted out when of large size—up to 10 feet or 12 feet in height, if carefully handled—but they are of compact habit and grow away rapidly after becoming fairly established. Next to them I should say plant the Portugal Laurel, Sweet Bay, and Evergreen Oak, all tall-growing Evergreens of great merit and value for the purpose under consideration. They grow freely enough, soon forming rich masses of foliage, and are perfectly at home anywhere and everywhere. Pruning, too, they bear with impunity, which scores another point in their favour. Spruce Fir is so hardy, grows with such freedom, and so soon accomplishes the end in view, that it must be included in the list.

Few are aware how lasting and beautiful an evergreen fence may be made of the Gorse or Furze. By throwing up a mound of earth, say 1 foot or 2 feet in height, where the fence is intended to be made, and planting the Gorse on the top of the bank, an excellent screen fence will be made in a remarkably short space of time. The roots of the Gorse bind the mound most effectually and cause it to hold well together. Then it bears pruning with perfect impunity; in fact, the more it is cut and hacked at, the greener and stronger it grows. I have found it an excellent plan to cut down Gorse hedges every fifth year. Excellent fences of the Gorse may be seen on the Isle of Man, and in positions, too, where many other plants could not succeed.

The common Ivy if carefully handled makes a pretty, lasting, and excellent screen plant, and one that soon accomplishes the end in view. It requires a support in the way of a lattice-work, and if the plants are put into good soil they will in a couple of years have covered a large surface with the richest and freshest of green. Larch poles make a substantial and rustic-looking support, but it is as well to use good timber at the outset, so as not to have to pull the screen-fence to pieces in a few years after its formation, as would in all likelihood be found necessary if inferior or too immature timber were employed. Laurels can hardly be recommended as first-class screen plants, for although they do well enough for a few years, yet eventually, unless they are periodically cut low and pruned close in, they get bare at the bottom and so ruin the object for which they were originally intended. Beautiful as is the *Laurustinus*, it can hardly be included in the list of screen plants, unless it be that the object to be hidden from view is of low stature. Box, too, is of too straggling growth for screen formation.

In planting to form a screen, it is good policy to place the Evergreens doubly thick at first, and when they begin to encroach on each other to remove every alternate plant. By so doing a thick screen is formed at once, a matter often of the greatest moment in the pleasure ground or park. A. D. WEBSTER.

Himalayan Rhododendrons.—With reference to these (p. 412), it may be interesting to "H. P." and other readers of *THE GARDEN* to hear of the somewhat rare varieties of the above doing well planted out in the American garden here at the foot of the Surrey hills. Both *R. campanulatum*

and *R. Thomsoni* are good specimens, each from 10 feet to 12 feet high and as much in diameter, and have flowered very freely this season. The flowers of *R. campanulatum* are nearly over, but the *R. Thomsoni* has still about sixty good trusses of its splendid, deep-coloured flowers open, with from five to eight bells to the truss, the individual blooms somewhat resembling those of *Lapageria rosea*, and forming a beautiful contrast to the light foliage. We have several other Himalayan varieties planted out in the American garden, many of these flowering so early that unless protected from late spring frosts, the blooms get disfigured. Many of the more common varieties are large specimens, each from 16 feet to 18 feet high and just bursting into flower. About two acres of *Azaleas*, the plants well set with bloom and each ranging from 5 feet to 10 feet high, will be very beautiful during the next few weeks.—J. F., *Rook's Nest, Godstone, Surrey.*

VACCINIUM, OR WHORTLEBERRY.

THIS interesting tribe of small ornamental plants grows wild in different parts of Europe, America, and Asia, and is generally found on damp moors, mossy ground, and rocky parts on the mountain slopes of these countries. A good many of the species and varieties are perfectly hardy in this country. Some prefer damp, shady situations in the vicinity of trees, while others delight in loose, gravelly soil on exposed places. The genus comprises about fifty species that have been described. The following are natives of Britain, viz., *V. uliginosum* (great Bilberry or Bog Whortleberry). *V. Myrtillus* (the common Bilberry or Blaeberry) is found in moor ground and shady woods, and generally produces a great abundance of fruit, which are highly relished by most people. *V. Vitis Idæa* (red Whortleberry or Crowberry) grows among the Heather and shady woods in the highlands of Scotland, where it attains a height of some few inches, and generally produces large crops of pretty red berries, which are not only ornamental, but also esteemed by many people when made into tarts. It is an Evergreen, and the leaves are about the size and shape of those of the common Box. It is a capital carpet or marginal plant for beds, and bears pruning and trimming with impunity. *V. Oxycoccus* (Marsh Whortleberry or Cranberry) also produces abundance of berries, which are relished and used in the same way as those of *V. Vitis Idæa*. The whole tribe seems to prefer a boggy or mossy soil, although at the same time I have found all the above-named species thriving upon light gravel and shingle, with only a slight mixture of mossy stuff on the surface. The culture of these pretty hardy native plants seems to be rather neglected, the demand for some time back having been for plants of foreign origin. Although this is to be commended to a certain extent, yet it should never be carried out so far as to almost prevent the cultivation of some of our native evergreen berry-bearing plants, which prove so useful and ornamental. I have found the following plants of foreign origin to be hardy in this country, and worthy of the notice of the planter: *V. Arctostaphylos* (the Bear's Grape Whortleberry) is a native of the wooded mountains in the vicinity of the Black Sea, where it is said to form a handsome deciduous specimen of from 6 feet to 8 feet high. In this country it should be planted in a rather damp shady situation. Its flowers are of a bluish white colour, tinged with purple, and the berries of a reddish purple shade. *V. buxifolium* (the Box-leaved Whortleberry) is a dwarf species from Virginia and North America. It is a charming little evergreen plant of some 6 inches or 8 inches in height, and well adapted for forming an edging for beds in shady situations. It is said to have been introduced into this country about the year 1794. *V. frondosum* (the Leafy Whortleberry) is indigenous to woody parts of New Jersey and Carolina, where it is known by the name of Blue Tangles. It forms a neat deciduous shrub of some 3 feet high, the leaves being each fully 2 inches long, of a bright green colour above and glaucous underneath. The berries are of a bluish colour. It requires a damp, shady situation and plenty of rich boggy

soil. It was introduced into this country about the year 1761. *V. macrocarpum* (the American Cranberry) is a native of the United States and Canada, and was introduced to this country about the year 1760. It is a dwarf evergreen shrub, some 6 inches high. Its fruit is esteemed for tarts and similar purposes. It flourishes best in damp peaty soil. *V. stamineum* (the Long-stamened Whortleberry) is a native of the wet swamps of New England, where it is said to attain a height of about 2 feet. It forms a close, dense deciduous specimen, the leaves above being of a glaucous colour and downy underneath. The flowers are nearly white, very showy, and the berries of a light green or whitish colour. It is well adapted for planting in damp boggy ground in woods and shady places. It was introduced into this country in the year 1772. *V. ovatum* (the ovate-leaved Whortleberry) is an evergreen shrub from the north-west coast of America, where it is said to attain a height of about 2 feet. It was introduced into this country in 1826, and, like the rest of the genus, it likes a soft peaty soil and shady situation. The leaves are of a thick texture, serrated, and of a bright glossy colour. The flowers expand in May and are of a bright pink colour. The berries, which are generally ripe in September, are of a pretty black colour and very attractive. Altogether the plant is very distinct and interesting and well worthy of extended cultivation. J. B. W.

Kalmia glauca.—Though by no means the most commonly grown this is the earliest of all the *Kalmias* to unfold its blossoms, at which time few (if any) brighter little shrubs can be found in the garden, for the flowers of the gorgeous-coloured *Azaleas* are later in expanding than those of this *Kalmia*. It is a low-growing shrub, usually somewhat erect in habit, and a foot or a little more in height. The leaves are small, very glaucous beneath, but green on the upper surface. The flowers, which are borne in such numbers that the upper part of the plant is thickly studded with them, are of a very pretty shade of purplish pink. This *Kalmia* is by no means vigorous enough to hold its own in a mixed border of shrubs, but it is at home when associated with the *Ledums*, *Heaths*, *Andromeda polifolia*, and similar subjects. It is seen at its best when several are massed together, and besides this it is a desirable plant for the moist peaty portion of the rockwork, but will not flourish in dry spots. This *Kalmia* may be flowered under glass as readily as its larger relative (*K. latifolia*), but it is very seldom employed for the purpose. Like all the rest of the genus, it is a native of North America, from whence it was introduced more than a century ago.—T.

The Spurge Laurel (*Daphne Laureola*) for covert.—This hardy native evergreen shrub is, perhaps, with the exception of the common Holly, the best for planting as covert under the shade of trees, where many other kinds of shrubs will dwindle away and perish. It also grows and reproduces itself among the fallen leaves of Pine trees, in many cases springing up close to their stems, and thus forming a very fine close covert. I have occasionally found seedling Hollies in such places, so that their merits in this respect are about equal. The Laurel, however, forms a more compact, round-headed bush than the Holly, which often attains the size of a small tree. The former only grows some 3 feet or 4 feet high, and has a globular head. It gives variety when mixed with other plants of a different style of growth. The leaves of the Wood Laurel, as it is often called, are of a rather thick texture, glossy dark green in colour, and arranged in tufts at the terminal points of the branches. Its flowers, which are generally produced in great abundance in early spring, are of a yellowish colour, and are succeeded by green berries, which as they ripen gradually become black. It is one of the few plants that I have never seen destroyed by hares and rabbits, and this is another point in its favour as a covert plant. Various kinds of birds seem to relish the berries, and where seeds are wanted the fruit had better be gathered when ripe, and sown at once on a soft, friable nursery ground prepared

for the purpose. After the plants have grown a few inches in height, they should be lifted from the seed-bed and planted into nursery rows, allowing them sufficient space to form stout, bushy specimens. In cases where extra large plants are wanted, the seedlings had better be transplanted a second time, as circumstances may direct.—J. B. W., in *Field*.

ORCHIDS.

W. H. GOWER.

ODONTOGLOSSUM POLYXANTHUM.

THIS very beautiful species was first made known some twelve years ago, having been found in Ecuador at an elevation of about 8000 feet. It is rare in its wild state, and hence this may account for its still remaining to a great extent scarce. Although fair examples are to be found in the majority of the large collections in this country, it still remains an apparent outcast from the majority of small growers' houses. This may arise from its not being known so well as many others, but it is quite time it became more largely grown than it hitherto has been. My ideal species of *Odontoglossum* is the beautiful *O. Alexandræ*, which, although I am aware is more correctly named *O. crispum*, I still like to retain the name which was given it by Mr. Bateman in his monograph of the genus soon after its introduction to this country in a living state, which was about twenty-two years after its first discovery by Hartweg, then travelling for the Horticultural Society of London. In those days and later, this society and the Royal Botanic Gardens at Kew sent collectors abroad in search of new plants, but of late both appear to be satisfied to receive them through the trade collectors, as it is now some years since a collector was dispatched under the auspices of either. To return, however, to *O. polyxanthum*. It has only been imported at rare intervals, and its name is derived from its very yellow-coloured flowers, which in good forms of the species are very bright, and which entitle it to as much care from the hands of the cultivator as *Alexandræ* receives from every grower. It is a strong-growing plant, and "W. T. F.," who inquires about it, is wrong in supposing it requires more heat than *Alexandræ*. Both are natives of the same country and at about the same altitude, and both thrive admirably under the same treatment, and I am sure he will fail if he subjects his plant to the temperature of the Cattleya house. I have recently observed good and well-flowered examples in several collections, and all have been placed in company with, and received the same treatment as, the *O. Alexandræ*. Then why expend more money which more heat requires? Orchids were terribly destroyed under the hot system of culture until I opened the eyes of the Orchid world to the cool treatment. In good forms of *O. polyxanthum* the flowers are large, each measuring fully 4 inches across and bright yellow, blotched and spotted with bright reddish chestnut, the sepals being usually the heaviest blotched. In ordinary forms the yellow is paler, and the spots and blotches are more of a deep cinnamon, but both forms are extremely beautiful, and as this is the season of its flowering, I would advise Orchid growers to select good examples and give them the same encouragement as they have done the forms of *Alexandræ*, and to which their bright flowers afford a splendid contrast, especially as they last in full beauty equally as long. I believe the species first flowered with Mr. Cobb, of Sydenham, whom I have known for nearly twenty years as a most enthusiastic grower of

all classes of orchidaceous plants, and who at the present time is as keen in his love for them as ever.

THE ORCHIDS OF THE CAPE PENINSULA.

It is hardly necessary to state that "the Cape" is synonymous with, or rather an abridgment of, the Cape of Good Hope. The portion here referred to is the neck of land stretching southward from Cape Town and terminating in the Cape itself. This tract is about forty miles long, varying in width from three to eleven miles, and connected with the mainland by a low sandy isthmus. The total area is about 200 square miles, or about one-fourth larger than the Isle of Wight. A great part of its surface is occupied by a central mountain range, which traverses its whole length, and attains its greatest altitude in Table Mountain, near Cape Town, where the elevation is 3562 feet above the level of the sea.

Mr. Harry Bolus, whose contributions to South African botany are known to most botanists at least, and who has long resided near Cape Town, was early attracted by the marvellously rich and beautiful flora of his adopted country, and he has devoted his spare time to the study of it, not only on the spot, but also the materials accumulated at Kew and elsewhere in Europe during his occasional visits to the old country. His latest contribution to botanical literature bears the title at the head of this article, and forms the first part of the fifth volume of the "Transactions of the South African Philosophical Society," consisting of 200 pages of letter-press and 36 partly-coloured plates. It is a valuable and interesting addition to orchidology, alike from the standpoint of the systematist and the student of the geographical distribution of plants, but it will be specially welcome and useful to residents at the Cape or visitors who have some taste for investigating the mysteries of the vegetable kingdom, for no family of plants exhibits greater variety and more singular modifications or adaptations of structure than Orchids, whether we consider its usually less showy terrestrial members, which chiefly inhabit temperate regions, or the gorgeous epiphytal species of the Tropics. All the Orchids of the Cape Peninsula are terrestrial—that is, grow in the ground like our English ones, and not on trees, as most tropical and many sub-tropical species do in humid, wooded regions.

Orchids are spread nearly all over the world, almost reaching the altitudinal and latitudinal limits of flowering plants; yet they are exceedingly rare in remote islands, or altogether absent therefrom. On the last British Polar expedition, Mr. Chichester Hart found three species growing abundantly and luxuriantly near the sea level in 69° 15' N. lat.; and two of these actually extend to the south of England, where, however, they are very uncommon. But the majority of the species of Orchids occupy quite narrowly restricted areas, and the terrestrial species of the southern hemisphere very much more so than those of the northern. Thus out of the 102 Cape Peninsula species described by Bolus, only one has been recorded beyond the limits of extratropical South Africa, and that one doubtfully, from the Cameroons Mountains; whilst thirty-three of them have hitherto not been found except in the peninsula, though further explorations will probably reduce this number. Still, many South African plants, like many Australian, are quite local, and no inconsiderable number of them have only been found in a single locality; others have only been seen once or twice. Mr. Bolus mentions particularly one Orchid that was collected on the Cape Peninsula in 1695, the specimens being still preserved in a herbarium at Geneva, but which had not been found since till the year 1884, though numerous collectors had traversed the region in all directions.

As may be learnt from the introduction to the present work, Mr. Bolus has by no means confined his attention to the Orchids, but has extended it to all classes of flowering plants, and is able to record no fewer than 1750 species as growing within the peninsula itself. There are eighty-eight kinds of Heath (*Erica*) alone; yet these combined do not

make so much show on the mountain-sides as our two or three common species do in Britain and Ireland. The next genus in point of number of species is *Disa*, of the Orchideæ; and of this genus there are forty-seven species in the Cape Peninsula, or more than the total number of Orchids in the United Kingdom. Other genera represented by many species, and giving character to the vegetation, are *Mesembryanthemum*, *Helichrysum*, *Oxalis*, *Pelargonium*, *Crassula*, *Moræa*, *Gladiolus*, &c. The Compositæ, the natural order to which the "ever-lasting flowers," which are almost, or quite, as numerous in South Africa as they are in Australia, belong, stand at the top with 225 species, or about 13 per cent. of the whole number of flowering plants. These are followed successively by the leguminous, Heath, and Orchid families. Orchids, therefore, occupy a fourth place in a numerical sequence based on the number of species, though as regards the space they appropriate and their degree of conspicuousness in the vegetation, they are far behind many other families represented by fewer species.

Many of the Orchids are exceedingly pretty, and many others highly curious; yet few of them are really showy and striking objects. Foremost among them is the Pride of the Table Mountain, or *Disa grandiflora*, as I will continue to call it here, though it has an older name, because the older one is quite unknown to persons who are not unfamiliar with the cultivated plant, which in size and brilliancy of colouring surpasses all the terrestrial Orchids of the southern hemisphere. A combination of carmine, deep flesh, and orange are the colours of this beautiful Orchid. In spite of large exportations of its roots to Europe, it is still plentiful on the Table Mountain, according to Mr. Bolus; but it is satisfactory to learn that the Government has recently intervened and restricted the removal of the tubers within reasonable limits; "so that, if this supervision be continued, there will be little reason to fear the extinction of this truly noble species."

With respect to the colours of the flowers of the Cape Peninsula Orchids, Mr. Bolus gives us some most interesting information. Grouping them according to their predominant colours, he finds that nine species may be classed as green, thirty-two as yellow, eight as brown, twenty-four as red, fourteen as blue and blue-purple, and sixteen as white. But, as the colours are so variously combined, the foregoing classification can only be regarded as a rough one. Taking the genera, Bolus finds that *Liparis* has green flowers; *Eulophia*, brown, yellow, and white; *Bartholina*, purple and white; *Satyrium*, all the colours named above, except blue; *Disa*, all the colours named above; *Disperis*, red, yellow, and green; *Corycium*, yellow and white; and *Ceratandra*, red, yellow, and white.

With respect to the odours exhaled by different species, he has observed, as a general rule, that those of red hues are the least fragrant, those with white flowers most so; and the scent of some, especially those having yellow flowers, is heavy and unpleasant. Darwin's famous book on the fertilisation of Orchids has led Mr. Bolus, like many others, to make observations in this direction, though he states that the necessary preliminary systematic work has hitherto so fully occupied his spare time that he has had no opportunity to carry his investigations far. There appears to be no doubt that the majority of the Cape Orchids are fertilised by insect agency, yet our author has not observed the process in a single species; and Mr. Peringuey, an experienced entomologist, who has resided several years in Cape Town, has never captured an insect with the pollinia of an Orchid adhering to it. But although Bolus has not actually observed the process, he has met with evidence of the visits of insects to the flowers of various species, and seen the results arising therefrom.

One of the prettiest, and at the same time one of the most singular, of Cape Orchids is *Bartholina pectinata*, of which living plants were sent by Masson to Kew just 101 years ago; and it has since reappeared in gardens at various times, though

I am not aware that anybody has succeeded in flowering it a second time from the same roots. Like many other terrestrial Orchids with underground tubers, it is very difficult to cultivate, in consequence of the impossibility of placing it under something similar to natural conditions. There is a coloured figure of this Orchid from a plant that flowered in Rollisson's nursery at Tooting in 1832 in the *Botanical Register*, plate 1653; and Bolus figures what he regards as a new species, but which may possibly prove to be a sexual modification of the same species, as the differences are of a kind suggestive of such relationship to each other. Similar to some of our native Orchids, they have a pair of small ovoid tubers, one of which is renewed each year; but here the resemblance ends. One circular, stem-clasping leaf is produced by each plant, and this leaf lies flat on the ground. The slender hairy stem is from 6 inches to 9 inches high, and terminates in a solitary flower about $1\frac{1}{2}$ inches in diameter, and pale blue in colour, or occasionally white. The lip or labellum is the most highly developed part of the flower, being deeply cut into numerous very narrow segments forming a deep fringe. In the original species or form these segments terminate in fine deflected points; in Bolus's new one they terminate in knobs or, as he terms them, cushion-like processes, which are turned upwards. Whether they are of a glandular nature or otherwise is not mentioned; but this is a question that can only be answered after the investigation of living plants.

Mr. Bolus states that the fertilisation of *Bartholina pectinata* is very similar to that of *Orchis mascula*, as described by Darwin, and is a useful illustration for beginners in the study of Cape Orchids. The mode in which fertilisation is effected may be seen by inserting the sharpened end of a pencil in the manner described by Darwin. With regard to the fertilisation of *Disa grandiflora*, our author agrees with Mr. R. Trimen, who investigated the matter some years ago, that it is rarely if ever effected, and that, perhaps, owing to the extinction of the particular species of insect capable of entering the flower in such a way as to extract the pollinia and convey them to other flowers. As already mentioned, it is the largest and most brilliantly coloured of all the Cape Orchids, and it secretes honey in abundance, presenting, therefore, the greatest attractions to insect visitors. However, the loss, or nearly so, of the power of reproduction by seed is compensated for, to some extent, by a greater development of vegetative reproduction, new tubers being apparently the only way by which the plant is multiplied.

The flowering season of Orchids at the Cape is not restricted to a few months, as in the north, though the majority of the species blossom in spring and early summer. Orchids are to be found in flower in the peninsula all the year round, excepting in the month of April in specially unfavourable years. In ordinary seasons they begin in April, even before the first winter rains, and attain their maximum in October. Therefore persons visiting the Cape for health or pleasure, or the two combined, may count on finding something interesting among the wild flowers at whatever time of year they arrive.

It may be mentioned in conclusion, that Mr. Bolus illustrates new and obscure species, not the more showy and better known ones.—W. BOTTING-HEMSLEY, in *Field*.

Odontoglossum Cærstedii.—We recently noted this very pretty dwarf species flowering beautifully in Mr. Laing's establishment at Forest Hill, where Orchids generally are well done. It appears to have been found about forty years ago, but it was long after this before it came to us in a living state, flowering first in the Veitchian collection at Chelsea. It produces two, and sometimes three or four, flowers upon a dwarf scape, but sometimes three and four are borne together. These flowers are large and pure waxy white, saving the base of the lip, which is yellow, somewhat sparingly dotted with orange-yellow. The flowers emit a some-

what faint odour of Lemons. It grows wild at some 8000 feet or 9000 feet elevation, enveloped for a considerable portion of its time in fog, so that it is kept continually moist. Under cultivation it thrives best exposed to the full light, but it loves shade, and it should never be allowed to become dry.

Odontoglossum ramosissimum.—From an unknown source comes a fine spike of this species. It is about 2 feet high, much branched, and bears a profusion of large flowers, each of which is nearly 2 inches across; the sepals and petals are narrow, undulated at the edges, and pure white, thickly spotted with purplish mauve. Amongst the finest examples which I have seen growing were those in the once famous collection of Mr. Buchan at Southampton (now dispersed). It was, I believe, one of the discoveries of Col. Hall, and is said to be found at great elevations. Certainly it thrives under the very coolest treatment. It appears to vary considerably in the purity of the whiteness of its sepals and petals.—W. H. G.

Odontoglossum nævium.—A quantity of this beautiful plant is now flowering in Mr. Sander's collection at St. Albans, its lovely flowers being quite distinct from those of every other kind, numerous as are the species and varieties now in cultivation. It was first found by M. Linden nearly fifty years ago, but it has never been a common plant in gardens; indeed, it has always maintained a high price, although it would appear to be found over a large extent of country. The quantity to be found at present at Mr. Sander's establishment, however, seems to show that it will find its way into numerous collections. The flowers are beautifully undulated, the sepals and petals narrow. The flower is snowy white, profusely spotted with deep purplish brown or reddish purple. Many growers have told me that it was not so pretty as *O. cirrhosum*, but though I would not by any means wish to say one word in disparagement of the last-named plant, I cannot admit that it resembles nævium, or that it is so chaste and beautiful. Curiously enough, the scarcity of both plants is remarkable. *O. nævium* thrives in the company of *O. Alexandræ*.—W. H. G.

GARDEN FLORA.

PLATE 702.

AERIDES LAWRENCIÆ.*

AERIDES is a noble genus of Eastern Orchids having distichous leathery leaves, which are somewhat channelled and unequally truncate at the apex. In some few instances, however, they are terete. The flowers are for the most part exceedingly handsome, deliciously fragrant, and last long in full beauty. The genus was established by a missionary in Cochin-China named Loureiro, to whom we are much indebted for the discovery of many new plants at that time, and who appears to have devoted more time to the plants of the district he was in than to anything else which I know to be recorded of him. He says of the original species *A. odoratum*, which was introduced to cultivation in 1800, "that it has this wonderful property, that when brought from the woods where it grows into a house and suspended in the air, it will grow, flourish, and flower for many years without any nourishment either from the earth or from water."

The plant now under consideration is a very much enlarged and highly coloured form of the original species *A. odoratum*. It was introduced by Mr. Sander, of St. Albans, about the year 1882, and when sold by auction in flower

* Drawn for THE GARDEN by H. G. Moon, October 21, 1888, in Mr. W. E. Harvey's garden at Aigburth. Lithographed and printed by Guillaume Severelyns.



AEPIDES LAWRENCEI

in the following year it was purchased by Sir Trevor Lawrence, of Burford Lodge, for the large sum of 235 guineas. It has since been named by Prof. Reichenbach in honour of Lady Lawrence. As may be expected from an imported plant from its wild habitat, several varieties have occurred amongst the plants sent home from time to time, but I believe the illustration may be accepted as representing a thoroughly good variety of the typical plant. It is really the most magnificent *Aerides* which has yet been introduced to cultivation.

Aerides Lawrencei, like the majority of the species, is not difficult to grow into a handsome specimen. It is evergreen, and its leaves are nearly a foot long, by about 2 inches wide, deep green in colour, and thick and leathery in texture. The racemes are longer than the leaves, densely set with very large flowers, which are pure waxy white, passing into a shade of yellow, the extremities being all tipped with a purple hue, saving the end of the spur which is green. The flowers are produced during the autumn months, and continue a month in perfection. This *Aerides* may be grown in either a pot or basket, either of which requires to be well drained. The plant should not be overburdened with *Sphagnum Moss*, but what is put about its roots should be in a sweet, fresh, and living state, and it should always be kept in this condition. *A. Lawrencei* requires the heat of the East Indian house, and during its growing season the atmosphere should be kept well charged with moisture, and a fair amount of water must be given to the roots. As the days begin to shorten and the sun's heat to decline, the atmospheric moisture must be curtailed, and less water given to the plant, and at the same time the heat should be reduced. I think a temperature of 60° in winter sufficiently low for this species. Its native place of growth has not been disclosed. Other fine species of this section of *Aerides*, and which thrive under similar conditions, are—

A. NOBILE, a handsome, tall-growing plant, with long, ligulate, arching leaves. The racemes are long and pendent, usually from 2 feet to 2½ feet long, and bear a long branch at the base. The flowers, which are very fragrant, are smaller than those of the previously named plant and less densely set upon the raceme. The sepals and petals are waxy white, tipped and spotted with deep rose; lip creamy yellow, dotted with rosy purple in front, the spur yellow, dotted with red. It blooms during the months of June and July.

A. ODORATUM PURPURASCENS.—This is the largest and best of the odoratum set. Its leaves are broad, leathery and dark green, and the racemes of bloom long and massive. The flowers, white, tipped with pink, are produced during May and June.

A. QUINQUEVULNERUM is a superb species, but it is of somewhat slow growth. It is similar in habit to the others, but well marked in the tight clasping of the leaves at the base. The raceme is longer than the leaves and pendulous. The flowers, waxy white, tipped with reddish crimson, are large and very fragrant. It blooms during the autumn months, and was first found by Cuming in the Philippine Islands.

A. SUAVISSIMUM is a tall-growing plant of somewhat lax habit, and blooms in autumn. The flowers are waxy white, tipped with deep lilac; the lip lemon-yellow, with a pale red spur. It comes from Malacca.

A. SANDERIANUM.—This plant was introduced by and named in honour of Mr. Sander, of St. Albans. It much resembles *A. Lawrencei* in habit and proportions; the flowers, however, are creamy white, tipped with purplish magenta. It blooms in the autumn.

A. VIRENS ELLISI is the best of the *A. virens* set. The flowers are white, tipped with amethyst, the

middle lobe also blotched with amethyst, spur brown at the point; the blooms are produced at the end of summer and are very fragrant.

W. H. G.

FRUIT GARDEN.

W. COLEMAN.

BUSH AND PYRAMIDAL FIGS IN TEMPERATE HOUSES.

ANY observant person who has admired the standard Figs growing and fruiting in the open air in the south and west of England need not be told that a tree so nearly hardy may be induced to produce one good crop annually in any light temperate house fully exposed to the sun and well sheltered from cutting winds in parts of the country where good open-air Figs are rarely met with. Unlike other fruit trees, the Fig improves with age, becoming extra fertile as its shoots become hard, short, and stumpy, and its roots have to forage for their daily subsistence. The Fig is also a gross feeder and revels in any amount of rich compost, manure, and strong liquid; but under these conditions, unless the house is very large and kept at a very high tropical temperature, the most prolific varieties are the reverse of fruitful or reliable. Forcing gardeners who root-prune every year and roast their trees in the autumn can afford to feed well during the season of growth, but amateurs dependent principally upon solar heat must avoid these rich larders if they mean to be successful.

Quite recently, at Hindlip, near Worcester, I saw a number of large bush trees forming a complete avenue in a span-roofed house, and thickly laden with fruit formed last autumn. The young growths contained as many young figlets as leaves, and as Mr. Barker pinches the roots instead of the shoots, save those striving for the mastery, this one set of bushes will supply a large and appreciative family throughout the season. He feeds well, of course, throughout the season of growth, but the secret of his success lies in growing the trees in very narrow elevated pits, quite above the level of the floor, and root-pruning in the autumn. In the Fig house at Tortworth, years ago, the late Mr. Cramb grew bushels of Brown Turkey Figs upon trees which had developed in every direction, but were quite innocent of any attempt at methodical training. They occupied 14 inch pots, which once upon a time had been plunged in fermenting leaves, but these had shrunk to a few inches of leaf-mould, their only support upon a hard concrete floor through which escape was quite impossible. Each pot was a mass of roots, and the thin covering of leaf-mould represented a closely woven mat of fibres, kept quite dry in winter, but liberally supplied with liquid in summer. Seeing the trees over and over again at Hindlip and Tortworth did not surprise me, as I have been most successful with Figs in large pots, which they have occupied for five years at a stretch; in cubes of loam and lime rubble kept in form by walls of turf resting upon a thick layer of drainage spread over the floor of a concreted pit; also with the roots of large trees ramifying against the face of a rough limestone wall, like Orchids. The secret of success in these five methods of growing good Figs consists in keeping the roots under control all the year round, in keeping them dry in winter, and in encouraging them to grow where a deluge of water cannot lodge and become stagnant in summer. Leaving the roots alone from year to year will not, however, do, as the balance will soon be on the wrong side; therefore, assuming that large, old trees in pots are

to be made extra prolific, and at the same time broken of the bad habit of casting their fruit, the following method will produce the desired result the first season: Having enlarged the apertures with a hammer, place each pot upon 6 inches of broken brick or rubble; build a thin wall of virgin turf round it, beating very firm, and a little above the rim to allow for top-dressing; fill in all intermediate space with fermenting leaves, the warmth from which will draw new roots into the turf; feed copiously, and every Fig will swell to perfection. When the trees are ripe and at rest pull down the turf walls, cut off the escaped roots, keep the pots dry through the winter and repeat the packing at any time before the plants are started. The Fig being such a free-rooting tree, the bottom-heat from fermenting material is not absolutely necessary, unless the trees are started early in the season, but being such a lover of warmth, a temperature ranging not lower than 70° is always acceptable, and not unfrequently a preventive of dropping. When trees, minus large pots, are grown in cubes of compost those of very large size may have the balls reduced to a square of 3 feet, either by cutting down with a sharp paring iron, or forking down and trimming the roots close home with a knife. The best time to remove the turf wall is just when the foliage is ripe and ready to fall, as the trees at this stage contain sufficient vitality to form new spongioses in the fresh turf, which should be of a lightish, sandy nature and liberally intermixed with old broken brick and lime rubble. If the balls, from constant feeding, incline to the wet side at the time they are reduced, they may be allowed to stand exposed for a week or two before they are repacked, but, otherwise, cutting down and building up may be the work of a single day. But why not plant in borders and dig a trench round each tree every year? Well, this plan in warm sunny houses would answer equally well; but the labour would be quite as great, and perhaps less efficiently performed, whilst the temperature of a solid level border would be lower than in the elevated cube or mound, and superfluous moisture when the trees are ripening and resting would be got rid of much more slowly and less effectively. At any rate, were I starting a large temperate house of selected trees, I should concrete the floor and cover it with 9 inches of drainage; I should turn all the trees, pyramids, and bushes out of their pots, place them in position on a sod of turf, mound them up with compost, and never allow them to feel the want of water through the summer.

Pears.—We have this year an admirable opportunity to test the correctness of a common impression, which is to the effect that bloom on fruit trees rarely sets well when the foliage is largely developed at the time of flowering. The Pear is assumed to be one of the most susceptible of fruits under these conditions. Pear bloom has been comparatively sparse, perhaps the least of all standard fruits, and, therefore, its setting has become a matter of the first importance. Now I have been looking over my trees; all are dense with foliage, and yet there is an excellent set of fruit. That is obvious, as one, two, and three fruits are prominently swelling on each truss of bloom. There is evidence of an ample set to give us a very fair crop of Pears, and more could not be hoped for from the moderate quantity of bloom, even under the most propitious conditions. If the resultant Pear crop be a fair one, therefore it will serve to show that the theory as to too fully developed foliage hindering setting is a fallacy. The foliage is not only dense, but very clean and robust. The mild, soft weather, the excellent foliage, and the thoroughly moistened soil should help the rapid

growth of the fruits. I draw attention to this matter in order that it may receive attention from other growers.—A. D.

THE EVILS AND THE GOOD OF GRAFTING.

My first suggestion in regard to the discussion of this theoretically interesting and practically important subject is the correction and proper balancing of the lop-sided title under which it has hitherto been considered; for it seems somewhat bewildering as well as very illogical to be allured into reading page after page on the evils of grafting, and to find that the writers fill two pages (385 and 386) with powerful pleas in its favour. The title invited them to curse foster roots and stocks all together, and they have altogether blessed them, and other writers before them have done likewise, as will doubtless others after them; and hence my amplification of the title, so that both sides may be expected in the reading, as they stand part of the title.

This is the more important, as grafting is altogether too important and firmly established to be set aside by letters on its evils that mostly proceed to extol its virtues. The majority of those who have gone so far as to advocate the abolition of grafting can hardly have convinced themselves, far less their readers. Most of us have thought their examples ill-chosen, and their arguments against grafting greatly watered down by weak reasoning and worse argument.

Cultivators in the present state of our knowledge and practice are hardly free agents in this matter. Graft they must if the growing demands for all our best and most popular fruits are to be met and satisfied. To cease to graft would be to fall out of the running in the propagation of most of our fruit trees. There is no other mode to hand to match it in speed, profit, fertility, certainty, and permanency. Unfortunately, neither our power over Nature nor our resources of propagation can be said to keep pace with the growth of our knowledge. We know much more of vegetable life and structure than we did some twenty years ago, but it seems doubtful if we can propagate plants more rapidly or in any new and better way; and after all, is it so very certain that the mere mode of propagation is of such vital importance as some of those who so loudly cry down the evils of grafting assume? Provided plants are fully equipped with such vital organs as roots and branches, is it so very important how these are provided? For example, there are six or seven common modes of propagation—by seeds, cuttings, layers, suckers, budding, inarching, grafting. Virtually these resolve themselves into three—seeds, cuttings, grafting. Layering is but an easier method of rooting cuttings; suckers are root cuttings already rooted or far advanced towards that estate of independent life; while budding and inarching are mere varieties or modes of grafting, differing in size and modes of union with the stock from normal scion grafting.

A stricter investigation into the nature of propagation would probably reduce all the various methods to two—by seeds and cuttings. For layers are but cuttings with two strings to their bow—the parent plant and the earth—while buds, scions, inarched branches are cuttings set to root in the tissue of another plant instead of sand or soil.

But here a question of vital importance arises. Is the bud or scion rooted into the tissue of another plant less or more on its own roots than the cutting or layer rooted in the earth? To contend thus would be virtually to affirm that the earth was of closer affinity to plants than the tissues of the same species with which they will unite by grafting. Layers and common cuttings are accepted as on their own roots, and there cannot be the shadow of a question about suckers, however frequently the roots may have been lifted, pruned, modified, or renewed, and yet the roots of cuttings, layers, &c., are widely different to the roots of seedlings. Their character, form, and even function may, do vary; and yet if the plants, the products of these modes of propagation, are to be welcomed as own-root plants, it is difficult to see why those propagated

by budding, grafting or inarching can be excluded, as they are rooted in tissues more closely assimilated to their natural affinities than any dead earth can by any possibility be.

For the purposes of this discussion it will be best to confine our attention to fruit trees on their own roots and those on the roots of others. It seems almost uncertain how far we can go beyond seedlings and suckers in pursuit of the former, while, of course, all grafted, budded, and inarched trees will be treated as plants on foster roots. In endeavouring to estimate the evils or sum up the merits of grafting we must first grapple with the question, Do the roots dominate the scion, or the scion or top of the tree control the action and mould the character of the roots? In other words, are the initiatory and controlling forces or issues of life from above or from beneath? Many of the most experienced cultivators may answer from both. Yes; but which is the more potent in the economy of life and production? Without doubt, the top of the tree; its leaves and its branches are far and away the most potent factors in vegetable life and production, and if this be so, most of the arguments so ingeniously urged against grafting fall to the ground; for ultimately as are the tops of trees, so to a very great extent will their roots be. The theory of reciprocal action and reaction between the two extremities of trees is not only true, but ultimately the character of the tree and its produce will be moulded into harmony with the parts that take the initiative—that is its top. Hence, so long as the roots are of such quality and quantity as to provide sufficient food for the trees, such questions as whether they are the products of seeds, cuttings, scions, or buds can be of little moment. Now that root culture has enabled us to regulate the number and control the character of the roots at will, the question of their first production or original ownership sinks into comparative insignificance. They are but cooks, collectors, transformers, conveyancers of food at the most and best, and, provided they duly perform these functions, neither the demands of Nature nor the more pressing necessities of art demand more at their hands—feet, rather.

Experience tells us that foster-mother roots are as bountiful and long-lived as those of natural seedlings, and if so there can be no natural evils in grafting, unless such is found in mishaps in mating or blundering management or workmanship. But not only are most of our foster roots equal, but many of them—such as, to quote merely two examples, the Paradise for the Apple and Quince for the Pear are far superior to the natural roots of these fruits. They are more fibrous, smaller, and more numerous, and inasmuch as they possess these qualities, they assist the trees to become more fertile.

But the major good of grafting lies in the illimitable supplies of root force that it places at the command of cultivators. These foster roots immensely augment the resources of the propagator. Without grafting, or its equivalents, the powers and facilities of the propagators of choice varieties of fruits are very severely limited.

Fruit trees root slowly by any other known method, and many of them also grow slowly on their so-called own roots. A few varieties of Apples root freely from branch cuttings, but so much can hardly be said for Pears, while Peaches, Nectarines, Apricots, and Cherries are yet more slow and uncertain. Most of them root more freely from layers; but what a sacrifice of time, force, and fruit would the general stooling and layering of our fruit trees involve, and also what a terrible loss of material. One decent layer would make a dozen or a score of scions, and the scions would grow into good bearing trees in a tithe of the time as layers.

By grafting, each foster root and bud, or small scion of three or four buds, is rushed up into a tree with a swiftness and certainty wholly unknown to other methods of propagating fruit trees. No system can compare with this for the rapid multiplication and general distribution of all the finest varieties.

Practically, the propagation of fruit from seeds

is wholly useless for mere propagation. No fruits can be relied upon to reproduce their like or better. Of course, they do both occasionally, but, as a rule, they revert to very inferior and weedy types indeed. Nothing could contribute more to the speedy and sure degeneration of all our superior fruits than an attempt to propagate them by seeds. One per cent. fairly edible would be a fair average, while one in a thousand or ten thousand seedlings equal to the best existing varieties of Apples, Pears, Plums, Peaches, or Cherries, &c., would be a sanguine estimate.

Apricots come more true to existing types from seeds, and especially that finest of them all, the Moorpark; therefore, on soils and in districts where Apricots suffer severely from branch-perishing—a species of wholesale canker—it is worth while to raise young plants from seeds of the Moorpark, as these mostly produce fruit of fair quality, though seldom equal to that of the parent. Neither have we any proof that own-root trees fruit more freely or last longer than worked ones. On the contrary, the foster roots often seem more congenial as well as more bountiful than their own.

In fine, most, if not all, of the so-called evils of grafting come of imperfect mating, indifferent workmanship, and unskilful after treatment. The heart-like protuberances so often seen at the junction of scion and stock, do not, as is so often assumed or asserted, proclaim the evils of grafting, but the blundering stupidities of imperfect mating of the two. With careful, skilful mating of scion and stock, prompt manipulation, as few and as small wounds as possible, and skilful after treatment, most of that doleful catalogue of maladies that have been hurled at the heads of our grafted trees would be prevented, and consequently could not be found when wanted to malign, a practice as profitable to producers as it has been beneficial to consumers. Raking up the evils of grafting, imaginary rather than real, seems most inopportune at a period when root culture and the selection of foster stocks are assuming something like the dignity of a practical science, and the cry is daily becoming louder for more and better fruit as food and for pleasure from all sorts and conditions of men.

D. T. F.

CUTTING BACK YOUNG TREES.

FROM the tone of your able correspondent "W.C.'s" remarks at page 443, especially his opening statements, one would be justified in forming the conclusion that he was altogether opposed to cutting back young trees after planting, and had, in fact, long given it up. I do not suppose he intended to convey this meaning, for he is not likely to stultify himself, but the inexperienced cultivator might misunderstand and fail to catch his real meaning. If young trees are never under any circumstances to be cut back, walls and espaliers will hardly be well covered, and orchard trees will hardly be furnished with well-balanced heads. It is a misfortune that writers of the present day get into an exaggerated way of looking at things. They cannot correct errors without a radical destruction of the whole thing root and branch. The same principle of thoroughness (and I may say I admire thoroughness when rightly directed) runs through all they do. It seems that the spirit of sensationalism must be grafted upon everything, and so, because some young trees may have had the knife too freely applied in the nursery, all cutting back must cease. What then is to become of the unripe wood after a season like last, for instance? Must it be left to die back, and then the dead limb removed? To be logical, I suppose we ought to do this, because if the knife is used there will always be the danger of cutting back beyond the point. The death-stroke may descend. Sensible men who still carry a knife cut back their trees to get a well-furnished base. I would rather have a maiden tree which had been pinched to 15 inches or so and had branched out there; but even then in the majority of instances some shortening would be beneficial if the object is to get a fairly-developed tree. I have planted maiden Peach trees that have been furnished with branches and left every shoot to grow unshortened.

The trees came quickly into bearing, but the precocious child is not often long-lived and is seldom fully developed, and trees that will prove worthy rivals to those which furnished the garden walls of the last generation will never be obtained in that way. I grant, of course, that the knife has been too much used in very many instances, and the multiplying of fruit trees has multiplied the instances where evil has followed the use, or rather I should say the abuse, of the knife. But in spite of all that may be written to the contrary, a moderate use of the knife upon young trees to get them into shape the season following planting is a beneficial necessity, as after the base is well furnished, the finger and thumb will do a good deal of the pruning, unless there comes a bad ripening summer, and then it would be wise to bring out the knife again. E. H.

SPRING PLANTING OF VINES.

THE advent of Phylloxera a few years ago having startled Grape growers, a great number of gardeners having facilities for propagating, now strike eyes in February and turn out the young canes in May, or possibly as late as the middle of June. May, however, is the best month, as solar heat, supplemented by a minimum of fire, produces conditions most genial to the young plants, which have a full season for making their growth and ripening their wood properly. Vines of home manufacture and intended for spring planting should not be struck in very small pots, as the roots soon become coiled and bound, and the plants not unfrequently require a shift before the new border or moiety of a border is ready for them. The shift into 5-inch or 6-inch pots, and return to bottom-heat as a matter of course, soon rushes them away into most promising looking Vines; but pots, no matter how carefully the roots are managed, always exert a coiling influence, and although experienced planters say it is quite unnecessary to shake away the soil, this corkscrew tendency, if possible, should be avoided. One of the best of the several good houses of Vines at Heckfield is now giving splendid crops of Grapes from canes which were struck from eyes inserted upon the surface after the border was made, the only nursing they received being a bell-glass placed over each bud to facilitate the formation of roots. There they grew well, filling the trellis the first summer, and bore two bunches each the second, showing at once that the Vine in its infancy does not require coddling in a propagating house hot enough to kill an Orchid. But there is an intermediate course, introduced by Mr. Thomson, of the Tweed Vineyard, and that is the propagation of eyes inserted in the centres of small squares of turf placed close together on a gentle hotbed. Upon this principle coiling is avoided, and the steady decline in the bottom-heat fits the young canes for transfer to their permanent home, where they start away at once without feeling the check. Whichever plan is adopted, this raising the bottom-heat of the new border to a temperature equal to that of the propagating bed is the great secret of success. But how is this to be attained? Easily enough. The first moiety of the new inside border need not exceed 3 feet in width; fresh turf from an old pasture with the young Grass upon it forms the staple; bone meal or Thomson's Vine manure, lime rubble, and burnt refuse hot from the fire, thoroughly mixed together in the house, soon start fermentation; the long narrow ridge is built up, and it is ready for planting. But, assuming that the heat does not quite touch the desired figure, the sun through the glass soon affects the surface, or, lacking his beneficial influence, a lining of fermenting manure or Oak leaves, whilst starting the bottom-heat, produces a moist, genial atmosphere, in which the most delicate Vines must make rapid progress.

PLANTING.—When fairly settled and thoroughly warm, the surface of the ridge should be levelled and made ready for the young Vines by the introduction of straight sticks with their heads resting against, but not tied to the lowest wire, otherwise the compost as it subsides will draw the roots, and the ties will prevent the sticks to which they are

secured from following. As the sods in which the Vines have been struck are very thin and the roots have taken a lateral or horizontal direction, the openings should be broad, but not deep; indeed, unless the ridge is considerably higher than the intended level, the sods may be transferred one by one upon a tan fork, placed upon the surface, and lightly covered with warm compost reserved for that purpose. When planting is finished each Vine should have a little warm water to settle the compost home about the sods and roots, and slight shade, although hardly needful, may be afforded for a day or two. The front ventilators should be kept quite close until the roots have taken to the soil and the young canes are growing freely, and the less the top lights are opened the better, always provided the air temperature does not exceed 80° to 85° as the maximum. Once the Vines have started kindly, it will not be necessary to renovate the lining, but the material may be retained for giving off a continuous supply of moisture and eventually for use as a light mulch, the best of all contrivances for keeping the roots close to the surface.

If the young Vines have been grown in pots from eyes of the current year, they should be planted before they become pot-bound, and then instead of shaking them out, an important matter in the case of yearlings, the balls properly moist may be gently pressed in the two hands just to break their solidity. The points of the roots by this movement so familiar to gardeners will then fall away, and although the Vines may flag a little they will soon recover, and, all going well, touch the tops of 20-feet rafters by the end of the season.

DISTANCE TO PLANT.—This is a matter which all Grape growers should settle for themselves, their guide being length of rafter or trellis, and the future mode of pruning and training. If to be retained as single rods on the close spur system of pruning and the rafters are 16 feet to 20 feet in length, they should be 4 feet to 5 feet apart, but the trellis being shorter, 6 feet will be none too extravagant, when two rods from each will give the house a uniform appearance. A great deal has been said about supernumeraries for giving fruit a year after planting, but unless the permanent Vines are quite 6 feet apart and an iron resolution prevails, the light obtained from this method does not pay for the candle. Years ago when Vines were divested of four-fifths of the young cane they made each season, supernumeraries not only did good service, but being allowed to go not unfrequently made the best permanent rods. Those days, however, have gone by, and express growers now make a point of fruiting all their Vines more or less the second season. Whether such Vines will make old wood or give place to others before they reach their teens, matters little to those who cater for the public, as they must have quantity, quality, and quick returns. W. C.

Apple bloom.—Several elements of a pleasing kind mark the Apple bloom of this district, and probably are common through the southern part of the kingdom; there is great abundance, the bloom is very fine, there is rich colour and plenty of pollen. What has proved also a very acceptable element apart from the bloom has been the soft warm weather, which if at times dull and at others rather moist, has all the same presented a marked contrast to the parching, withering easterly winds and frosty nights, which have in the past so often greeted our hardy fruit bloom. The abundance of the bloom is not surprising, as bloom-buds were plentiful, but the fine character of the flowers is a surprise, as throughout the winter and indeed until the spring had come in the bloom-buds did not manifest that fullness which we have usually seen associated with them in the spring. Pollen seems so plentiful that the great portion of the bloom should have set well. Possibly some recent heavy rains may have affected the pollen adversely, but there was such a wealth of flowers, that the setting of one-fourth only would still give an enormous crop of fruit. With respect to colour in the bloom, I still find the richest hue in Nelson's Codlin, a

dwarf-growing and somewhat drooping kind, which produces fine fruit of the Suffield shape, and indeed I believe that this Codlin must have been one of the parents of Lord Suffield. If ever half-a-dozen Apples be selected to plant for good habit and colour of bloom, being also regular bearers, Nelson's Codlin must be included.—A. D.

FRUITS UNDER GLASS.

PEACHES.

IF pendent fruits in the early house have not been elevated to a position in which they can colour to the point, no time should be lost in the completion of this operation. All cannot be turned up, but by cutting a few of the ties and using short pieces of lath just long enough to rest upon two of the wires, nearly all the best fruit can be raised above the foliage to the influence of the sun. When Peaches set full crops careful attention to thinning renders this work quite unnecessary, as enough and to spare can be retained point upwards, but thin crops sometimes give a little trouble to those who are particular about colour and flavour. As all the most forward and early varieties will now be swelling fast to maturity, let all stopping of the shoots for the twofold purpose of letting in light and air and increasing the size of the fruit, also tying down for the last time, be brought to a close, and ply the syringe pretty freely, using the purest soft water to ensure freedom from spider until after the crop is gathered. Also examine the borders, and if there is the slightest danger of the most active surface roots becoming too dry, water well with pure tepid water and mulch with short stable litter. As the sun gains power and fresh air is the main factor in giving colour and flavour, ventilation on all favourable occasions must be on a most liberal scale, even although a little extra warmth on the pipes be necessary to rapid and buoyant circulation. All damping and syringing may now be performed soon after six o'clock on fine mornings, when top air must be shut off for a short time, but the front ventilators from this time forward need not be closed by night nor day. As the fruit becomes transparent and shows signs of softening, do not allow it to hang until ready to drop into nets or hay, two cumbersome arrangements which spoil more than they save, but when quite dry and cool detach with a pair of Grape scissors, place each Peach on a square of tissue paper in a box or basket, and remove to an airy Grape room to ripen for home use. If for transit by rail to a distant market, the fruiterer prefers having the fruit full size and well coloured, but quite hard to the touch when unpacked. Each Peach then ripens on his own premises without spot or blemish, and whether the full quality be there or not, this mode of marketing ensures the highest price to the grower. A great deal has been said of late about packing and the most suitable materials for the gardener's use, but where it can be obtained there is nothing better than well-beaten Moss in a dry state for fruit and slightly moist for flowers. Here, being plentiful, Moss is used for all kinds of fruit. The only instance in which wadding is found useful is when folded in tissue paper it forms the divisions between large bunches of dead-ripe Muscat Grapes.

Succession houses will now require extra syringing twice a day, and the roots, if inside, must have an abundance of water of a generous nature or in a pure tepid state through good mulching, as trees whose roots are checked annually must be well fed to secure fruit above mediocrity. But why check the roots annually? some may say, when feeding must be brought in as the compensating balance. Well, those who have had anything to do with Peach trees in forcing houses or against open walls need not be told that root-pruning or root-lifting is the pivot upon which the production of fertile wood of medium growth turns, and that once the "set" has been secured, good liquid, much or little, can be given when a large breadth of foliage is perspiring within a foot of sheets of 21-oz. glass, and every square foot of the said foliage is expected to perfect a Peach weighing half a pound. Soils, of course, vary in quality, the best being rather heavy

calcareous loams just rich enough to produce perfect wood without the aid of manure, and of these it is better to have too little than too much, as feeding roots increase in proportion to their limited run, and having good drainage beneath them, they can be mulched with manure and fed with liquid from the time the fruit is set until it is full size and well coloured. Airing in this, as in the early house, is equally as important as watering, and, provided this is properly managed, the ingress by the front ventilators must be sufficient to keep the house full by night and day without producing a draught. We shut up our houses about 3.30 to 4 p.m. for the afternoon syringing and swelling; give night air about 8, close at 6 for the morning bath, and commence day ventilation when the temperature is 5° in excess of the night heat, which ranges from 50° at the outset to 60° or 65° after the fruit is stoned. Peaches in summer will stand a night heat of 70°, but 60° with front air is quite high enough, and can be compensated when the house is closed with sun-heat and moisture.

Late houses.—If disbudding has not been most efficiently performed, a final thinning should be made as the young shoots are tied or heeled down, as crowding is the greatest mistake that can be fallen into often with late varieties in these structures. Each shoot should have at least 6 inches, to allow for the full development of its foliage, and once it is heeled in, a little freedom of growth, especially where the fruit is wanted late, will do no harm. In fact, this mode of producing natural shade whilst letting in light keeps the fruit moist and cool, two points favourable to large size, and answers much better than shading the roof when the fruit is ripe or ripening. The fruit is good or insipid in proportion to the fullest exposure or seclusion from sunlight and fresh air. If aphides have not been thoroughly exterminated, another good fumigating on a calm night will be necessary, and as plants innumerable, including forced Roses, Lilies, and the like, are always open to improvement, not two, but many birds may often be killed by one stone. The late Peach house too often is made the receptacle for all sorts of plants on their way to the open air, and no great amount of harm follows this short occupation, but fumigation and good syringing must receive regular attention. As the roots of these trees generally have the run of outside borders, labour in watering may now be economised by good mulching with half rotten manure or less stimulating materials better suited to the requirements of the trees. The natural rainfall in ordinary summers may keep the borders wet enough, but the demand through July and August is very great; hence the importance of keeping them constantly in mind and laying on occasionally with the hose.

CHERRIES.

Houses in which ripe fruit is hanging must now be kept dry and cool, and securely netted to prevent the entrance of birds. Trees in borders that were properly watered and well mulched with some kind of non-conducting material will most likely remain wet enough until all the fruit is gathered, otherwise the material must be turned off preliminary to giving more on a fine morning, but great moderation must be observed, as cracking from an excess of water is quite as bad as shrivelling from drought. Where a long succession is obtained from one house, the earliest varieties should be grown in pots or tubs, as they can be cleared as soon as ripe. Bigarreaux and Eltons having the borders to themselves can then be well watered and properly managed.

W. C.

SHORT NOTE.—FRUIT.

Apples for use and ornament.—It is very well to talk of growing fruit trees for ornament, for they are fully worthy of it, but care should be taken to select kinds that are useful in other respects as well. The two essentials are conspicuously united in Worcester Pearmain. The flowers are very attractive, and the abundance and beautiful appearance of the fruit are very noteworthy. I find this Apple a most vigorous and healthy grower and a grand bearer. — W. P. C.

FLOWER GARDEN.

A CALIFORNIAN GARDEN.

BERKELEY—the Californian Berkeley—is a university town, four miles north of Oakland and about ten miles from San Francisco. It stands on a high slope of rich black loam on clay subsoil. The high coast range, naked of timber here, except where Eucalyptus groves have been planted, shelters it both east and north-east; towards the west one looks straight out through the Golden Gate, past Alcatraz, San Francisco, Mount Tamalpais, and the wild heights of Marin.

I have thought that an account of the way in which a garden was begun here would be interesting to readers of THE GARDEN. In the spring of 1888 a waste lot of 50 feet frontage and 135 feet in depth was purchased. It had been part of an old pasture, was full of weeds, and had never been ploughed or put to any use. By August 1, a small dwelling-house was built on the lot, and in September the garden was begun.

What I wish to describe is the result of seven months of actual work on new soil in Berkeley, for it is now April 20, 1889, and it was in September, 1888, that the first planting was done. With us in California, the bulk of the garden-making is done too late. Not until after the early rains, say in January, does gardening begin. Now, wherever water can be had to keep the soil in good working condition, September and October are far better months for gardening than January and February, because the nights are warm and the days long, and growth is wonderfully rapid. Berkeley has an abundant and cheap supply of water, so that the garden I am describing was started at once. The soil was well prepared. The ground faced south, with a gentle slope that way, the drainage being excellent. Sweet Peas were sown during September. Now (April 20) they are between 6 feet and 7 feet high and blooming freely. Nasturtiums sown in the open ground in the middle of September are now in full flower, and have been so for three months. There was no frost to injure either Heliotropes, Nasturtiums, or any other delicate plants. The Nasturtiums, now covering the steps and part of the porch, have made 14 feet or 15 feet of growth from the seed. Having the entire summer before them, I think they will easily grow to the top of the house before next November.

There is a garden in Niles, an old town of Alameda, some twenty miles south of Berkeley, where the yellow trumpet Daffodil has been naturalised in the shrubbery, and thousands of flowers appear in December and January. Daffodil clumps dug up from these copses were transplanted in November to this new Berkeley garden, and bloomed finely a little late for them or early in February. Other and many of the newer species and varieties of Daffodils which I received from England arrived here on January 7, and were by March 8 in full flower. I think Bishop Mann is by far the best. Nothing surpasses the common yellow Daffodil for easy naturalisation here. It need never be touched if once well planted, and its flowers get larger each year. The flowers are highly valued by the San Francisco public. Almost all the flowers—sold by the hundred there throughout January—are grown in a few old gardens such as the one I spoke of at Niles.

Early in September I obtained about a dozen plants of *Cosmos bipinnatus grandiflorus*, a splendid annual here. These were in 2-inch pots. When massed and well watered they

began a remarkable growth, were in bloom by the middle of October, and went on growing and blooming until Christmas, reaching a height of 8 feet or more. A white *Passiflora* (Constance Elliot), which was in a 3-inch pot in September, and was then perhaps 10 inches high, is now about 10 feet from the ground, and loaded with flowers and buds. Other *Passifloras* have made equally characteristic growth. There are about sixty Roses of the best newer and older sorts which have grown all winter, and the larger plants are coming into bloom. There are Strawberries planted in February and already setting fruit. The Lemon and Orange trees and the Camellias (three in number) have all bloomed, and made a quantity of young growth, though only planted in November.

The especial point which I think will be of interest to readers of THE GARDEN is that a constant growth and succession of flowers have been kept up since operations began in September. Even old Californian gardeners have been surprised at the rapidity of development here, as they had been accustomed to wait until spring before they made a beginning. I hardly think that further details are necessary, except to say that a great variety of shrubs have been planted, all the spaces between being filled with flowering plants, spring bulbs, &c. After a few years nearly everything else will have to give place to a few choice Palms and other trees and shrubs already set, and additional space procured for the flowering as well as new plants.

This has been a very simple and brief horticultural sketch, but if I append a list of the plants blooming this spring in the "new cottage garden of Berkeley," it may serve as a fitting close to the subject: Anemones, Tulips, Crocuses, Hyacinths, and Daffodils since January; Pansies since November in constant bloom; *Triteleia uniflora*, Snake's-head Iris, Freesias, *Chionodoxa Luciliae*, *Maréchal Niel*, *Marie Van Houtte*, *Bon Silene*, *André Schwartz*, *Mme. St. Joseph*, *Souvenir d'un Ami*, *Catherine Mermet*, *Luxembourg*, and other Roses; *Fuchsias*, scarlet Pomegranate, *Camellias*, *Pelargoniums* (large flowered) in variety, *Cydonia japonica*, *Marguerites*, *Marigolds*, *Carnations*, summer *Chrysanthemums*, *Heliotropes*, *Nasturtiums*, *Sweet Peas*, *Violets*, *Daisies*, *Passifloras*, *Abutilons*, *Bermuda Lilies*, and *Clematis*.

CHARLES HOWARD SHINN.

Berkeley, California, April 20, 1889.

Primrose destruction.—It is a sad truth that for twenty-five miles round London, and a proportionate distance of one to six or seven miles round other towns or suburban centres, the common Primrose is practically exterminated. The Primrose differs from many wildings in being a shallow-rooted plant, and also in being dependent on seed reproduction. Thus plucking the flowers prevents the formation of seed. Moreover, the purchasers of the roots should avoid planting them where they will be sure to be rooted up in a week or two to make room for Geraniums, or in places where several hours of blazing afternoon sun will burn them up. But it is grievous to see these simple rules ignored. I would suggest that a society be formed for protecting and restoring wild flowers in our woods and fields, and also to call public attention to the matter to do as the Duke of Richmond does at Goodwood—forbid the plucking, at least of certain sorts. What an added treat it would be in Richmond Park or any other adjacent place round London, and also near country towns, if the people could see Primroses, Cowslips, and wood Anemones growing apparently wild once more. Go in September into the more retired glades, take out a single turf and turn it bottom upwards, treading it down again; then sow a few Primrose seeds on it. If the spot is properly

selected the seeds will grow, though perfectly hidden by Grass from the eye until they form plants. On wet slopes not too much covered with herbage, seed may also be strewn. At any rate, let everyone who has a Primrose in his garden collect all the seed this year. He can soon find a use for it.—A., in *Field*.

Fraxinella emitting inflammable gas.—Referring to page 458, I wish "D. K." had been more explicit in speaking, with regard to the *Fraxinella*, of "the remarkable phenomena it presents on dark nights and at certain intervals." Has "D. K." ever seen them himself, or does he know

out effect. Can anyone say that he has been successful with this experiment, and will he tell us under what conditions?—C. WOLLEY DOD, *Edge Hall*.

TULIP GARDEN AT THE CASTLE, DINGWALL, N.B.

The illustration that accompanies these remarks shows a type of garden far too seldom seen now-a-days. It is only in the garden of an enthusiastic amateur that we find a glorious mass of Tulips as seen in the engraving, and such a rich

lifted. The stems are simply pulled up after flowering and a certain amount of ripening of the foliage, and their place is taken by some half hardy annuals, generally Chinese Asters. The soil in which the Tulips have been grown is a strong clayey loam of a somewhat unctuous character.

These interesting particulars speak volumes as to the thorough adaptability of our English soil and climate for the culture of the Tulip, and it is upon the question of home-grown bulbs that many are now turning their attention. We go to Holland for what we might obtain just as good, or even better, at home. The magnificent growth of the Daffodils and Tulips at Ham and Whitton bring out this important fact very strongly. There the bulbs are grown as well as they can be, and the result is both surprising and profitable. We are confident that there is scope for an extensive bulb industry in Great Britain. It is hard to tell from an engraving, when colouring in the flower is absent, what the types of flower represented in the cut may be, but we should think they are the late-flowering forms, of which the Italian *Tulipa Gesneriana* is supposed to be the parent. As to their origin, we have nothing to do now. It is sufficient that those florists' varieties are noble flowers, gorgeous in their brilliant bizarre colours and possessing a vigorous constitution, besides graceful and robust foliage. Such a mass as that shown in the engraving must make a striking carpet of colour, delightfully varied and fresh. These homely late-flowering Tulips differ from the earlier types in having a stronger constitution, they increase rapidly, and make an annual display without the trouble of frequent lifting. The Tulips at Dingwall have been only disturbed once in fifteen years, and yet the foliage is as robust as can well be, the stems strong, and the heavy cup-shaped flowers bold and handsome. The old Tulips that one sometimes finds in out-of-the-way gardens may perhaps scarcely reach the florist's ideal of what a perfect Tulip should be, but they are of greater use to the gardener who wishes for quantity rather than quality, and who cherishes such bulbs that will thrive in almost any soil. Although Tulips are often left to themselves for many years, it is better to lift them every season, especially the early-flowering ones, and we believe this is the practice of Mr. Walker at Ham. The Tulips have been poor this season, but last month we saw beds, hundreds of yards long, of the earlier varieties at Whitton, the growth vigorous and the flowers large and finely coloured, except where rains had bruised the tender petals. Mr. Walker cuts almost every flower that opens for market, and the bulbs are thus very early relieved of their burden, so that they have a long season before them in which to become thoroughly strong before lifting. This should be done when the foliage has faded, and the roots stored until September, the month to plant them out again. If the florist's Tulip is grown—and there are various classes, as by-bloemens, roses, and bizarres—a bed might be devoted to the curious Parrot varieties, whose flowers are instantly recognised by their ungainly notched petals and bizarre colouring. No one can but feel interested in flowers of such grotesque characters, though few perhaps would care to have many in a garden.

While writing a few notes on Tulips allusion may be made to a few of the finer species which we unfortunately seldom find outside a botanic establishment or some garden where things of this character are cherished. By not having more of the species we lose a wealth of beauty of a rich, diversified, and interesting kind. The flowers, especially of the later blooming types, are far finer than those of the florist's varieties,



A Tulip garden at the Castle, Dingwall, N.B., from a photograph sent by Dr. Bruce.

any living person who has? I know it is recorded that Miss Linnaeus once held a candle in the dark near a *Fraxinella* flower, and that the flame flickered round the flower; but this is by no means a common phenomenon, being about as difficult to produce as lighting a pipe from a Will-o'-the-Wisp—a feat which a German professor is said to have accomplished. Having many fine plants of *Fraxinella* in my garden, I have frequently tried when they were in full flower, and on the stillest and warmest nights, whether any response was made to a lighted candle applied to them, but always with-

sight of old fashioned flowers is as refreshing as it is uncommon. The photograph, which we have done our best to reproduce, was sent to us by Dr. Bruce, of the Castle, Dingwall, N.B., and his notes concerning it will be of interest to many. He says:—

There is not, perhaps, so much in the beds themselves as in the fact that the bulbs have been growing and flowering every season for at least forty years. In my time—i.e., during the last fifteen years—they have only been once

which we see almost too much of after the flush of Hyacinths is over. We were in a Middlesex cottage garden the other day, and the best thing there was a clump of *T. Gesneriana* that was lifting its heavy cup-shaped flowers above a mass of commoner border plants. If we could only see more of such features in our large places their beauty would be increased considerably. To those who have a real interest in the Tulip there is much pleasure derived from having a good collection, and the flowering season extends over many weeks. One of the first to greet us is the beautiful *T. Kolpakowskyana*, a brilliant gem with its yellow and crimson flowers; then we have the pretty *T. Biebersteini*, a Tulip of the *sylvestris* type; and also another fine early species, *T. Kaufmanniana*, of which we should hear much. Several notes have appeared in THE GARDEN recently on this king of early Tulips. The flowers are large and very variable in colour, some bright carmine, flamed with yellow; others shot with vivid crimson tints. A pretty little Tulip that flowered first with Messrs. Paul, of Cheshunt, this spring is *T. Leichtlini*. It is of the character of *stellata*, the flowers yellow and crimson, small, and attractive. A Tulip all should grow is the well-known *T. Clusiana*, a near ally of *T. stellata*, which was very beautiful a few days ago near the round pond in the Royal Gardens, Kew. This is appropriately named the Lady Tulip, as it is a delicate species both in colouring and aspect. As the season lengthens we have a noble group of species in bloom, amongst them *T. sylvestris* and its close allies *florentina* and *italica*, both of which have flowered well this season in many places. But the quieter colours of these are quite eclipsed by the gorgeous beauty of the crimson-flowered *Turkestan Tulip*, *T. Greigi*, *fulgens*, *Dideri*, *elegans*, *oculis solis*, *Gesneriana*, and of the rich yellow *retroflexa* and *flava*. A beautiful lemon or pale sulphur species is *vitellina*, of which we should see more. Those who admire curious flowers will find *cornuta*, or *acuminata* as it is sometimes labelled, worth growing. With a few of the above-mentioned types it is surprising the effects that may be produced by the aid of the species of Tulip. This year they have bloomed far better than the florist's varieties, and a small bed of *T. Greigi*, near the succulent house at Kew was the finest display of a single hardy flower we have seen this season. *T. retroflexa* and *viridiflora*, with its variety *præcox*, in which green is charmingly associated with yellow, were magnificent about ten days ago in the spacious bulb border. It is from seeing such masses of one kind together that we can obtain some idea of the immense value of Tulips for the garden in early spring, and now that a far greater interest is kindled in hardy flowers, we may hope to see them in the London parks, where they would make rich blocks of colour.

Wallflowers.—I have observed with pleasure that Mr. Wildsmith writes appreciatively of our market garden strain of dark red Wallflowers. Near me plants of that strain and covering about 20 acres have been blooming during the winter and spring, and, of course, the atmosphere has been as it were reeking with sweet perfume. Only the other day when in a nursery I noticed the inferior strain of dark Wallflower growing, and was informed that it was from French seed. Now why our seed trade should thus favour the poor, thin, and loose-growing forms which this French seed produces, in preference to the wonderfully fine, early, and deeply-coloured London market strain I cannot conceive. It seems as if there was a deliberate shutting of the eyes to the value of a fine thing of home growth in preference to a French strain, which is perhaps cheap, although the market strain is not dear. A friend

sent me from Warwick last autumn a few plants of two Wallflowers, one a dark red which proved to be from this French strain, the petals thin, narrow, and soon falling down; the other, a nice clear yellow, but of irregular loose habit, very inferior for massing or effectiveness. It seems, therefore, that there are still inferior strains of Wallflowers about, whilst superior ones seem to be ignored. About here, where literally hundreds of thousands of dark red Wallflower plants are annually put out, seed is sown very early, so that the plants may be put out in July and thus make big stuff by November.—A. D.

THE PANSY.

IN the introduction to his useful book on "The Pansy, and how to Grow and Show it," Mr. James Simkins gives us a most interesting account of the development of the Pansy. Amateurs in particular, and not a few of those who term themselves professional gardeners, are sometimes at a loss to comprehend the terms used by Pansy growers, such as show Pansies, fancy Pansies, blotched Pansies, &c., and it is the purpose of the introduction to set forth the historical development in these forms. As the matter—dealing as it does with names and dates—has been revised by a well-known cultivator of this winsome flower, it may be taken as substantially correct.

By way of showing the remarkable development of this popular flower, Mr. Simkins has introduced two plates from Harrison's *Floricultural Cabinet* of 1833, showing the types of flowers foremost among the varieties cultivated in those days, when Thompson, Silverlock, Allen, Wheeler, and others were the principal raisers of the day. They have the same relation to the fine show and fancy Pansies of our day as the common Daisy of the field has to the large and full double garden varieties so much employed for spring decoration.

It was towards the year 1850 that the English show Pansy began to improve. In the *Florist and Garden Miscellany* for 1849 appear coloured illustrations of Duke of Norfolk, yellow ground, and Mrs. Beck, white ground, from the Slough collection. In 1854 such fine varieties as Catherine Hayes, Duke of Perth, Father Gavazzi, Miss Talbot, Royal Standard, Royal Visit, Monarch, National, and Sir John Cathcart had come to the fore. The work of improvement went on until the dread disease, which appeared in some southern collections about 1856, had a disastrous effect, and then Scotland took a decided lead in the production of new varieties, which it has maintained ever since.

It was about 1858 that the fancy Pansy first began to attract attention. But previous to that, the late Mr. John Salter, of the Versailles Nursery, Hammersmith, and Mr. John Downie, of Edinburgh, were cultivating Pansies of a character that could find no place among the various sections of the show varieties, but yet had not been formed into a distinct class. It will be remembered that the late Mr. Salter was originally established as a nurseryman at Versailles, France, and on the outbreak of the revolution of 1848 he came to England, and established himself in business at Hammersmith. He brought over with him some curiously striped and blotched Pansies, and seed of these was sown. The best were shown by Mr. Salter at the meetings of the Horticultural Society, but they were frowned upon by the florists of those days.

In the year 1858 Mr. Andrew Henderson, then of the Wellington Road Nurseries, St. John's Wood, when on a visit to France, secured some new forms of blotched Pansies which he brought to this country, and they were sent to my brother, Mr. W. Dean, then in business as a nurseryman at Shipley, Yorkshire, to be grown. It was said they would spoil the race of English show Pansies, but my brother, believing these Pansies would eventually become popular, commenced raising seedlings, and I think he can claim the credit of having sent out the first English raised variety—one named Princess Alice, a fine white, with a large blotch of black. From such flowers seedlings were obtained, and soon the taste for fancy Pansies grew with re-

markable rapidity, which is not to be wondered at, considering their size, richness of colours, and diversity of marking.

In regard to the race of bedding Pansies, they were prominently brought into notice by the late Mr. John Fleming, then gardener at Cliveden, where they were employed for spring bedding. The Cliveden Blue Pansy came, I think, originally from Russia, and I have often wondered if it is still to be found in gardens. Another pale variety bearing that name was much more frequently employed for spring bedding.

It was owing to the employment of *Viola cornuta* and *V. lutea* that an impetus was given to the production of a race of bedding Violas or tufted Pansies adapted for summer bedding. There is now a large number of varieties, and, like those of the fancy group, they increase in number every year. The advance is naturally slow, but improvements are being made, and as the wet summer of 1888 served to bring prominently before the gardening community the value of Violas for bedding, it is reasonable to expect that there is a large demand for them during the present spring. R. DEAN.

Pink Her Majesty.—This fine new white Pink, which received a first-class certificate of merit at the Crystal Palace on May 11, and again from the Royal Horticultural Society on the 14th inst., is remarkable for its large size and purity of colour. Mr. F. Hooper, Widcombe Hill Nursery, Bath, who exhibited it, states that it was raised from a white-flowered seedling obtained from Mrs. Sinkins, fertilised with pollen from a fine laced variety called Boiard, the result being a seedling with flowers as large and full as those of the latter, but without a particle of lacing. The new variety may be described as having frimbriated petals, but being full they make a symmetrical flower, and it is almost destitute of the yellowish green centre which detracts so much from the effectiveness of Mrs. Sinkins. It might be objected that it splits its calyx, or, as the florists term it, its pod; but most, if not all, the cultivated Pinks do this more or less.—R. D.

Saxifraga Wallacei.—My recital of the facts connected with the origin of this plant can only be controverted by traversing Mr. Wallace's statement made to me, and in my presence to Mr. Ware, of Tottenham, that he raised the plant from seed saved by him from *Saxifraga Mawean*. Miss Owen also gave the history of the plant in the pages of THE GARDEN (I think) on Mr. Wallace's statement to her, so that there is no supposition with regard to its origin. With regard to the identity of S. Wallacei with S. Camposi, which I doubt, it places "D. K." on the horns of this dilemma, that S. Camposi cannot be a true species, as he maintains it was raised by Mr. Wallace in the manner stated. If the identity of the two plants be established, it will be a curious fact in connection with the history of the "Origin of Species." With regard to "D. K.'s" remark that S. Wallacei or "S. Camposi, a distinct species, has been cultivated for many years in gardens," it would be interesting to know in what garden or nursery it was grown previous to the year in which Messrs. Dicksons and Co. sent out S. Wallacei.—ROBERTSON MUNRO, Abercorn Nursery, Edinburgh.

I have no reason whatever to doubt the truth of the statement made by Mr. Wallace, as, so far as he knew, he simply stated what he believed to be correct. Before writing one word about this plant, I at least made certain of escaping the dilemma referred to by Mr. Munro in assuring myself that S. Camposi was considered a species twenty years before the Morocco plant (*S. Mawean*) ever saw light in an English garden. The first mention we have of S. Camposi is in Willkomm ined. Pl. Exsicc. 1845, under the name of *S. almeriensis*. It was again found in 1848 by Funck, and again in 1852 in the province of Grenada by Pedro del Campo, whose name it bears, having been described by Boissier and Reuter the same year. I do not know how long it has been in cultivation, but in the *Botanical Magazine* (t. 6640), where S. Camposi is figured and Wallaceana given as a garden synonym, it is stated to have been in cultivation for many

years, and I am told on good authority that it was growing in Kew previous to 1867. In the text to t. 6640, *Botanical Magazine*, referred to above, S. Camposi is described as being nearly allied to S. Maweana, "differing in the more cuneate leaves." I may add that the leaves are not only more cuneate, but are more fleshy or succulent, shiny green on the upper surface, and twice the size. The flower-stem of Maweana is more leafy and covered with black glandular hairs, of which there are hardly any in Camposi or the supposed different Wallacei. Of course, there is no accounting for names getting mixed up in this way, nor am I going to reason how this plant sprung up in the Dean Cemetery. This, however, I am certain of: S. Camposi (Boissier and Reuter, published 1852) is identical with S. Wallacei (Hort.) and totally distinct from Maweana. I enclose specimens of the three plants for the editor to judge for himself.—D. K.

* * We have carefully compared the specimens sent by "D. K.," and cannot see the slightest difference between S. Camposi and S. Wallacei, from which S. Maweana is quite distinct.—ED.

CARNATIONS.

AS "A. D." in THE GARDEN, May 11 (p. 428), dissents from some of the views expressed in my article upon Carnations in THE GARDEN, April 13, and draws a few unfair conclusions, I will give some explanations.

In spite of "A. D.'s" claim, which I admit, that we have many self Carnations of English origin, I would point out that they are sadly disproportionate to the long lists of flaked and bizarre kinds. The most convincing proof "A. D." can obtain will be found in some of the trade Carnation lists. I have never assumed that the produce of flaked varieties would be flaked or striped, because in many of these there is a manifest tendency to revert to a self colour. Such self-coloured forms are rarely reliable or of very great merit. Moreover, "A. D." somewhat contradicts himself, for after saying that the English raisers have not concentrated their efforts upon raising striped kinds, he goes on to say that many of our best selfs have come from such parentage. This tends to show that self flowers have either originated by accident, or that having been obtained from striped flowers their perpetuation was but an afterthought.

"A. D." says he is not working for show flowers, nor am I championing their cause. All that I have written upon the Carnation has been from the standpoint of its merits as an English summer garden flower, second only in importance to the Rose. It is worthy of such a place, but I repeat again that it does not obtain from gardeners generally anything like the attention its merits warrant. Whilst admitting the popularity of the Carnation, I would inform "A. D." that in this case, at least, its popularity is not a true criterion of extensive culture, except among amateurs who garden on a small scale. These keep alive the interest in this lovely flower, and my statement, that people grope along with a system of flower gardening which finds no place for the Carnation, instead of being an exaggeration is quite true, and based on observations made upon what is being done in many private gardens attached to country seats. It is to these gardens that we look for a standard of excellence, and I can recall the names of at least fifty places visited during the summer months of last year in which neither Rose nor Carnation were found in what was called the flower garden.

The reason I advised the non-employment of seedlings was not because of limited experience or acquaintance only with inferior strains. I have seen splendid strains with a good percent-

age of double flowers, and also very free-flowering, and if I had to meet a great demand for cut flowers I should grow seedlings extensively, even good single kinds. Informal groups of clear self-coloured Carnations are simpler and far superior to the best seedlings. Beds of seedling Carnations are preferable to the vulgar masses of brightly-coloured Pelargoniums. I did not wish to speak disparagingly of seedlings and their uses, but knowing that infinitely better effects were easily obtainable from good selfs, I set them on one side as not coming up to my ideal. A true estimate of the beauty and effect of the Carnation cannot be obtained from mixed beds of seedlings. No, nor from the best collection of selfs in the country, be it ever so complete, if only two or three plants of each kind are grown. "A. D." admits the superior effect of planting in groups, and if anyone will plant from twelve to fifty specimens of any good Carnation in a bed as an informal group or in any place desired, provided they are massed in some simple way, I venture to say that he will be charmed with the result. The above ideas are obtained from the extensive culture of Carnations in a private garden. They are planted in groups in the flower beds and the kinds are mostly selfs of French origin. The beautiful Comtesse de Paris, figured some time ago, and the recent plate of two kinds show varieties that in their respective colours are far before anything of the same kind in England, and there are others, especially among the scarlet-flowered varieties, which have not appeared in public, but are equally as good. Can "A. D." tell me of an English self like Comtesse de Paris, a group of which in the flower garden last summer came into flower in July, and kept up a profuse and unbroken succession of bloom till late in October? It is these beautiful French selfs that convince me that French raisers are far ahead of English raisers. A. H.

SHORT NOTES.—FLOWER.

Alpine Auriculas.—It is a great point that these are left alone by the hybridists. What might become of them after a few years' manipulation it is hard to say. Bright, fresh, and fragrant as they now are, they are of the utmost value. We cut handfuls of them, and their piquant perfume is liked better than that of most indoor plants.—W. P. C.

Parrot Tulips on Grass.—For prolonging the display of spring flowers on Grass Parrot Tulips are to be recommended, as they bloom later than the ordinary kinds. Feu Brillant, bright scarlet, and Mark Graaf, yellow, scarlet and green, are two good sorts to plant. They are more effective in clumps of five or seven bulbs than when scattered over a large area.—S.

Narcissus biflorus.—This twin-flowered variety of Narcissus is a capital one to grow for the mixed border and for supplying flowers for cutting; the scent is especially pleasing. Flowering as it does after the bulk of the other varieties are past, it is especially useful. It increases rapidly, therefore no difficulty need be experienced in soon having a stock of bulbs.—S.

Tall plants in window boxes.—Window boxes are often planted with the view to attract and gratify those outside rather than the inmates of the rooms, and plants so tall as to be an inconvenience are often used for centres or throughout the whole box. Dwarf plants and creeping and drooping subjects are, when properly disposed, much more effective than tall straggling ones.—J. MUIR.

Myosotis dissitiflora Perfection.—This very fine form of the early-blooming Myosotis broke as a sport here several years ago, having, oddly enough, also broke as a sport elsewhere at the same time. The white form of dissitiflora broke in just the same way in several places at about the same time, and here also, with respect to the latter, I have found it to seed fairly well, but not so freely as does the old blue form. The large-flowered variety, Perfection, which exhibits the same lovely cerulean

blue of dissitiflora, but with very much finer flowers, had never seeded until last year, when I got from my plants about a score of seeds, all of which when sown produced plants. These have been flowering lately, and as in all cases the flowers are of the same character as those of the parent, it is obvious that the sport is fixed. I am hopeful now that this very fine form will seed every season, and if it does, I shall get rid of the old form, as the new one is so much finer and more attractive. It has also a more robust habit. Although the past winter was a comparatively open one, yet all old plants of dissitiflora suffered severely, not, of course, from frost, but from damp. Seedling plants suffered little; indeed they seldom do so. For that reason it is preferable to have seedling plants to depend upon, and I am glad to get some seedlings of Perfection to start with. Old bottoms of Myosotis get very dense and retentive of moisture during the winter, and this accumulation of moisture becomes more productive of decay than sharp and dry frosts.—A. D.

FLOWER GARDEN NOTES.

WILD GARDENING.—We have about two acres of ground here, that four years ago formed a coppice for game covert, the old stools of which we took up, levelled the ground, and planted quantities of Snowdrops, Daffodils, and coloured Primroses. The wild Primroses, Cowslips, Forget-me-nots, wild Hyacinths—white and blue—and wood Anemones come up naturally by the thousand, and all except the Primroses are at the present time simply magnificent. I think it will pay to dig up some of the Bluebells next autumn, to give the other flowers a better chance, as they now somewhat overrun them. This ground—garden one can hardly call it—has been a feature of great interest from about the middle of February, when the Snowdrops were in blossom, then came the Daffodils, and next the Primroses, and these are still good, but the Grass has now got too long for them to be seen from a distance, but the Cowslips hold their heads up well. Last year we sowed seed of a lot of the scarlet Poppy, and the plants did fairly well, quickly succeeding the Hyacinths. They promise to be still more numerous this year. The Shirley Poppy has been sown freely amongst them, and if the Grass does not smother the seedlings, of which I have some fear, there will be a continuation of gaiety throughout the greater part of the summer.

MIGNONETTE.—I know of nothing connected with flower gardening that is such a constant cause of complaint amongst amateurs as the culture of Mignonette. The seed-bed should be made firm—not pounded, as is very frequently done—and the surface left very fine. Sift the soil for covering through a very fine sieve, and sow the seed at a depth of a quarter of an inch—less, rather than more. Rather tedious work, some may say, but what of that when by such painstaking care a good plant is secured in any kind of garden soil.

DOUBLE PLANTING.—Like many others, I have become enthusiastic over Daffodils, and the finest varieties were, of course, considered worthy of the best positions. The borders, therefore, that for years had been given up to the summer display of Asters, Stocks, Zinnias, &c., were early last autumn planted with Narcissi, and grand they have been. But now that the flowers are over and not liking the prospect of naked borders in summer, and lifting of the Narcissus being quite out of the question, I have tied up the foliage. As the bulbs are all planted in rows 1 foot apart, the soil has been deeply stirred between the rows, so that now we are able to plant the usual summer bedders. This double cropping cannot, of course, go on year after year, but for a couple of seasons at any rate it may be done.

BEDDING SUCCULENTS.—At one time, and not very long ago either, these were popular as bedding plants, and I was not the least amongst their admirers, yet I confess that I have parted with them without regret, or rather I ought to say reduced their numbers, restricting them to a few of the very best varieties. The only kinds we now grow, and these in very limited quantities, are

Echeveria secunda glauca, metallica, farinosa and Peacocki, variegated Agaves and Aloes, *Kleinia repens* and variegated *Tree Sempervivum*. We never now, as formerly, make entire beds of them, but use the tall variegated *Sempervivums* and Agaves as a setting to *Alternantheras* or *Iresine*. The large-leaved *Echeverias* are put to the same use, viz., as groundwork for prostrate-growing *Sedums*, *Antennarias*, and *Herniarias*. The small-growing kinds of *Echeveria*, such as *Peacocki* and *farinosa*, make excellent marginal plants for enclosing small blocks of *Alternantheras* and other plants of similar dwarf growth. As edging plants to beds they look far too formal.

FANCY PANSIES AND VIOLAS, OR TUFTED PANSIES.—Both of these are equally good, and at the present time both sections of plants are extremely well flowered. The fancy Pansies are from seed sown in heat in February of last year and planted out in the following May. The seedlings flowered moderately well at the end of summer, and the plants were left in the borders. If the present vigorous growth of the plants be taken as a criterion, I have at last, after many trials, hit upon the right mode of cultivation. The flowers are varied in colour, of excellent shape and large size, but the latter is no doubt due, in some measure, to the highly manured ground that both these and *Violas* must have if they are to do well in our southern climate. The bulk of the tufted Pansies that are now so beautiful are from autumn-struck cuttings, and were planted out from frames six weeks ago. Our best varieties are: *White*—Countess of Hopetoun and *Mrs. Grey*; *blue*—*Bluebell*, *Archie Grant*, and *Imperial Blue*; *purple or light lilac*—*elegans*, *Peach Blossom*, and *lilacina*; *yellow*—*Viola lutea* and *Hardwick Yellow*.

GENERAL WORK.—To take and tie *Pæonies*, *Delphiniums*, *Pyrethrums*, *Potentillas*, *Geums*, and any other kinds that may require this attention; also to tie together the foliage of all bulbous plants that have done flowering, that other plants for summer blooming may be planted to supply the vacancies. Besides annuals, spare bedding plants of any kinds that will help to create a summer display may be utilised for that purpose. I have had a number of early summer-flowering *Chrysanthemums* planted in such spaces. These were amongst the best of our flowering plants last autumn, and they seemed to associate better with herbaceous plants than did ordinary bedders. *Dablias*, *Sunflowers*, and tall-growing bedding plants of every kind should be staked as soon as put out, and plants of every description will start into growth far better if a mulching of *Cocoa fibre* be applied at once. This is the only mulching material that birds do not disturb, and by far the neatest in appearance to any other that can be used. W. W.

PERSIAN ZALIL.

(DELPHINIUM ZALIL.)

THE following interesting account of the Persian dye plant *Zalil* has been prepared by Sir Joseph Hooker for the April number (tab. 7049) of the *Botanical Magazine*. The plant was first described ("Transactions of the Linnean Society," ser. 2, vol. iii., p. 33, t. 3) in the report "on the Botany of the Afghan Delimitation Commission," which was worked up at Kew from the remarkable collections made by Surgeon-Major Aitchison, C.I.E., F.R.S., when on duty as naturalist attached to the mission.

The *Zalil* flowered at Kew in July of last year, and specimens of the flowers as used for dyeing purposes and for medicine are in the Museums of Economic Botany.

As a plant of economic value this is one of the most interesting discoveries of the Afghan Delimitation Commission, and our knowledge of it is due to the fact that the Indian Government directed a competent botanist, Dr. Aitchison, F.R.S., to accompany that important geographical operation. In the work cited above Dr. Aitchison (p. 31) thus describes the Persian *Zalil*: "This plant forms a

great portion of the herbage of the rolling downs of the Badghis; in the vicinity of Gulran it was of great abundance, and when in blossom gave a wondrous golden hue to the pastures. In many localities in Khorasan above 3000 feet it is equally common. The flowers are collected largely for exportation, chiefly to Persia, for dyeing silk; they are also exported from Herat, through Afghanistan to Northern India, to be employed as a dye, as well as to be used in medicine." In another place (p. 20) Dr. Aitchison, speaking of the vegetation of Badghis, says: "For a short period the hillocks are tinted an exquisite blue by the flowers of *Gentiana Olivieri*, which is, as Boissier noted, a hot country *Gentian*. This is followed by *Delphinium Zalil*, a perennial, which throws up a spike of bright yellow blossoms, 2 feet in height. Its showy blossoms suddenly cover the downs, which they illuminate with their brilliant colouring, affording a sight never to be forgotten."

The fact of *D. Zalil* affording a dye stuff is one of the many evidences of our ignorance of the materials used in the industrial arts of the East. It is reasonable to suppose that the flowers have been an article of commerce for ages, and yet I am unable to find any allusion to the subject in books devoted to the economic botany of India or to its manufactures. It is to be hoped that this may meet the eye of some intelligent official in the British Indian service who might ascertain to what purpose the important *Zalil* is put.

D. Zalil does not accord well with any section of *Delphinium*, as these are defined by Boissier. Regel, who was consulted as to its affinity, and whose knowledge of Oriental plants is unquestioned, pronounced it to be possibly *D. ochroleucum*, a Soongarian species, reduced by Boissier (vol. i., p. 89) to a form of the polymorphous *D. hybridum*, which has white, blue, and scarlet flowers; but that species belongs to the division with dilated base of the petiole, with the lower petals equalling or exceeding the sepals, and with other discordant characters; yet I know no nearer affinity.—*Kew Bulletin* for May.

KITCHEN GARDEN.

CELERY FOR EXHIBITION.

FROM a utilitarian point of view extra large Celery is neither the best nor the most profitable, and for ordinary purposes, therefore, it is unwise to aim at great size, as this simply means so much wasted labour, manure, and space. What the grower for exhibition, however, has to study is what the judges give the preference to, and adopt his practices accordingly. At flower shows the sight-seeing public expect to meet with examples of the highest cultivation, and what might perhaps be the best for the kitchen not unfrequently fails to gain either a prize or any notice from the visitors. The same rule holds good with much of the produce shown at agricultural shows, and it is doubtful if fashion will ever materially change in this respect. Critics ought not, therefore, to be very severe in their strictures upon the supposed grossness and inferior quality of exhibition vegetables generally, nor must they too readily arrive at the conclusion that great size and coarseness are inseparable, as it is quite possible for Celery, as an instance, to be extra large, and yet crisp and sweet in quality.

Of late years the Celery seen at various shows in August and September has been exceptionally fine, and the question is often asked, "How is it grown?" It is on this point I propose to enlighten inexperienced readers, and will preface my remarks with the warning that those who are anxious to grow Celery good enough to win prizes must be prepared to expend a considerable amount of labour in its production. As it is too late to advise upon the raising of the plants, I will merely state that

the very finest early Celery to be met with is usually raised in heat in January or early in February, the preference being given to a strong-growing white variety, notably Wright's Grove White, and I have good reasons for believing the newer Veitch's Superb White will prove superior to that old favourite. As a rule, the red or pink sorts are more solid and imposing in appearance than the white varieties, but they are longer in blanching, and are, therefore, better adapted for the late August and September shows, as well as those in November. Veitch's Early Rose may be said to be an early form of Major Clarke's Solid Red, and is fine for exhibition. So, also, is Sulham Prize and Standard-bearer, and I have had Williams' Matchless extra good. For the summer shows these also ought to be raised in February, while for the November or Chrysanthemum shows March is early enough to raise the plants. The seedlings should never be crowded or kept far from the glass, nor ought they to suffer from want of water at any time. The surest way of preparing stout early plants, and which can be grown on without a severe check being experienced, is to pot off the seedlings into 3-inch pots, growing the plants on a shelf in gentle heat. Before the plants become badly root-bound, they must be shifted into 8-inch, or rather larger pots, using a compost consisting of good loam and decayed manure in equal proportions, adding burnt clay or soil from a "smother," this serving to keep the compost sweet and porous. They should still be kept on a shelf in a warm place, such as a vinery or Peach house, and be well supplied with water, being eventually transferred to a shelf in a cool house for a few days, and from there to a sheltered position in the open air. Supposing they are turned out of the house by the middle of May, they would be ready to plant out finally at the end of that month or early in June. To the non-exhibitor this system of preparing the plants must seem rather an expensive one; but it should be remembered that most exhibitors only require from two dozen to three dozen plants, every one of which may, if sufficient trouble is taken, be grown to perfection. Whether the plants are grown on in pots, or are pricked out in boxes of rich soil and kept growing in heat till they are large enough to be hardened off and finally moved to the trenches or prepared ground, or are pricked out in frames, it is of the greatest importance that they be not kept too long out of the ground.

Much of the Celery shown is grown in trenches in which a good depth of manure, and in some instances a considerable quantity of turfy loam, have been placed, but what will be found the simplest and best plan in the end is to prepare a small bed especially for the exhibition plants. Some of the very best Celery I have yet seen was grown on a piece of sheltered ground about 8 feet square, and this was prepared as follows: A stout stake was driven into each corner, another midway between them, to these being nailed a strong wide board. The ordinary garden soil to a depth of about 18 inches was removed and a similar depth of compost exactly similar to that recommended for potting the plants substituted. In this the Celery was planted about 15 inches apart each way. It was in a moist state at the roots when put out, and abundance of soft water and liquid manure was given about twice a week. If this plan is not exactly followed, I would yet advise that the system of well preparing the ground and planting on the level be adopted, trenches, if more easily supplied with water, being also much the coldest. If the plants are put out in single lines instead of in a bed, they ought to be not less than 12 inches apart. In any

case the soil and manure in which Celery is to be grown should be heavily trampled or rammed down about the roots, this being most conducive to the formation of solid stalks, a loose root-run causing a hollow growth. When well established, water or liquid manure must be given frequently and liberally, irrespective of the weather, as there is rarely sufficient rainfall to moisten the root-filled soil about the stems of Celery.

Ordinary methods of blanching are not suitable for exhibition Celery, as it is of primary importance that slugs and grubs generally be excluded from the stalks. From the first all suckers should be removed and the plants be prevented from opening out too much, as should once the leaves assume their natural or horizontal position, they split badly when tied. Five or six weeks before the earliest is required for exhibition, the small lower leaves ought to be pulled off and the reserve stalks and much of the foliage carefully wrapped in several folds of brown paper, so as to effectually exclude the light, the eventual result being beautifully clean and well-blanching stalks, and which can be shown almost at their full size. Late Celery may also be most perfectly blanched in a very similar manner, but as the paper will not bear exposure to all weathers, either an additional covering of strips of canvas should be given, or else dry litter or Bracken banked up around or amongst the plants. In this district growers for exhibition rather favour the use of 5-inch draining pipes for keeping the Celery clean. The plants if early enclosed singly in these and liberally treated are not long in filling them, the greater portion of the foliage spreading from the tops. Late pipe-enclosed Celery ought to be moulded up as a protection from severe frosts, but any required for the early shows does not need this.

The foregoing methods of blanching Celery have yet another point in their favour to be mentioned. It not unfrequently happens that after Celery has been heavily banked up with soil little or no moisture finds its way to the mass of hungry roots below, and a serious check to the growth of the hearts and perhaps premature bolting result. When, however, the plants are blanched without being moulded up, copious supplies of water and liquid manure can and should be given twice a week in hot weather, and once a week when the days are shorter and more moisture abounds. W. I.

SHORT NOTES.—KITCHEN.

Ne Plus Ultra dwarf Bean.—This is a grand French Bean for growing in pots, the growth being of medium height. It is a very heavy cropper, the pods of good length, very dark green in colour, and even in size.—E. M.

A good new Broccoli.—We grew Sutton's Standwell Broccoli for the first time this season, and it has proved exceptionally good. It formed a close succession to Leamington, and we are still cutting handsome close heads, creamy white in colour, and of the best quality. In all probability this distinct and serviceable variety will not be easily destroyed by frosts, as it is of sturdy growth and the hearts are well protected.—W. I.

Runner Beans.—With reference to the method adopted by market growers generally in growing Runner Beans in large quantities out in the open fields, it would be inferred from what is said in THE GARDEN, May 4 (page 410), that it is the rule to sow these Beans in rows comparatively close together. I grow them in that way at 3 feet apart for the production of seed, but generally on ground of moderate quality, and very little topping is needful, because the production of a heavy bulk of pods left to ripen would check growth. In the case of the market grower, the rule is to sow Runner Beans 5 feet apart, and to plant one row of Brussels

Sprouts between rows of Beans. This space is found to be none too much when the ground is fairly good, and if the soil be not very deeply stirred, at least it is usually heavily manured. There is no better Bean for the market grower than the true Ne Plus Ultra. It is undoubtedly the freest bearer and has the longest and handsomest pods. Very little stopping or topping is needed, for owing to the ample air and sunlight afforded, and the firmer soil than is found in private gardens, there is not much tendency on the part of the plants to run too much, whilst the very abundant crop of Beans produced serves to check free growth also.—A. D.

Planting Tomatoes in the open.—The time has now arrived when these may generally be planted out. Care, however, should be taken that the plants are well hardened off before being planted out. Tomatoes should have the shelter and support of a wall or fence and be placed in the full glare of the sun. We have secured a good deal of fruit from plants treated as bushes and tied to stakes, but plants of this stamp were a total failure last season, and we would not extend, or indeed try, the experiment again, unless in cases where no walls were available. There are often little vacancies here and there between the wall trees which offer admirable sites for Tomatoes, especially if they are confined to one stem, which is the surest way of causing them to bear and mature a crop.—J. MUIR.

KITCHEN GARDEN NOTES.

STAKING PEAS.

JUDGING by what is seen and heard in this district, a considerable number of rows are not worth staking, but yet can ill be spared. In all cases where the plants in the rows of early varieties attaining a height of about 3 feet are very thin or very patchy, it would most probably be wasteful to stake them, as they would crop nearly as well resting on the ground. The bulk of the Peas sent to the markets are grown in the open fields without the aid of stakes, but as a rule this plan does not answer so well in private gardens, richer soil and sheltered positions causing the growth of too much haulm. Sowing too thickly is also another cause of failure, but with a thin plant the system of growing without stakes is likely to answer much better. It is a noteworthy fact that comparatively tall varieties are sometimes grown in the open fields without stakes. Seeing that the stakes are usually a rather serious item in the garden expenditure, it may be advisable in many instances to remove them from very patchy rows and transfer them to the mid-season and later varieties which are growing very much better. The dwarf and medium Peas rarely exceed their advertised height, but many varieties said to be from 5 feet to 6 feet frequently attain a height nearer 8 feet, this being especially the case on strong ground, and with such varieties as Ne Plus Ultra, Emperor of the Marrows, Champion of England, British Queen, and a few other favourites. If too short stakes are used the haulm is almost certain to topple over, this seriously checking the production of pods. Where possible, therefore, stakes of good height and strength for the strong growers should be used. The stakes should not be put in very thickly, nor should they meet closely at the top, or otherwise the haulm grows through and breaks down. Tall stakes being thin at the bottom, the Peas ought to be conducted up to them with the aid of spray, or otherwise they are liable to fall about the rows, and it may be cripple their stems. The best substitutes for stakes are the strong lengths of diamond-mesh wirework; such as are frequently advertised, and these will last for years, in this respect being much cheaper than the ordinary Hazel and other Pea stakes. Coarse mesh galvanised wire netting is also used in some gardens and answers well. In either case it is necessary to arrange the wirework on both sides of the rows, in one or two widths according to the height of the Peas. All the trellis work must be supported by a few stout stakes.

PEAS IN HOT WEATHER.

On hot shallow soils Peas generally fail badly in hot and dry weather, and unless the site is specially

prepared for their reception it is a waste of labour and space to sow seed now. A cool, yet open, position should be selected for these crops, and as deep and rich a root-run provided as possible. Ground manured and trenched during the past winter or spring is much to be preferred to trenches, but the latter should be formed in the event of no such plot being available. These trenches should be not less than 18 inches wide, good solid manure being forked into the bottom spit, and about half of the first spit returned on to the top of this, a fine surface made, the seed sown, and covered with 3 inches of fine soil. It is not advisable to leave sharp edges to the trenches, especially when the soil is of a clayey nature, as these are liable to shrink away from the soil in the trench and soon become hard and dry. The soil in the trench ought to be trampled rather heavily, the sides cut down, and the remaining portion of the soil thrown out, eventually drawn up to the plants—not for the purpose of moulding them up, but rather to form a basin, thereby rendering it an easy matter to flood the trenches with water. Very much depends upon the choice of varieties, some being better mildew-resisters than others. Of Peas that attain a height of about 3 feet the best are Sturdy, G. F. Wilson, Latest of All, Veitch's Perfection, and Walker's Perpetual Bearer. Autocrat attains a height of about 4 feet, and is a good late variety, while the best tall-growing sorts, or which grow to 6 feet and upwards in height, are Duchess of Edinburgh, Emperor of the Marrows, Ne Plus Ultra, Royal Berkshire Marrow, and British Queen. In every case the rows of the selected varieties should be as far apart as their known height, and on no account ought they to be crowded. When either sown thinly, or the plants are freely thinned out, say to 5 inches apart, all those reserved will grow strongly and branch freely, a more continuous and valuable crop being the result.

POTATOES.

Warm weather has brought these on rapidly, and also an abundance of weeds. In order to destroy the latter and to loosen the soil between the rows, all those sufficiently advanced to mark the rows ought to be heavily hoed, this also letting in more warmth to the roots. If it is intended to manure the Potatoes from the surface, now, or just prior to hoeing, is a good time to apply it. A dressing of soot, guano, superphosphate of lime, or some other kind of special manure being applied early, the Potatoes and also succeeding crops would be materially benefited by it. Should there be no signs of a late frost, it is advisable to defer moulding up till it can be done thoroughly. Much of the ground planted with Potatoes was not in good working order at the time, and there is therefore all the more need for thorough hoeings, the back of the hoe being freely used to break down the hard lumps. It is always best to do this kind of work, including moulding up, in the early part of the day, this admitting of the newly-exposed soil becoming drier and warmer before night—an important consideration when the nights are frosty.

THINNING OUT AND TRANSPLANTING.

Although early-sown seeds have not come up well, or at any rate the seedlings are not nearly so thick on the ground as usual, there is yet need for much thinning out, and a considerable amount of transplanting must be done or patchy beds will be the result. Turnips first need attention, as these, where they have escaped slugs and fleas, are growing rapidly. They should at first be lightly thinned out, the plants, if all escape injury, being eventually thinned to a distance of from 6 inches to 9 inches apart, the early strap-leaved varieties needing the least room. Turnips transplant readily in showery weather, but at this early date scarcely pay for the trouble. Onions are very unequal, but where there are thick patches, the sooner these are thinned out the more easily it can be done. If the maggot is sometimes or always troublesome, then the thinning out must be done early and lightly, firm, undisturbed ground apparently preventing the egress of many egg-bearing flies. Supposing the rows are from 10 inches to 12 inches apart, the most serviceable size of Onions can be

obtained by thinning out the young plants to about 4 inches apart each way, and if other conditions are at all favourable, a heavy crop of solid bulbs should result. If exhibition Onions are needed, then the plants must be more freely thinned out. Onions transplant best when about 6 inches high and naturally in showery weather. It is now the only way of improving the appearance and value of thin rows, and if done quickly and well any moved may nearly overtake those undisturbed. Where a considerable number of young Onions are wanted for salads, raise or leave the plants thickly in an outside row, rather than delay finally thinning out the rest of the beds. Early Carrots are also thin, and it is not often necessary to commence thinning out before some of the roots are large enough for use. In our case the thinning of the larger Horn Carrots goes on almost daily throughout the summer, and there is usually abundance left for winter use. Many of the small roots do not commence to swell off till more room is given. The larger intermediate and later varieties ought to be thinned out while yet they can be drawn easily, a distance of 6 inches or rather more apart being ample. Parsnips are usually sown much earlier than there is any occasion for, and not much thinning out is necessary this season in many beds. Moderately large roots are superior to huge specimens, and, unless the latter are particularly required, it is advisable to leave the plants from 8 inches to 9 inches apart. It should be remembered that comparatively small roots are the best in point of quality and for keeping. Parsnips may also be transplanted, but the removal generally breaks the tap-roots, and short forked examples are the result. Beet is not far advanced, the bulk of it with us only just coming up, in fact. As coarse roots are decidedly objectionable, much room must not be given to the young plants, especially if these were raised early. A distance of about 6 inches apart is sufficient, while Salsify and Scorzonera may be left about 5 inches apart.

W. I.

MARKET GARDEN NOTES.

WITH exceptionally fine weather and the almost entire absence of late spring frost and cutting winds, crops have lately made great progress. Taken collectively, it is many years since market garden crops looked so promising.

BROCCOLI are very plentiful, for although we have had but little severe weather, both early and late kinds were later than usual in becoming fit for market. It is not advisable to cut Broccoli until they have attained their full size; consequently the lateness of this crop delays the sowing or planting of others for which the land is wanted.

SPRING CABBAGES are this season very fine and plentiful, as they have continued to grow without any check ever since they were planted. The land for these is very heavily manured, as the sooner they can be had of marketable size the sooner can the land be cleared and another crop got in. The price this year is not half so good as was realised at this date last season. The most popular sorts for early crops are Early York, Early Rainham, and Wheeler's Imperial. Sowing seed of these kinds is now being done to get a good supply of plants to put out after early Peas, early Potatoes, &c., are cleared from the land.

ONIONS from autumn-sown beds are now being sent to market in large quantities. The White Lisbon and other mild-flavoured Onions are sown early on rich soil rather thickly, and at this time of year they sell readily tied in bunches. The spring-sown crops have done badly, and many people have had to sow a second time. The late-keeping sorts, such as James's Long Keeping and Bedfordshire Champion, are in great favour here.

LETUCE of both Cos and Cabbage kinds are now very fine and abundant. The black-seeded Brown Cos is probably still the best Lettuce grown, and for crispness and flavour it cannot be surpassed. The Hardy Hammersmith and Grand Admiral Cabbage Lettuce are very extensively grown, being sown broadcast on sheltered borders, and thinned out sufficiently to allow them to attain full size. Spring-sown crops of these, and in fact all other

kinds, have required incessant attention to keep slugs and other pests away.

RHUBARB is exceptionally fine and plentiful, but, in common with other crops, it is very cheap.

CUCUMBERS are already plentiful, and selling at prices below what they generally realise at mid-summer. Planting out for main crops in pits and frames is now being pushed on, as these later crops are generally more remunerative than the earlier ones. Ridge varieties are being planted out with hand glasses or cloches put over them for the first month. The same mode is followed with the first crop of Vegetable Marrows.

TOMATOES are being largely planted, both under glass and in the open. Span-roofed houses that have been cleared of French Beans, bedding and other plants, are now being cleaned out, and plants grown to a good size in pots are being put out, either in narrow brick pits filled with soil or in large pots or boxes. It does not require a very large amount of soil to grow Tomatoes, the main point in their cultivation being to have good loam rammed firm, and when the fruit is swelling to give frequent top-dressings of sifted soil mixed with a little guano or other rich food.

HARDY FRUIT GARDENS have never in my recollection looked so promising as at the present time, and, unless we get some very unusual checks, the year 1889 will rank as one of the best fruit seasons on record. On walls the set of Apricots, Plums, Peaches, Pears, &c., is astonishing, and the trees look remarkably healthy. Orchard and dwarf fruit trees have been complete masses of bloom. Cherries, Pears, Plums, Damsons, have set remarkably well, and now the Apple trees are garlands of bloom, and as the weather is all that could be desired, with no late spring frosts and light gentle rains, it will be strange if the Apple crop is not a very heavy one.

BUSH FRUITS of all kinds look well—Currants, including Red, White, and Black, being loaded with clusters of fruit. Gooseberries, where the birds were kept from the buds, are an excellent crop and nearly fit for picking.

STRAWBERRIES are just coming into flower, and both foliage and flower-spikes are strong and plentiful. Where not already done, the work of putting litter between the rows is being carried out, so as to not only keep the fruit clean, but to retain the moisture in the soil should any protracted drought prevail. The foliage of all kinds of fruit trees and bushes is remarkably forward, and seldom do we find the trees with so many leaves on them, while the blossom is expanded. The heavy rainfall and light crops of 1888 have evidently benefited the trees, so that even the oldest look quite rejuvenated.

J. G.

Hants.

Market gardening in West Cornwall.—The Broccoli season, which has continued throughout the last six months, is now ended, and on the whole the season has been very unremunerative to the market gardeners. The wet autumn and the mild winter brought the early Broccoli in when there was no demand nor market for them, and the crop was almost a total loss to the growers. The price obtained for the first three months was on an average 75 per cent. below that of an ordinary season. The oldest and most experienced gardeners assert that the price at the beginning of the season was the worst ever known since Broccoli were first cultivated in West Cornwall. The late Broccoli, however, realised fair prices, but the rise did not benefit to any great extent the regular market gardener, since he, to obtain his two crops a year, has to plant most of his land with the earliest kinds. The farmers who live on the outside fringe of the old-established market gardening districts, and who generally plant a large quantity of late Broccoli, have done much better than the gardeners this season, and no one can remember Broccoli realising such high prices up to the very last as they did this year. The late storms did not injure to any great extent the early Potato plants. Some which were exposed to the full force of the wind suffered

a little, but the general condition of the plants throughout the market gardening districts is excellent. If outward show be anything to judge by, the crop of early Potatoes promises to be heavier than usual; and it is hoped the extra quantity will make up to the growers for the low price which is likely to prevail. A heavy crop, with plenty of old Potatoes still in the market, will naturally tend to cheapen the price. Competition will be keen and the highest price will be obtained for the Potatoes which are sent to the market in the best condition. If the market gardeners of West Cornwall will take care to send their Potatoes to market in a good, clean state, fairly assorted, in three classes without "toppers," then, and not till then, will they be able to compete against all others and get the best price for their produce.—*The Cornishman*.

CHRYSANTHEMUMS.

CULTIVATION OF SINGLE-FLOWERED CHRYSANTHEMUMS.

IN the cultivation of single-flowered Chrysanthemums, if exhibition blooms are required, the same method must be adopted as in the case of other sections. To have flowers in quantity, the method known as "bush" style of growth must be employed. The plants have several stems, and each one bears a good head of flowers. Most of the sorts being erect-flowering, the blooms can be used either singly or in long sprays. Stout freely grown cuttings should be inserted singly in small pots from the middle of January to the same time in February, or two or three cuttings may be put in pots $3\frac{1}{2}$ inches in diameter, using sandy soil. Place the cuttings under handlights in a cool house where the temperature ranges from 40° to 50°, shading from bright sun. Syringe them occasionally to prevent the leaves flagging, and when the plants are 4 inches high pinch them for the production of side branches. Shift the plants into larger pots in the case of those struck singly, or pot off the others separately before they are at all root-bound. Keep them stocky in growth by standing the plants thinly, thus allowing a freer circulation of air amongst them, and keep them as near the glass as possible. If small plants are required, one topping of the shoot will be enough, while to have larger plants the side shoots when 4 inches long should be pinch. It is well to have plants of both sizes, as the smallest will do for the side stages or the front of groups, while the larger bushes will assist in the decoration of lofty conservatories. I omitted to say that where the cuttings were struck several in one pot, after they are parted and potted separately they should be returned to the frames, which should be kept rather close for a time until the plants form new roots and will bear exposure without flagging. Then remove them where more air can be given to induce a stocky growth. By removing the plants to a cold frame as soon as possible and giving an abundance of air in favourable weather, much may be done to prevent them being drawn up weakly. When the pots are full of roots shift the plants into 4-inch pots, using a compost as follows: Two parts fibry loam, one part leaf-mould, half a part of Mushroom bed manure, adding sharp silver sand freely. The next shift the plants will require will be into their flowering pots towards the end of May. Useful specimens may be grown in 8-inch pots, but if an extra large size is needed, 9-inch pots may be employed.

For the final potting, add to the compost previously named one more part of loam, ground bones if the soil is light in character, but if of a heavy, retentive nature, bones which are dissolved, applying either at the rate of one pint of manure to one bushel of soil. If the soil is heavy, charcoal will be of immense advantage, as it will keep the whole porous and sweet. Short-jointed, firm growth is what is wanted. To secure this the soil at the final potting should be rammed tightly into the pots with a blunt stick. Allow a space of at least 1 inch at the top of the pot for water, as a considerable quantity will be required during the

summer. Long spikes branching freely in a natural manner give better results than continual pinching of the shoots up to the middle of June. For the smallest plants three or four branches are sufficient to retain from the first stopping, but in the larger plants about eight are enough to produce large bushes. This latter number is obtained at the second stopping. If three shoots are produced from the first stopping, a dozen will spring from the second, and select from these the number required. When the plants break naturally in August, many more shoots will be produced than are required. These should be disbudded to the requisite number, about twenty-four on the largest and half that number on the smallest. From these numerous side shoots will grow and bloom. The best position for the plants out of doors after all fear of frost is past is one where they will be protected from north and east winds, yet where it is open and sunny. Place the pots on a thick layer of ashes to prevent the ingress of worms, or, still better, stand the pots on boards, which prevents the roots growing through the bottoms of the pots into the ashes. Never allow the plants to suffer for want of water, or the foliage will turn yellow and fall off. Thoroughly syringe the foliage overhead in the evenings of fine days, thus rendering the leaves clean and keeping them free from the many kinds of insects which attack them. During the growing season supports of some kind should be fixed in the pots to prevent the branches from falling about. This is best done by placing in each pot three stakes in a triangular manner, attaching a piece of bast to each. This will answer well until growth is completed, when other stakes may be placed to the stems, spreading out the shoots to the best advantage and in whatever form is desirable. If this is deferred until the bloom-buds are swelling, the plants may then be finally staked. Allow all flower-buds to develop, when stems laden with blooms their whole length of from 1 foot to 2 feet in length may be had. Directly the pots are well filled with roots, apply liquid manure about three times a week or rather oftener if the smallest-sized pots are used and the weather be dry. Increase the supply as the buds form, until stimulants may be given every time the plants need water. The season of flowering can be prolonged if the plants are housed in batches. If the latest are temporarily protected from frost before they are placed in the houses, the season of flowering will be extended.

I will now say a few words on the cultivation of plants to produce exhibition blooms. The cuttings should be struck at the same time as in the case of bush plants, but they should be inserted singly in 2½-inch pots. In this manner the plants do not receive any check when first transferred to larger pots, the object of this method being to have the plants as strong as possible. The same sized pots and kind of soil should be used, only the form of training is different, as instead of topping the plants at 4 inches high they should be allowed to grow with one stem uninterrupted until they break naturally into other growths. Select from three to six of the most promising growths, removing all others and securing them loosely, yet securely, to a stake. If the next break occurs during the first week in August remove the flower-buds then formed and continue the growth of the shoots until the next bud forms, when all but the central bud on each shoot should be removed. If the buds form from the middle to the end of August they should be retained, but if formed earlier they should be removed, as they will develop their blooms too early, and many will be deformed in consequence. Should mildew or green-fly be troublesome, at once apply the usual remedies, viz., sulphur for the former and tobacco powder for the latter. Stimulants should be given to the plants in the same way as for the bush specimens. If the blooms are required about the 10th of November the plants should be housed the last week in September and given a light position near the glass.

For the production of small plants suitable for vases the following details should be observed: Plant out old or young plants on an open space of ground. The former may be planted early in April,

while the latter should not go out until about the middle of May, tying the stems firmly to stakes as they grow to prevent accidents. Do not top the shoots, but in the case of the old plants thin the stems to about six on each, and if more spring from the base remove them. Early in September, when the flowerbuds are forming, take off the points of the shoots about 8 inches long, inserting them in pots. Put five cuttings in a 4½-inch pot and nine in a 6-inch pot, using sandy soil, with a free admixture of leaf mould, and give a good watering to settle them firmly in the soil. If the cuttings are not taken off the plants till the flower-buds attain a good size they do not root so quickly, and, consequently, the leaves flag more when they are taken from the hotbed. They require a gentle heat with shade to prevent loss of foliage. Sprinkle with tepid water every day in fine weather until they are rooted, then gradually harden off and place in a cool house as near to the glass as possible to keep them sturdy. Each plant will produce several flowers at the points and some side-buds will form. The latter should be removed, so that additional strength may be thrown into those at the points. It will thus be seen that the plants are not to be potted again after the cuttings are struck, but allowed to grow together. Give them liquid manure occasionally after the buds are swelling freely and the pots are full of roots.

E. M.

GARDENERS' ORPHAN FUND FETE.

THE Wholesale Flower Market, Covent Garden, was on Wednesday evening last the scene of a fête and promenade similar to that held about this time last year in aid of the Gardeners' Orphan Fund. The interest then stirred up led the committee to repeat the experiment, making a charge this time of 5s., which prevented the unseemly crush that spoilt the pleasure of visitors on the last occasion. Those who came to enjoy the flowers and promenade on Wednesday could do so with reasonable comfort, and it is our hope that the fund has received substantial assistance, as it should do, judging by the large company present. Every endeavour had been made by the holders of stalls to furnish them in as tasteful and rich a way as possible under the circumstances. Visitors had an opportunity of witnessing a splendid floral exhibition, just as it appears in the early hours of the morning, when this great centre of industry is full of bustle and life. There are nearly 400 stands, the masses of flowers arranged tier upon tier, and presented to view in true market fashion, the rich blocks of colour relieved occasionally by a break of Ferns, or things of quiet tints and shades. The rich groves of flowers showed not only colour, and, in some instances, exceedingly careful and pretty arrangements, as cut white Narcissi picked out with lines of purple tufted Pansies, but also the class of plant that is grown to supply the wants of the great metropolis. It is needless to mention the names of stallholders. Each one has his own specialty. One is famous for Hydrangeas, another for Pelargoniums, another for Roses, and so on; but we may with profit note a few of the more interesting flowers that could be singled out of such a rich wealth of bloom. The usual bedders that find their way to the costermongers' barrows were there in abundance, as this is just the season, but one can pass from these commoner things to the splendid pink Hydrangeas, Marguerites, both white and yellow, French Pelargoniums, Mignonette, Fuchsias, Rhodanthe, Spiræa, or Astilbe japonica, the rich crimson S. palmata, Lilies of the Valley, Cinerarias, herbaceous Calceolarias, and the noble Lilium Harrisii, all magnificently cultivated, as every plant must be if it is to give a profitable return to the market grower; it does not pay him to send poor stuff when the competition is so severe. Those who watch the market must notice the rise and fall of a particular flower. Remarkably beautiful on Wednesday were the specimens of Saxifraga pyramidalis, a plant that has only been grown until comparatively recently for the market. It is the most beautiful of all Saxifrages, the rosette-shaped plant throwing up a dense pyramidal panicle of white flowers. Spiræa astilboides, represented by dense

banks of creamy-white, is another now popular market flower, and we felt convinced at the time it was sent out such a plant would not long remain solely in the hands of private gardeners. There were a few specimens of the feathery Boronia elatior, and we should not be surprised to shortly see the more brilliantly coloured and essentially showy B. heterophylla largely grown for market. It is a beautiful and taking plant when well cultivated. Although a large portion of the display in the stands was made up of pot plants, there was a good sprinkling of cut flowers; and here we see the favour shown by the public to the tufted and fancy Pansies. Those with gold, purple, and blue flowers were far richer than the larger, but coarser, fancy types. There were a few late Tulips, Centaurea montana in its several forms, single Pæonies, Solomon's Seal, Roses Niphetos and its tinted variety, La France, Maréchal Niel, and Mme. Falcot; strings of Stephanotis in the form of flowering chains running across the stands; Lilium candidum, early Irises, and Carnation Miss Joliffe, which is still unapproachable in its bright pink colouring.

A few stands were devoted to choice flowers, and in one instance Cattleya Mendeli was represented by a rich series of well-marked varieties. Other species and varieties especially well grown were Dendrobium thyrsiflorum, Dalhousianum, Devonianum, Oncidium concolor, Cypripedium caudatum, and Cattleya Skinneri. Thus there were common and choice flowers, brilliantly coloured Coleuses, Caladiums, and other fine-foliaged plants of the better known types, the whole resulting in a novel, interesting, and instructive exhibition, as far removed from the ordinary stereotyped flower show as one could well wish.

Slugs.—It was but the other day a writer in THE GARDEN deprecated the practice of dibbling out seedling plants, preferring to sow them and transplant direct to the rows or beds, as the case may be. Sowing thinly is very well when the season is favourable and space ample, but without regard to space, the real difficulty has been found, first, in getting seed to germinate freely out in the open ground, and, second, in preserving it when germinated from the attacks of slugs. We have had these pests about us in vast quantities this spring, and they have preyed like swarms of locusts upon all tender vegetation, especially in seed beds. Those who sowed in the open ground have applied lime and soot until the soil was sick of the dressing, but the frequent rains destroyed the acid properties of the dressings almost as soon as cast on, and thus the slugs suffered no injury. The winter seems to have particularly favoured both the preservation and increase of slugs, for they have been numerous almost beyond precedent. The wise gardeners who sowed seeds under glass for transplanting or dibbling out have every reason to congratulate themselves upon their forethought, for outdoor seeds have proved alarming failures. Even Peas have not escaped the general slaughter; they are more eaten than I have before found to be the case, and the matter is all the worse because wrinkled Marrows have come rather thinly, although round Peas have done very well. Allowance was not made in sowing and drilling by growers for the defects of last season, hence the present plants look thin and ragged, although they may fill up presently.—A. D.

BOOK RECEIVED.

"The Uses of Plants: A manual of Economic Botany, with special references to vegetable products introduced during the last fifty years." By G. S. Boulger, F.L.S., F.G.S. London: Roper and Dingley, 11, Ludgate Hill.

Names of plants.—T. H. A. H.—*Serapias pseudocordigera*.—A. W. Goumans.—1, *Orchis Morio*; 2, *Orchis mascula*.—E. E. Underberg, en. Decon.—*Holboellia latifolia*.—E. M. Ransing.—*Bog or Buck-bean* (*Menyanthes trifoliata*).—F. G. J.—*Summer Snowflake* (*Leucojum aestivum*).—*Amorcan*.—*Dendrobium Dalhousiae*.—*Havdis*.—*Sparaxis* var.—*John Bennett*.—*Gloriosa superba*. The sepals and petals of the *Cattleya* are of rich colour, but the flower has a very poor lip compared with that of other varieties now in cultivation.—E. M.—Seed when in bloom.

WOODS & FORESTS.

THE HORNBEAM.

THE common Hornbeam (*Carpinus Betulus*) is indigenous to Great Britain, Ireland, and different parts of Central Europe. The genus comprises some eight or nine species of medium-sized deciduous trees, some of which are very ornamental and well adapted for planting as specimens by themselves or mixed with other species in groups. As a timber tree, however, for utility, the common Hornbeam stands at the top of the list, and although it is not cultivated to a large extent in this country, yet its merits in many respects are of no mean order. The general contour of the tree is not unlike that of the common Beech, but the leaves are not so smooth and glossy on the surface as those of that species. Like many others of our native trees, it, however, often shows considerable variety in both shape and foliage. The tree produces male and female catkins upon the same plant. The seeds are contained in a small nut, and when ripe should either be sown at once or stored away in a dry, airy place till spring, when they should then be sown on well-pulverised ground. Many of the seeds do not vegetate the first year after being sown, so that cultivators should be wary and not dig up the beds too soon. When the plants are one year old they may be removed from the seed bed and planted into nursery lines from 16 inches to 20 inches apart, and the plants some 4 inches or 5 inches apart in the rows. In cases where the plants have plenty of space in the seed bed they may be allowed to remain there for two years before they are transplanted. The plants are so hardy that their culture in early life is simply to allow them space to furnish side branches from the base of the stem upwards with the view of promoting the formation of stout stocky plants to form hedges or for planting as forest trees. The Hornbeam is naturally a deep-rooting tree, and as it will bear almost any amount of pruning, it is used to a large extent in the formation of hedges, and as it retains its foliage during the greater part of the winter, it affords excellent shelter and forms a close and very efficient fence. It thrives on a great variety of soils provided they are thoroughly drained where necessary, for although it is perfectly hardy, yet it is impatient of stagnant water at the roots. On stiff clay soil it thrives equally as well as the Oak, and as it derives the most of its food from the subsoil immediately below the plant and is not apt to spread its side roots far afield for support, it is well adapted for the formation of screen hedges, and for dividing fields to form an efficient fence, afford shelter, and promote the growth of other valuable crops in its vicinity. When treated in this way it is not apt to contract disease of any kind, and is seldom affected by the climate, even although planted on bare, wind-swept situations. In cases where the plants have become drawn through confinement they should be cut over near the surface of the ground, when they will then produce abundance of suckers and form a close, bushy, well-furnished fence. When the Hornbeam is grown as a forest tree, the plants are generally removed from the nursery lines to the forest when they are three years old; but in cases where extra strong plants are wanted, they are sometimes twice transplanted in the nursery and removed to the forest when four years old. The trees should be planted in pits some 15 inches or 16 inches in diameter, according to the size of the roots, and one spade deep. During the early career of the trees they should be looked after and pruned as

circumstances may direct, by cutting off double leaders, pruning any straggling side branches to promote the formation of a uniform, well-balanced top, and prevent as far as possible rupture by wind. When the trees are established in this way they seldom require pruning afterwards, further than the removal of any dead stumps or branches on the stem where they occur. One peculiarity of this tree is that the formation of the stem is often flat-sided, sometimes three-sided, and even four-sided, but seldom altogether round, and although this does not detract in any way from the quality of the wood, yet it sometimes has a tendency to reduce its value for some particular purposes.

The wood of the Hornbeam when matured is used for a great many purposes in connection with machinery and in rural economy, and when strained by vertical pressure it is found to be superior to most other kinds of wood. When cut up, the wood is of a pretty, clean, white colour, and highly prized for making milk vessels and other articles where a pure clean colour is requisite. In districts where Flax is grown to any extent I have sold its wood as well as that of the common Beech for making scutching handles, and I believe from the toughness of its fibres it is superior to all other classes of timber for that purpose. In country districts of England and Scotland, as well as in Ireland, the Hornbeam is used when it can be got for a great variety of purposes, such as making carts, wheels, harrows, barrows, and other implements used by farmers and contractors. According to Loudon, a piece of Hornbeam timber, 2 inches square and 7 feet 8 inches long, supported 228 lbs., while a similar piece of Ash broke under 200 lbs.; one of Birch, under 190 lbs.; of Oak, under 185 lbs.; of Beech, under 165 lbs.; and of other woods at a less weight, so that its powers of resistance as here set forth are immense. In parts of the country where coals are scarce and dear, the wood is highly esteemed for fuel, as it produces a bright, clear, lasting fire, which is not surpassed, if even equalled, by any other kind of timber, on which account it is preferred for cooking and other purposes. As a charcoal-producer it also occupies a high standard, and is used for the making of gunpowder, heating forges, and many other purposes. On the whole, the culture of the tree in this country seems to have been neglected, or, at any rate, not carried out to the extent which its merits deserve; for although there is sometimes considerable demand for its timber, yet, as a general rule, we have to get a supply from the Continent.

J. B. WEBSTER.

The Black Birch (*Betula nigra*).—This is a close-grained, handsome wood, and can be easily stained to exactly resemble Walnut. It is just as easy to work, and is suitable for nearly all, if not all, the purposes to which Walnut is at present applied. Birch is of much the same colour as Cherry, but the latter wood is now scarce, and consequently dear. When properly stained, it is almost impossible to distinguish the difference between Birch wood and Walnut, as it is susceptible of a beautiful polish, equal to that of any wood now used in the manufacture of furniture. In the forests throughout Ontario Birch grows in abundance, especially if the land be not boggy. There is a great difference in the wood of different sections. Where the land is high and dry the wood is firm and clear, but if the land is low and wet, the wood has a tendency to be soft and of a bluish colour. In all the northern regions it can be found in great abundance, and as the tree grows to such a size, but little trouble is found in procuring a large quantity. During the last few years large quantities of this wood have been exported from the province of

Quebec at a low figure. It is very easily detected among other trees by its height, large trunk, and the peculiar colour of its coarse bark. Most of the perforated chair bottoms now in use are manufactured from it. There is a species of Bird's-eye Birch, but it is very scarce. An evidence of the weight and solidity of the wood is the fact that it will sink after being a few days on the water.

VALUE OF BRITISH-GROWN LEBANON CEDAR.

MR. WEBSTER'S interesting remarks in THE GARDEN, May 18 (p. 460), on the natural reproduction of Lebanon Cedars and other trees, suggest the inquiry whether this magnificent tree can be grown into good timber at a profit in our climate. There can be no question either about its rapid growth or extremely ornamental character. On fairly good soils in suitable localities we have hardly a tree that forms timber so rapidly. The question of utility, therefore, must largely turn on the quality of the timber when grown, the time it takes to develop its quality, and the amount that can be grown in a given area. If Mr. Webster could furnish information on these and kindred points, he might render another useful service to the many he has rendered to those bent on making profit out of their timber growing. I may say that I have not yet met with any home-grown Lebanon Cedar equal to well-grown fairly ripe Scotch Fir. The Cedar timber has been soft, spongy, and not durable. Some of it has been at least 200 years old, and some assert that it would probably take as many thousand years to develop the finer and more durable qualities of Lebanon Cedars as grown on Lebanon. If so, there is little hope of any profit from growing them in Britain.

The mere matter of amount of timber from a given area is one of less importance than the vital one of the worth of the timber when grown. Besides, more of culture and distance of planting might be made to increase or diminish the timber produce of Lebanon Cedar for any given area. Even the natural spreading habit of the tree which tends to sacrifice bole timber to mere branch wood can be largely modified or crushed out by early branch shortening and thick planting. I have even seen the Lebanon Cedar forced into a pyramid by these simple expedients. However vigorously we may condemn this forcible suppression of natural habit on artistic or æsthetic grounds, it may be perfectly justifiable in pursuit of the deeply prosaic and wholly utilitarian problem of how to produce the most and the best Lebanon Cedar timber in the least time from the smallest areas.

CALEDONICUS.

The Scotch or Wych Elm (*Ulmus montana*).—This tree is also called the broad-leaved Elm. It grows abundantly in the north of England and in Scotland, and is generally shorter in the trunk, but often equal in diameter to the English Elm. The bark is thinner and smoother and the wood lighter in colour; the leaves are also larger and longer towards their points, and the shoots stronger, but it produces no suckers. This tree is common in Ireland. On account of the striking character of its drooping branches when the tree is full grown and in full leaf, it is better adapted to the park and lawn than even the English Elm. It flourishes in a deep and fairly heavy soil upon rocks, and also upon the banks of streams, but not near stagnant water. The wood is much used in Scotland for carts and wheelbarrows. It may be raised from seed obtained from the tree at the end of May, or at the latest by the middle of June. It blooms in April. The seed is generally sown in rows about 15 inches apart and upon a light soil. The Dutch Elm (*U. suberosa*) is sometimes known as the Sand Elm. It does not generally grow so free from star-shake as the other species. It is also called the Cork-barked Elm. It will flourish on moist and heavy, or even upon wet land. It was introduced from Holland in the reign of William III. Its wood is of little use. The smooth-leaved Wych Elm (*U. m. glabra*) is a valuable timber tree, and grows very quickly. It may be propagated by layering or by grafting upon the Scotch Elm. Evelyn calls this the French Elm.—A.

No. 915. SATURDAY, June 1, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES ON POT STRAWBERRIES.

EXTRA fine crops of forced Strawberries have not, as a rule, been very conspicuous this season; on the contrary, many of the plants have turned out blind, others having produced flowers both weak and small. This is more apparent amongst plants which were layered rather late, for, notwithstanding that at layering time last year the stools did not lack moisture, strong runners were far from plentiful, and some difficulty was experienced in making up the required number of plants, many of which, as the season continued cold and sunless so long, we should have been better without, as the crowns never had a chance of becoming sufficiently ripened to stand forcing. There is one kind, however, which has proved satisfactory in every respect, namely, *La Grosse Sucrée*, every plant of this variety having yielded a good crop. The batch of plants of this was obtained from early runners, produced by maiden plants divested of their flowers, and planted in single rows by the side of the kitchen garden walks. Under this system early runners are obtained which can be layered directly into the fruiting pots. Five-inch or six-inch pots having been filled with compost, are placed on narrow boards at the edge of the walks and the runners pegged into them. From the first, having the advantage of such a light and airy position, the plants make a sturdy growth with short leaf-stalks and prominent crowns, two certain indications of good behaviour in the forcing house.

WATERING.—This is always a difficult and laborious operation connected with Strawberry forcing, and one, moreover, upon which the success or otherwise of the crop depends. Many good batches of plants are ruined by injudicious watering, either from lack of time to attend to it in a proper manner, or from a careless mode of procedure too prevalent with young men upon whom these duties devolve. Not unfrequently, too, the plants are placed in positions difficult of access, and where they are exposed to every change of temperature. Constant attention is then required to avert disaster from one extreme or the other; therefore it is questionable if anything is gained after the early crops are over by occupying high and dry shelves with pot Strawberries. The return does not often compensate for the labour expended in attending to them. More convenient and suitable places will be found upon stages in temperate houses or pits where a little heat can be turned on if required.

There is one kind of watering which I have a great objection to—that is the use of liquid manure, for, apart from the risk of wetting the berries, I am convinced that it invariably ruins the flavour of the fruit, whilst the gain in point of size, as I have several times proved, is very small; in fact, I believe it is more often than not reduced by a too liberal use of stimulants. If the roots of a pot Strawberry are examined any time after the plants are started until the fruit is ripe, no great quantity of active roots will be observed, and certainly never in sufficient quantity to warrant the continual doses of stimulants pot Strawberries are treated to. I have not this season used stimulants of any kind for the Strawberries when swelling their fruit, and they have not suffered in size, whilst the berries

have been bright, firm, and well flavoured. The main point is to give the plants a good compost to grow in. Good loam should form the staple, to which wood ashes, bone meal or horn shavings should be added, with a little soot. Such a compost will not soon become exhausted of its nutritive properties, but will be quite rich enough in the spring following to perfect a good crop of berries, watering being done with clear water alone, thus dispensing with the objectionable liquid manure.

I am not adverse to applying liquid manure while the plants are growing in the summer time and after the pots have become filled with roots. This is the time when I think the judicious use of manure water is of great benefit to the plants, assisting them in the formation of stout and well-developed crowns.

IMPROVING THE FLAVOUR.—Flavour being the first point with those who grow for home consumption, anything in the details of culture or management which tends to improve this important quality should not be neglected. It is vain to expect good flavour when the fruit is gathered direct from close moist forcing houses. These are excellent places to assist swelling or to hasten the crop, but air is necessary to good flavour; therefore the plants should, as soon as colouring is well advanced, be removed from the forcing house to a more airy structure. This operation requires considerable care, as the berries are easily bruised. The change, too, must not be sudden in the matter of temperature or the fruit is liable to turn acid, but if the plants are well set with fruit a little care and trouble in their removal are well repaid. I lived with a gardener once—a very successful Strawberry forcer—who used to have all his plants removed by hand, each person carrying one pot only at a time. Their destination was always the stages of a Pelargonium house, where the fruit finished off beautifully, the temperature of this house apparently suiting them exactly. In regard to tying up the fruit, I think it is often exposed too freely, and better results are obtained by letting the leaves hang over and shade the fruit a little.

A. BARKER.

CLIMBER-CLAD BRIDGES.

ALTHOUGH bridges for spanning ornamental or natural streams in pleasure grounds are not desirable structures, inasmuch as they have a tendency to destroy the beauty of good landscape gardening, they cannot always be avoided. In these cases care should be taken to construct them in such a manner that by careful manipulation and exercising a little forethought they may be rendered objects of beauty. Much towards that end may, of course, be gained by building them, as is frequently the case, with rustic wood, and covering them with beautiful climbers. One of the prettiest climber-clad bridges I have ever seen was at Belton Park last summer. There in the beautiful grounds I saw a rustic bridge spanning the river Witham, and covered with *Clematis Jackmanni* and *Tropeolums*. The plants, I noticed, were growing in wooden boxes, constructed on miniature platforms on either side of the bridge and hanging over the water. Fixed thus they were out of sight of anyone passing over the bridge.

As to the plants suitable for such a purpose, there are a great many to choose from. I once saw the Canary Creeper (*Tropeolum canariense*) grown in boxes and covering a small bridge, rendering it beautiful the whole of the summer. The *Convolvulus*, too, may be used with advantage, and the same may be said of many more annual climbers. But to save labour and expense it is advisable to plant subjects of a more permanent character. Foremost among these are the numerous variegated and green-leaved Ivies. Then the beautiful *Clematis* in

its numerous forms is worthy of adorning any garden. *Wistaria sinensis* may also be included in the list, for even if planted at either end of the bridge it would in a favourable locality soon cover it. Honeysuckles, Virginian Creepers and Jasmines might also be used. Then last, though by no means least, we have the Rose. Picture a bridge covered with Gloire de Dijon Roses, or any similar hardy kind! The beauty of such can be better imagined than described. C. C.

NOTES FROM DIDCOT.

TO THE EDITOR OF THE GARDEN.

SIR,—As I built my house some five and twenty years ago and laid out the grounds and planted everything myself—I should add with the advice and assistance of my wife—I am not a little proud of the result. My trees and flowering shrubs this season are very beautiful, as is the case almost everywhere. I shall only specify, however, one or two. I planted, when I first began to lay out the grounds, two nuts from a Walnut tree, which was growing in a friend's grounds. The trees are nearly 30 feet high, and as I never trimmed them, they have grown like pyramids, and are feathered quite down to the ground; in fact, when they are in full leaf a mouse could not run under the leaves which rest upon the ground. Last year they were laden with fruit, and we literally had to pick much of it from the ground. I shall have them photographed this year to send to you. If such trees were standing in an open park, how beautiful they would appear to those who have only seen Walnut trees with their first limbs springing some 10 feet or 20 feet from the trunk. I may mention that the late Mr. Woodbridge kindly struck me a cutting from the old Mulberry tree in Syon House grounds (said to be the first planted in England), and this, too, I have never trimmed, so that the branches touch the ground on every side. I should like to know the name of the sort. I saw it when talking to Mr. Woodbridge some twelve or thirteen years ago. It was in July, and the tree was covered with catkins. He struck a cutting for me and sent it in October. It is now a very flourishing tree, and is annually covered with catkins. The leaves are very large, but the fruit is not equal to the ordinary black Mulberry which I have on my lawn.

Of my flowers, I may specify my Hepaticas. Of these I am very proud, and I think they would bear comparison with any in my county. The soil is a heavy loam, subsoil chalk. I have double blue, double red, single blue, single white, and single red. I am proudest of my double blue, which flowers profusely with blooms of a deep violet nearly the size of a sixpence. I never move the plants, which are sheltered from the north by a *Laurustinus* hedge, but have the full morning south-east and south sun.

Some five or six years ago I planted a line, 40 feet long, of *Gladiolus brencchleyensis*. I have never lifted the bulbs, and this year they promise a more than ordinary amount of bloom.

Another speciality in my garden is my collection of Irises of different sorts. These I have planted in what used to be places for bedding-out plants. Their magnificent colours attract great attention.

As a rule, I have given up bedding plants, but I never throw away the old Pelargoniums, but take them up in the autumn, trim the roots, put the plants in small pots, and keep them dry through the winter. I put out last week some variegated-leaved Pelargoniums that I have kept for ten years. Some are nearly 3 feet high. I have never taken cuttings from them, and though they look a little ragged when first put

out, they soon recover themselves and become fine bushes covered with leaves and flowers. In fact, they flower far more freely than cuttings taken last autumn. I commend the custom to gardeners, assuring them that fine large plants in bloom are far more showy than ordinary bedding plants.

Some fifteen years ago I purchased in Covent Garden Market a seedling *Pelargonium*. It is still a fine plant (with a brilliant scarlet flower and white eye), and we have taken hundreds of cuttings from it. It is planted out every summer and carefully stored away in the winter. It is now flourishing in the border.

Upton Rectory, Didcot. RICHARD HOOPER.

STOVE AND GREENHOUSE.

WORK IN PLANT HOUSES.

GREENHOUSE.—WINTER-FLOWERING CARNATIONS.—The plants that are intended to bloom next winter and spring must be well attended to all through the summer so as to get them as large and strong as possible. Where a regular supply of choice flowers is required through the winter season there are no plants that will better repay for the room they occupy and the labour expended on them than Carnations. They differ from most other things in that when they are well managed they keep on blooming for a long time, and the flowers last so well that if not wanted as soon as they open they remain on the plants quite fresh much longer than those of most things. Cuttings struck last autumn that are now in small pots and have been stopped will have formed two or three shoots each. When to be grown in pots they should be moved to those they are to occupy during the summer; 6-inch or 7-inch pots will be large enough, as there is nothing gained by giving them more root room than they require. Carnations are somewhat particular in the matter of soil. Good rich yellow loam of a rather holding nature suits them best. This should have a moderate quantity of rotten manure mixed with it and enough sand to keep it quite porous. Pot moderately firm, and use sufficient drainage to ensure the water passing freely away. As soon as the young shoots that have been made since the plants were stopped have extended about 3 inches again pinch out the points. The growth pushed after this stopping should be sufficient to furnish the plants well, and there will be time after it is done to allow of the shoots subsequently made to get forward enough for blooming at the time the flowers will be wanted. Many disappointments in the cultivation of these Carnations occur when the flowers are required in the early part of winter through the plants being stopped too late to admit of the requisite amount of growth being made before the autumn comes on. The result of this is that the flowers come in some months later than they should. After potting stand the plants in an open sunny position. If the pots are plunged half their depth in coal ashes it will prevent the soil getting infested with worms, save labour in watering, and will also help the growth. A look-out must be kept for aphides and mildew, either of which if allowed to go on unchecked will ruin the plants. Dipping in tobacco water is the most effectual method of dealing with the insects. For mildew dust with sulphur.

CARNATIONS PLANTED OUT.—When turned out in beds during the summer, Carnations attain a size that enables them to produce more and finer flowers than when confined to pots, and when the time comes for potting them in autumn, if ordinary care is taken in lifting, their flowering is not interfered with. The bed should be in an open situation. As already said, the plants like a moderately holding soil, but it must not be too heavy or the roots will suffer when they are taken up. When the soil is too adhesive, sufficient sand must be worked in to bring it to the right condition. Stopping requires to be attended to under the planting-out system similarly to that advised for the pot-

grown stock, and in very dry weather it will be necessary to water, but much less of this will be wanted than under pot culture.

OLD STOCK.—Plants that have flowered during the winter will in most cases have young shoots formed upon the old bloom stems, and also some near the base. To keep up the supply of flowers through the summer, the old stems with the young growth on them are often retained and the plants shifted into larger pots. A better plan is to now cut away the old stems at the bottom, and turn the plants out in a bed in the way recommended for the younger stock. By sacrificing the summer bloom, the plants will be in a far better state for flowering next winter. They will also be much larger and stronger, as well as more sightly.

CARNATIONS RAISED FROM SEED.—Young plants that have been raised from seed sown at the beginning of the year will, if all has gone well, now be large enough to plant out. The seedlings require stopping before the single shoot they will have made grows too tall, as the plants are better when they branch out close to the base than if at all leggy.

PRIMULAS.—Small plants of both the single and the semi-double varieties of *Primula* that have been raised from seed sown early in spring will now be large enough to require moving from the seed-pan. A much better and more expeditious way of treating them than the ordinary course of putting the plants singly in small pots is to prick them out in shallow boxes. When grown on in this manner, they make much quicker progress than when their roots are confined within the limits of a pot, and when in boxes they are not so likely to suffer for want of water as when in the pots, which dry up so quickly in bright weather. Medium-sized boxes, about 3 inches deep or a little over, are the best. Drain and fill them with a compost consisting of new loam, some leaf-mould, and rotten manure, all passed through a fine sieve, with enough sand mixed with the whole to make it quite light, so that when the plants have to be transferred to the pots later on they can be taken up with their roots unbroken. Prick the seedlings out about 2½ inches apart. A cold frame, stood on the north side of a wall where the sun will not reach them in the middle of the day, will be the most suitable place for them through the summer. The boxes must be raised so that the plants will be close to the glass; this will prevent the leaves getting drawn. Where *Primulas* are required in flower late in spring, a little seed may yet be sown; but no time must be lost in getting it in, or the plants will not gain the requisite strength before autumn.

DOUBLE CHINESE PRIMULAS.—The double varieties of *Primula* are usually in better condition for propagation about this season than earlier in spring, as the plants have had time to make more growth, and now, when their flowers can be better spared than they can early in the season, there is less reluctance in destroying them. When these double varieties are potted low enough so that the soil covers the base of the bottom leaves, the offshoots will generally be found to have produced roots in more or less quantity. When in this state all that is necessary is to separate them, put each offshoot in a small pot, and keep them a little closer than ordinary until they get over the effects of separation from the plants. If the offshoots are devoid of roots, they should be put singly into small pots filled with a mixture of sifted loam, leaf-mould, and sand, and be enclosed in a propagating box or under hand-lights and kept in an intermediate temperature. If kept so warm as many things would bear, the chances are that they would damp off. The atmosphere must not be more confined than necessary to prevent the leaves flagging. In the propagating of such plants as *Primulas*, it is a good plan to give them much more light than is usual with the majority of cuttings, as light goes far to prevent decay. Do not use more water than is necessary to keep the soil damp enough to prevent the foliage flagging, and when the latter is strong enough remove the glasses. The plants should during the summer be stood on sand, fine ashes, or other material that will hold some moisture. At the same time the nearer they are to the glass the

better. To grow the double forms of *Primula* well, they require to be kept a little warmer than the single varieties or the majority of greenhouse plants.

OLD PLANTS OF DOUBLE PRIMULA.—Plants that have flowered through the winter and spring and that are underpotted should now have a shift. When, as already advised, they are grown with the little extra warmth they like, they will bear more pot room than if they are kept cool. Large specimens when carefully treated usually produce proportionately more flowers than small ones.

STOVE.—PANCRA TIUMS.—Young plants raised from seed last year will, if they have been kept growing through the winter, now require a shift. Except where more than ordinary progress has been made, pots two sizes larger than those they have occupied will suffice to carry them through the summer. Large old specimens that have been several years in the same soil may be moved into larger pots at any time when the flowers are not pushing, as there is no necessity for disturbing the roots further than in removing the drainage. When any division of the bulbs is attempted it should be done before the plants start into growth. Plants that are now about to flower, or that are making growth, should have frequent applications of manure water to which a little soot is added. Assistance in this way not only improves the bloom that is coming on, but it helps the plants for another year.

CRINUMS.—Flowering bulbs that are underpotted may have larger pots, but when moved at this time, like the *Pancratiums*, there should be no attempt to shake out or disturb the roots further than in getting rid of the drainage crocks. *Crinums* attain a large size when they have enough root-room and get the requisite amount of heat; consequently when they are expected to be seen in their best condition they should have larger pots than most bulbs require.

BOUGAINVILLEA GLABRA.—When grown in pots this plant can be treated in a way that will intensify the colour of the flowers, so as to make them nearly as dark as those of *B. spectabilis*. If when the bracts are yet partially green the plants are moved to a house where the atmosphere is drier and cooler than that of an ordinary stove, the flowers will come much darker, and they will remain fresh for more than double the time they are able to when they are kept in much heat.

IXORAS.—Where the different kinds of *Ixora* are kept in enough heat during the winter, as well as in summer, they will now be commencing to bloom. If just when the first florets begin to open the plants are taken out of the stove, and stood in a house where an intermediate heat is kept up, the bloom will last much longer. But when plants that have been thus grown in a high temperature are removed to cooler quarters, they should not have too much air, and that which is given ought to be admitted at some distance from where they are stood, so that the cool current will not come directly in contact with them. Less water should also be given during the time the plants are kept comparatively cool.

T. B.

Sarracenia in the open air.—Although "W. H. G." (*THE GARDEN*, May 18, p. 462) may be perfectly right in speaking of the absurdity of expecting *Sarracenia* to thrive well in the open air in England, he will be interested to hear that I have grown *S. purpurea* and *S. Drummondii* for four years at Loch Hour Head, in the north of Scotland, without the slightest protection. When I put them in they were quite small plants, but they have grown into fine clumps, and *S. purpurea* flowered well last year. *Darlingtonia californica* is growing in the same bog bed as the *Sarracenia*s, but having only been out for two years I am not so confident about it.—ROBERT BIRKBECK.

Planting out Arum Lilies.—*Arum Lilies* are always welcome at Easter and throughout the early spring months. To secure sturdy specimens, they should be planted out in the open. Early in June is a good time to do this. If plants are scarce, the large ones may be divided into two or more pieces before being planted into good firm soil. Immediately after

planting the tall leaves will wither, but there is nothing to fear in this, as young growths will soon appear at the base, and it is these which will form the robust plants for lifting in the autumn. Moisture at the root is very essential to their well-being, and in times of drought they should be copiously watered, several times weekly.—J. MUIR.

Asparagus plumosus nanus and **A. tenuissimus**.—Both of these are most valuable plants for cultivation by the gardener who has to supply cut flowers and appropriate foliage in large quantities, and Mr. Hudson finds both very valuable for this purpose at Gunnersbury House. For small sprays *A. plumosus nanus* is preferable; for long ones, *A. tenuissimus*. While both are found serviceable, *A. plumosus nanus* is perhaps the most useful, all things considered.—R. D.

CAMELLIAS AFTER BLOOMING.

CAMELLIAS have now gone out of bloom, and if needful they should be repotted. It is, however, indispensable to make sure that this operation is necessary, for few plants suffer more from overpotting than Camellias, and there are very few plants that can be kept for so long in good health in a root-bound condition. If I had the slightest doubt on the matter I should defer shifting for another year, as it is quite practicable to maintain the flowering capacity of a Camellia by means of stimulants judiciously applied. If there is no intention to repot and the plants have a good head of foliage, they should get frequent doses of clear soot water, which strengthen and give colour to the foliage. In addition to this, some weak liquid manure or a top-dressing of some artificial stimulant may be given when the plants are in full growth and up to the time the wood begins to harden. I have known Camellias in large pots to be maintained in a remarkably free-flowering condition for years without repotting. The best time to repot is just as the young growths are breaking out from the old wood, not waiting, however, until they are at all advanced, as repotting then will occasion a check from which they are not likely to recover in time to enable them to make good flowering wood. Opinions differ considerably as to the best compost for Camellias, but no mistake can be made in taking loam and peat in equal parts, with a dash of leaf soil and silver sand. I always think that Camellias do not have quite that richness of verdure that is such a charming characteristic of them when perfectly healthy if loam alone is used for them. They make strong growth in good loam, but there is a danger of its becoming sour, which the addition of peat secures it from. A very important point is to ram in the compost so firmly that there is no danger of water passing through it rapidly and not having the requisite effect on the old ball. Many good plants have been much crippled when the repotting has been entrusted to young men and the necessity of observing this safeguard not duly impressed on them. The plants are carefully watered and they get enough liquid to well moisten them, and yet the principal roots are in a semi-dry condition. There is no ready means of ascertaining the source of the mischief, and the consequence is that a great portion of the old foliage eventually drops.

By using the compost in a slightly moist condition, it may be rammed in without danger of its getting close and sour later on. A good free growth should be encouraged by shutting up just as the sun passes off the house, and well syringing and damping down the paths. The creation of a growing atmosphere is even more necessary where it is desired to have blooms at the beginning of the winter. The earlier the growth is made the sooner will the plants bloom, and the flowers will expand freely and fairly plentifully without the need of much artificial warmth. Plants of such kinds as Lady Hume's Blush and Donckelaari will furnish blooms for cutting through November and December if they are pushed on in this way; whereas without such stimulus they will not bloom until the new year is well advanced. Those who grow for market are well aware of the advantages that an early growth gives, for it is in the dead of winter that the blooms are so valuable and that a ready sale

at fair prices can be had. From the middle of March, Camellias are a drug in Covent Garden. People begin to tire of them, and large quantities come in during April from the Channel Islands, and can, of course, be bought at low prices. During the growing period a growing temperature should be kept up, not over-doing it, but just enough to keep the plants moving along. Plenty of fresh air is a prime necessity. The Camellia cannot bear a high temperature with confinement.

J. C. B.

COMBINED VINERY AND PLANT HOUSE.

THE arguments for such an arrangement as the above have been so often and so ably ventilated, that it seems almost unnecessary to say anything on the subject. There is, however, a somewhat novel way of treating the combination which may be new to some readers of THE GARDEN, and to which I may venture therefore to draw attention. I may add at the outset that there is no difficulty in the combination in this case, or anything detrimental to either fruit or plants, as the duration of the stay of the latter in the vinery is limited to the time between January and June. I conceived the idea of combining a vinery and plant house from the desire to utilise the back wall (an old disused flue) which had rather an unsightly appearance, and which I thought might be rendered more presentable if clothed with a bank of greenery. The flue in question was a flow and return, the intervening space being pigeon-holed. The execution of the idea was commenced by filling in this open space with a mixture of leaf-soil, sand, a little peat, covering it with a small strip of galvanised netting, and planting it with the green and variegated Tradescant—three wires stretched respectively along the top and bottom flue serving to keep this within bounds until it covered the desired space. With a view to the further extension of this green bank, another piece of galvanised netting was stretched from the top of the upper flue to a point on the wall, the space thus enclosed being filled with a similar compost to that already described and planted with the common and the golden Selaginella, a tuberous Begonia and an Achimenes being dotted in at intervals, whilst to complete the effect alternate plants of Asparagus plumosus and double-flowered Ivy-leaved Geranium were planted at the top of the bank and trained over the remaining piece of bare wall. The plants for the centre bed are those commonly grown for winter and spring work, and have comprised since January such things as Cypripedium insigne, winter Begonias, Epiphyllums, Lasiandra macrantha, Kaulfussia, and double Geraniums as flowering plants, and such foliage stuff as Aspidistra, Anthurium, the hardier Dracenas, greenhouse Palms, &c. All these things are introduced when the vinery is started, and remain with some exceptions until the fruit begins to colour. Naturally some of them are over early in the year, but their places are filled by other things as they come into flower, Gloxinias especially being very serviceable. The house is thus kept comparatively gay until it is absolutely necessary to clear it out. As we do not resort to hard forcing, the combination stands well for at least five months. The Vines are very old, having been planted by McIntosh more than sixty years ago. I am gradually working them out, and have up to the present replanted about one-third of the house.

E. BURRELL.

Claremont.

SHORT NOTES.—STOVE AND GREENHOUSE.

Deutzias after forcing.—Deutzias should be induced to make as many strong long young growths as possible every year, as it is these which produce the most and best flowers annually. We find Deutzias do best when planted out in good soil in the kitchen garden early in June and lifted and potted again before being forced. Some of the best plants we ever had were lifted last January and forced soon afterwards. These were put into 12-inch pots and flowered profusely.—J. MUIR.

Salvia gesneriflora.—I do not know of a much more showy plant than this for the conservatory in spring. The peculiar shade of scarlet that distinguishes

the flowers is very pleasing, unlike that of any spring-flowering plant I know. It is excellent for growing on into large specimens when such are wanted. Cuttings put in now strike readily and grow along freely with full exposure to the open air later on. With abundance of water and all the sun possible these cuttings will make good strong plants by autumn.

—J. C. B.

NOTES OF THE WEEK.

Abutilon vitifolium album.—This comes from Mr. Gumbleton. It is a lovely flower, spotless white.

Wistaria multijuga.—This is now in flower with Mr. Gumbleton. It is perfectly hardy, and has racemes of bloom 2 feet in length. The flowers are almost white.

Libertia formosa.—This is sent by Mr. Gumbleton from his Queenstown garden. The flowers are of the purest white. It is a chaste and beautiful plant.

Albuca Nelsoni.—Mr. Gumbleton sends us flowers of this Cape bulb. The segments are narrow, white, shaded with green on the outer surface. It is a curious and interesting thing.

The white Ceanothus (*C. velutinus*).—Flowers of this come from Mr. Gumbleton, Queenstown, Cork. They are creamy white, in dense clusters, and strongly scented. The peculiar shining character of the leaves is distinctive. It is a pretty shrub.

Iris germanica atro-purpurea is a richly-coloured flag, and one of the handsomest varieties we know. Its flowers are not only of fine size, fragrance, and substance, but of the deepest purple, far more so than in the type.

Dwarf Spanish Broom (*Genista hispanica pumila*) is an important flower of the week. A large clump of it on the Kew rockery is one of the showiest things there. The plant grows about a foot in height, and is a carpet of rich yellow.

—This is a most beautiful form, growing not more than 1 foot or so in height, and at present a sheet of golden yellow pea flowers. The foliage and stems are dark green, the contrast being very striking. Other useful *Genistas* are *tinctoria*, *humifusa*, *anglica*, *sagittata*, *pilosa*, &c.

Aquilegia sibirica alba is a beautiful variety. It grows about 3 feet in height, and has graceful stems supporting a number of large pure white flowers. Clumps of it are delightful. We wish we could see more of the better forms of *Columbine* in gardens.

Phyllocactus Ackermanni.—This is a brilliant *Phyllocactus*, and reminds us that there is a growing appreciation for *Cactuses* in general and this genus in particular. It has glowing crimson flowers, about 4 inches across and without the striking pellucid glint of violet seen in those of the variety *C. J. Peacock*.

Aquilegia Stuarti.—Blossoms of this from Dr. Stuart, Hillside, Chirnside, show what a lovely flower it is. The colour of the bloom is of the richest blue, the inner segments being pure white. Such a beautiful variety as this ought to be largely grown. A coloured drawing of it appeared in THE GARDEN, Oct. 16, 1888.

Canna Paul Bert.—This is one of the dwarf types, and which we should see often in the greenhouse. The flowers are of the deepest crimson, and borne on a chocolate coloured stem, the leaves deep green, shaded with a purplish tint. The dwarf French Cannas are just the plants for small or large greenhouses and conservatories.

Rhododendron glaucum.—This dwarf and charming Sikkim *Rhododendron*, introduced in the year 1850, is blooming freely in the temperate house at Kew. It grows about 2 feet in height and is one mass of rosy purple, bell-shaped flowers produced six or seven together. The leaves are glaucous beneath, hence we presume the specific name.

Narcissus Bernardi.—I believe I was in error when I said that Mr. Buxton was the first to introduce *N. Bernardi* into our gardens. Mr. Buxton brought home bulbs in 1881, but I am told that Mrs. Barton had it in her garden in Ireland three years earlier, having brought it home from the Pyrenees. May I ask the editor to allow me to make this correction?—C. WOLLEY DOD, *Edg. Hall, Malpas*.

Tufted Pansies.—I send you blooms of the two best tufted Pansies in cultivation—one light and one dark, and some pretty hybrid *Aquilegias*, which appear to be a little earlier in flowering than is generally the case. Some of the prettiest have fallen to pieces through the great heat.—R. D.

*** Two richly-coloured Pansies. Blue Beard is one of the richest purple varieties we have seen. Blue

Stone is of a paler shade. The flowers of the hybrid Columbines show considerable variation in colouring.—ED.

Primula japonica.—Many will remember the sensation produced by this plant when first introduced, but it does not appear to be so generally grown now as it promised to be then. It is, however, much appreciated in some places, and at Penllergare, Swansea, hundreds of it may be seen grouped in a semi-wild state. The flower-heads are all of the same form, but they vary very much in hue, and all are exceedingly attractive.—J. MUIR.

THE hollow walk at Kew is well worth a visit just now. The Rhododendrons are very fine, the variety almost endless, and a very large percentage are named hybrids. The Azalea beds in the American garden are also well worth a visit. This lovely spot has been much enlarged and many new varieties added.

THE pretty *Jamesia americana* is a splendid addition to the shrubby plants suitable for rockeries. On exposed positions it forms a dwarf compact growth, every shoot just now carrying clusters of white flowers, not unlike the Saxifrages. It is a native of the Rocky Mountains, perfectly hardy, deciduous, and should be on every rockery.

Flowers from Cork.—The recent rains and great heat are beginning to make our gardens look bright, and I send you herewith a few odds and ends, which are making a display just now in the herbaceous border.—W. H. BLAIR.

*A good gathering of Pansies, Pyrethrums, and *Olearia* (*Eurybia*) *Gummi*.—ED.

Tree Pæonies at St. Germain, Paris.—I never saw such a sight of Pæonies as a few days ago at St. Germain, Paris, where in front of some old houses overlooking the park was a hedge, about 60 yards long, of the pale pink Tree Pæonies loaded with flowers. The effect of planting in a mass in front of a broad avenue was very striking.—R. J. G. R.

Aerides Hughii.—This seems a distinct and pretty form, judging from a small vigorous plant in bloom at Kew. It has comparatively large flowers; the sepals broad, oval, and tipped with bright magenta; the petals flushed and spotted with the same colour, which also appears down the centre of the lip, but it merges into a much paler shade.

Brassavola (Lælia) Digbyana is in bloom at Kew. It is easily recognised by its distinctive and peculiar character. The lip is large, irregularly and heavily fringed and creamy white, shaded with green at the base. The spreading sepals and petals are pale green, tinged with purple. It is one of the parents of the splendid hybrid *Lælia* shown by Messrs. Veitch and Sons recently.

Paris Daisies.—Those who want to know what Paris Daisies are should see a few plants in pots exhibited at the Paris Exhibition by M. Auguste Gillard, of Boulogne. The largest one had a clean stem about 4 inches in diameter, with a dome-shaped head 8 feet in diameter, 5 feet high, and carried at an estimate about 4000 flowers. This plant was seven years old; others, little less in size, were five years old.—R. J. G. R.

The Pyrenean Vetch (*Vicia pyrenaica*) is one of the prettiest rockery plants we have ever seen bearing Pea-shaped flowers. It is a perennial of dwarf compact habit, copiously covered with large bright purple flowers, lasting from April until June; leaves finely divided, soft green, making a fine groundwork for the flowers. It is quite hardy, and a useful plant for shelves, old walls, &c. It increases by underground runners, but these are not at all troublesome, and may be easily confined in a small space.

Notes from Fota Island.—The Fire Bush (*Embothrium coccineum*) is perfectly hardy here, and it is a great pity that so lovely a shrub should be so seldom seen. It is now flowering, but not so profusely as last year, when every twig was crowned with bright crimson blossoms. Even when not in flower it is very showy. It may be propagated from seed, which ripens very sparingly in this country. It may also be increased by layers, taking branches about a foot long and layering in the same way as Carnations. It roots very slowly, but a well-rooted plant is worth waiting for. *Collutea horrida* (*spinosa*) is now covered with its small, light-coloured flowers. This is a shrub seldom seen. Here it flowers and seeds profusely, and I have raised numerous seedlings. *C. cruciata* is more curious than *C. horrida*, and is supposed to be only a sport from that species; but if so, it is strange that it does not flower at the same time, *C. horrida*

flowering in the spring and *C. cruciata* in the autumn. *Fabiana imbricata* is a most desirable shrub, as it flowers most profusely every year, and is often mistaken for a Heath, which it much resembles both in leaf and in flower. The flowers are pure white, and the plants are easily raised from cuttings.—W. OSBORNE, *Fota, Cork*.

Anemone King of Scarlets.—I beg to hand you by this post a box of Anemone blooms (King of Scarlets) from a bed of late-planted roots (Feb. 15). The specimens are not so large as those planted in September nor so perfectly double. When fully expanded they show a light centre, but the outer segments are as rich in colour as those of the earlier flowers. I have had a most brilliant display this spring. I commenced cutting in the open April 18.—T. GILBERT, *Bourne*.

Dendrobium MacCarthiae.—This is a somewhat rare and beautiful Dendrobe, flowering now in the Kew collection. It was introduced from Ceylon about 1854, and is difficult to manage well. The flowers are nearly 3 inches in length, drooping, and brightly coloured. The sepals and petals are conspicuously pointed, lilac-magenta, with a pale-tinted lip veined with purple; the interior of the throat rich plum colour. Its pseudo-bulbs are almost 2 feet long and slender.

Japan Primrose (*Primula japonica*) is beautiful just now in the alpine house at Kew. This noble Primrose varies considerably in colour; some are of the deepest crimson, with a ruddy eye, others lighter, and the white form is quite pure. It is a plant often grown in pots, but the splendid patch of it at the base of the mound near the Cumberland Gate suggests another use for it, viz., planting in the wild garden. It looks better there than we should have thought from the rather stiff habit of this Primula.

Hardy flowers at the Paris Exhibition.—There is a horticultural show now being held in the gardens of the Trocadero. Two large tents contain gorgeous specimens of Rhododendrons, Azaleas, Roses and cut flowers, but the most interesting to me were several beds composed of clumps of hardy plants and annuals in bloom. In the exhibit of Messrs. J. B. Yvon I particularly noted *Veronica corsica*, *Viola obliqua*, striped purple and white; *Foam Flower* (*Tiarella cordifolia*), *Trollius japonicus* and *Pentstemon procerus*. Then amongst plants new since 1878 exhibited by Messrs. Vilmoren were several very beautiful things.—R. J. G. R.

Symphandra Wanneri is less common than it used to be. It is a pretty Campanula-like plant in bloom in the open long before any of the Harebells have shown buds. It is, unfortunately for its popularity, a biennial, or at best a very unsatisfactory perennial. It, however, produces such abundance of seed, which may be sown in the open air, that the trouble is reduced to a minimum. The large drooping, deep mauve flowers are produced plentifully during four or five weeks. *S. pendula* has similarly shaped, but white bell flowers. It has a dwarf pendulous habit and is useful for the rockery, where it will sow itself and give very little trouble. *S. Hoffmanni* is a recently introduced species from Bosnia, a true biennial with upright habit, bearing from the axils of the leaves short stems carrying several creamy white, bell-shaped flowers. A really fine plant.

The Rockwood Lily (*Ranunculus Lyalli*) in Scotland.—Mr. James Cocker, Sunnypark Nurseries, Aberdeen, N.B., writes us regarding this plant: "I have a plant of *Ranunculus Lyalli* in bloom at present. It is a very small plant, and I wish to save seed from it if possible, otherwise I would have sent you a flower. There will be four blooms on the spike. The flowers are of the purest white, and the size of half-a-crown. It is indeed the finest *Ranunculus* I have ever seen. I had a small packet of seed sent me from Australia some years ago, and I only managed to get two plants. They have stood outdoors all the time."

*A coloured plate of this was given in THE GARDEN, December 31, 1887 (p. 606), from a plant that flowered at Reading. An engraving of it also appeared in THE GARDEN, August 18, 1888, from a

specimen which flowered at Glasnevin. This *Ranunculus* has also bloomed at Kew.—ED.

Strawberries do not appear to have suffered through lack of sunshine last year, as there is promise of an abundant crop. Barren plants are very few, although we generally find these plentiful in beds over one year old, and last year our two-year-old plants of Eleanor (a variety we find very reliable as a rule) were blind to the extent of nearly 90 per cent. This year out of a total of just over 1000 plants of various sorts we have scarcely 1 per cent. blind, and the flowers are strong and healthy.—E. B. L.

Clethra alnifolia.—This hardy American shrub is very useful in the greenhouse if grown in pots and forced into bloom at this season. The long racemes of pure white flowers, which are produced in great profusion, are deliciously scented. This *Clethra* does not like its roots disturbed, and consequently should be kept in pots, which should be plunged out of doors all the summer. It is advisable to give it a place in a cold house or frame during winter to protect the points of the shoots from being damaged by frost.—F. G.

Severe storm.—This neighbourhood was visited on Friday afternoon by a thunderstorm of exceptional severity, the fall of hail being quite phenomenal, the hailstones resembling large pieces of ice $1\frac{1}{4}$ inches in diameter. The destruction to the Hop and fruit crops is very great in some parts where the storm was violent; many young fruit trees have the shoots cut clean off with the hail, while fields of Peas and Beans are simply ruined. So large were the hailstones that many windows were broken, the hail passing clean through them into the rooms. The fate of greenhouses and frames can be easily imagined.—A. B., *Worcester*.

A pleasing combination.—In the greenhouse at Kew is a group of well-grown *Lilium Harrisii*, *Statice arborescens*, and *Heliotrope Miss Nightingale*. The flowers of the *Lilium* harmonise well with those of the *Statice* and dark *Heliotrope*, and produce a charming effect. A group of *Begonias* on one of the side benches also in the same house is very beautiful. Only varieties which thrive under greenhouse treatment are used, and they continue to bloom for a long time. *B. Knowsleyana*, a lovely free-flowering variety, is a great favourite. The small-flowered *B. semperflorens* and its variety *gigantea rosea* are always in bloom, while some of the tuberous-rooted varieties have deep coloured flowers, and make up an attractive group.—G.

Centenary of the Dahlia.—As this is the centenary of the introduction of the Dahlia into England, there will be a special exhibition of the flower by the National Dahlia Society on September 6 and 7 at the Crystal Palace. The committee, in order to obtain a representation of the marvellous development of the Dahlia during the century that it has been under cultivation in the gardens of Great Britain, have added to the schedule a "centenary class," in which it is hoped will be represented as far as practicable every known kind, form, and type of Dahlia. In the afternoon of the first day papers will be read bearing upon the subject. Full particulars can be obtained from the hon. sec. and treasurer, Mr. T. W. Girdlestone, Sunningdale, Berks.

Photographs of Indian scenes.—Mr. Maries, Gwalior, sends us a very interesting set of photographs representing Indian garden scenes. From these we obtain an idea of the luxuriance and richness of tropical vegetation and the character of native gardens. A view of the interior of the conservatory at Durbhungah shows *Elaeis guineensis* surrounded by Ferns, *Begonias*, &c. Two photos are devoted to *Pinus longifolia*. The splendid specimens represented are growing in Mr. Stalkart's garden, Calcutta, the tree itself coming from the Himalaya Mountains at about 2500 feet elevation. *Araucaria Cookii* is also shown. "This photo," writes Mr. Maries, "was taken also from Mr. Stalkart's garden, and the specimen is one of the finest here. It has been broken off once or twice by cyclones, but this mutilation has improved the appearance of the tree rather than disfigured it."

ORCHIDS.

W. H. GOWER.

DENDROBIUM PIERARDI.

THIS beautiful species has now been in cultivation upwards of seventy years, and was, I believe, the first member of the genus which flowered in this country. It was brought by M. Pierard, a Frenchman, to the Royal Gardens at Kew long before they assumed the title of Botanic Gardens. It is common in the delta of the river Ganges, from whence came our first examples, and where it appears to select

residence of Mr. J. Lanyon at Croydon. These plants show admirably the beauty of the species when well grown, for although it cannot be compared with such showy and beautiful kinds as *D. Wardianum*, *D. Falconeri*, *D. Devonianum*, and *D. Hookerianum*, it is not surpassed in chaste and elegant beauty by any of the now numerous species in cultivation, although it may be considered the commonest kind now to be found in our collections, where it grows and thrives often under very adverse treatment. The plant here depicted was grown in a hanging basket, and from its naturally pendulous habit this is the true way to grow it. When young I

hung close to the glass with full exposure to the sun, and during the daytime have a free circulation of air in order to ripen the bulbs. The bulbs will cast off all the leaves before winter. At this time the *Cattleya* house will have become lower in temperature, and in the cool end of this they should find a home, and be kept quite dry until after the new year or until the flowers begin to show plainly that they are on the move. At this time the plants may either be removed to the hottest house, or to the warmest end of the *Cattleya* or Brazilian house. In either case they must be gradually supplied with water in order to swell up their flowers. These are usually produced in pairs upon short stems, and that for more than two-thirds of their entire length, and all open together, forming a most elegant festoon of blooms. Its wide distribution naturally produces variations, into the merits of which, however, it is not my purpose to enter here. In good forms the flowers are nearly 2 inches across, the sepals and petals spreading and rosy-mauve or pink in colour, whilst the large trumpet shaped lip is creamy-white or pale primrose, covered on the inside with a short tomentum and streaked faintly at the base with light purple. The flowers last a considerable time in full beauty if carefully treated, and I have always found them great favourites with ladies, whilst as coat flowers backed with Maiden-hair Fern they are invaluable, owing in a measure to the season in which they appear, which is from the new year until the end of May. I saw a fine example in full beauty during the present week. This, however, may be reckoned amongst the latest appearances for the present season. This plant, although an old species, and cast on one side for some years, is again becoming popular. The longer our Orchid growers study their plants, the more do they recognise the beauties of the older and neglected forms, and this one in particular is worthy of a place in the choicest collections in the land, and, if carefully nurtured, will amply compensate for any care bestowed upon it.



Dendrobium Pierardi. Grown by Mr. J. Gregory at Birdhurst, Croydon.

the branches of the Mangrove trees. Since then, however, it has been found that it is widely distributed in India, having been discovered in the hot valleys of Sikkim by the present Sir Joseph Hooker, and also by travellers and plant collectors in various parts of that vast continent, even to the hills in Burmah, in which latter district it is said to be abundant. I do not find any records of its growing more strongly in its native country than it does under cultivation, and I have repeatedly grown its pendulous pseudo-bulbs 6 feet in length, and so, indeed, were those of the beautiful specimens shown in our illustration, and which were grown by Mr. Gregory at Birdhurst, the small, but beautiful

have grown it upon blocks of wood, but this system does not answer for any length of time, as the plants require a greater amount of moisture than it is possible to supply in this manner to develop such fine pseudo-bulbs; and such a profusion of flowers as are here shown. The plants should be well drained and grown in fresh Sphagnum Moss; some add to this fibrous peat. During the period of growth this *Dendrobium* enjoys very strong heat and an abundance of moisture both to the roots and in the atmosphere. After the growth has ceased, gradually curtail the water supply, which should be eventually stopped altogether. The plants should be then removed to a cooler house,

***Dendrobium Bensoniæ*.**—This is a magnificent species, and must be considered one of the very finest white-flowered *Dendrobies* yet discovered. It is now very fine in the gardens of Mr. G. F. Schwann at Oakfield, Wimbledon Park, and it should be more extensively grown. It was discovered and sent home upwards of twenty years ago by Col. Benson, who found it near Prome, in Burmah, at some 1500 feet elevation. It appears to occur in other districts, and it varies somewhat in character. It is erect in habit, the stem-like pseudo-bulbs each varying from 1 foot to 2 feet in height. The flowers, which are bold and effective, are produced on short spikes in pairs or in threes, and are pure white, the inner portion of the lip rich yellow, ornamented at the base with two large purplish eye-like spots, which contrast beautifully with the purity of the sepals and petals. The chief variations occur in the spots; in some forms they are merged together and form one large blotch, in others they are much reduced in size, but the typical form is much the handsomest. It is easily managed, but it likes a decided season of rest after growth is finished.—W. H. G.

***Masdevallias*.**—It is quite a charming sight just now to see the rich and beautiful flowers which are produced by this genus, and to find that a great reaction has taken place in most of the noted collections in their favour. In the gardens of Sir Trevor Lawrence they have always received the loving care they deserve, and in many other places they are now magnificent; notably amongst these may be named Mr. Partington's collection at Cheshunt, Mr. Measures' at Camberwell, Mr. Williams' at Holloway, Mr. Laing's at Forest Hill, and Mr. Measures' at Streatham. In all of these places

hundreds of flowers are now conspicuous and in great variety, their colours surpassing in richness those of all other flowers known to me. This, combined with the fact that they are the very easiest plants to grow, provided they are kept cool enough and moist, renders them suitable for any amateur having a house with a northern aspect or small cool fernery. The return to favour of these plants must be gratifying to the veteran Bateman, who laboured so strenuously in their introduction; but the wondrous colours they have developed and the numerous species discovered must have surprised even him.—W. H. G.

ZYGOPETALUM.

This genus has usually been looked upon as supplying a desirable colour amongst Orchids during the autumn and winter months. Their large flowers, which are for the most part of some shade of blue, are very beautiful, but I have never before admired this genus as a spring and summer bloomer until this week, when I saw a magnificent specimen of *Z. crinitum* flowering in The Woodlands collection at Streatham. It by far surpassed any *Zygopetalum* which I have hitherto seen, and should tend to restore this genus to the popularity which its colour should most certainly afford it. *Zygopetalums* are terrestrial or sub-epiphytic plants, belonging to the tribe Vandæ; the stems are creeping, bearing variously sized ovate bulbs, which support large strongly nerved leaves, which are leathery in texture and rich green; scape erect, bearing several large flowers, which last long in beauty. *Zygopetalums* require the heat of the intermediate house, and thrive well with ordinary stove plants, although they are not so frequently met with as their merits deserve. The pots should be thoroughly well drained, and the soil should consist of rough peat fibre and Sphagnum Moss. During the period of growth a liberal supply of water is necessary, combined with a goodly supply of moisture in the atmosphere. They enjoy an abundance of sun and light, but shade is necessary during the hottest part of the day; light syringing overhead is also beneficial during bright weather in the morning and in the evening; but I have found from experience that heavy drenchings overhead are injurious, as the water gathers in the centre of the young growths, and is apt to rot or retard the full development of the pseudo-bulbs, which thus being weakened do not produce such fine spikes of bloom. After growth is completed the supply of water must be considerably reduced and the temperature should be lowered; afterwards it is the custom with some growers to keep the plants quite dry, but under this treatment I have never had such good results as when the plants were kept moderately moist through the winter. The kinds that bloom during the winter require an additional supply soon after the spikes appear in order to sustain their growth. I am under the impression that many have relinquished the culture of *Zygopetalums* through failing to grow and flower them with the *Odontoglossums* in the coldest house, but although this situation may suit them during their resting season, I have always found them thrive most luxuriantly in a warmer place, such as an ordinary plant stove or the Brazilian Orchid house.

Z. CRINITUM is a plant with large ovate pseudo-bulbs and broad leaves, which are strongly ribbed. The scape is erect, seldom exceeding a foot or 18 inches in height, and bears several large flowers, which vary more or less in colour. The sepals and petals, of about equal size, are erect, green, transversely barred and blotched with brown; lip very large, white, with numerous veins, which are all ornamented with a raised line of rosy pink hairs. In the variety known as *crinitum* caruleum the lip is creamy white, and the fringed veins are of a rich violet-blue. It blooms usually

towards the end of winter and beginning of spring, and is a native of warm parts in Brazil.

Z. CRINITUM MEASURESIANUM.—This grand variety is now flowering in The Woodlands collection, and it is by far the most beautiful *Zygopetalum* I have ever seen. In its habit of growth it resembles the type, but it is more robust; the plant carries no less than fourteen scapes, each 3 feet 6 inches high, and bears in the aggregate ninety-eight very large flowers; the sepals and petals are green profusely blotched with brown, and the veins are fringed with violet-blue, between which and over all is a suffusion of the same colour, but leaving a marginal border of creamy white, rendering the flower extremely beautiful. Flowering as it does at the end of May renders it all the more valuable. This large mass of this fine variety is, I believe, unique. It is grown at The Woodlands in the house with the *Cymbidiums*.

Z. MACKAYI.—This is another well-known plant, as it has been in our gardens upwards of sixty years. It is a winter bloomer and lasts long in full beauty. Each scape is from a foot to 2 feet in height, and bears five or six large flowers. The sepals and petals are yellowish green barred with brown; the large lip is white, lined and streaked with purplish blue. In addition to their charming colour, the blooms are also very sweet-scented. There are several varieties of this plant, which vary in the intensity of the colour, but all are fragrant. Native of Brazil.

Z. CLAYI.—In this we have a plant of garden origin, raised by Col. Clay, of Birkenhead. It is the result of a cross between *Z. crinitum* and *Z. maxillare*. It is a plant of free growth and a profuse bloomer, but from amongst the seedlings raised there have appeared numerous forms, which vary considerably in their depth of colour and their markings. In an ordinary form the habit is smaller than that of its first-named parent, and the strap-shaped leaves are long, narrow, and strongly ribbed. The flowers are very handsome and long-lived, sepals and petals nearly equal, spreading, of a deep purplish brown, narrowly bordered with green, and in some forms having some narrow lines of green running across or partially across. The lip is large, in good varieties rich violet-purple, veined with lines of a deeper hue. At the base of the lip is a raised plaited frill. It is very handsome, and blooms during the winter and early spring.

Z. ROSTRATUM.—This is a plant of great interest but of less beauty than most of the other kinds. It is a dwarf-growing species, producing very large flowers, which appear at various times, sometimes twice in the season, but generally in the autumn months. The sepals and petals are long and narrow, yellowish green, faintly tinged in the centre with streaks of lilac, lip very large, pure white, with a raised frill at the base, streaked in front with a few lines of the same colour. It is a somewhat rare plant in cultivation and comes from Demerara.

Z. MAXILLARE.—This is a plant of small growth, and is perhaps the most difficult species in the genus to maintain in good condition for any length of time. The sepals and petals are yellowish green, more or less blotched with deep rich brown; lip thick and leathery in texture and deep rich blue or violet-blue. It blooms during the winter months and comes from Demerara.

Z. SEDENI is another garden plant raised between *Z. maxillare* and *Z. Mackayi*. It is a lovely flower with a rich bluish purple lip. This is different in habit of growth to the majority of hybrid Orchids, which are almost invariably more robust than the imported species, but this appears to be more delicate.

The above are the principal kinds belonging to the genus *Zygopetalum*. There are numerous other kinds, all of which are well worthy of attention from Orchid growers on account of their prevailing colour, which is always attractive, and is very rare in the Orchid world. W. H. G.

Dendrobium Devonianum.—A very good form of this beautiful Dendrobe is flowering with

Mr. Wright, gardener to Mr. Watts, Devonhurst, Chiswick. The flower is larger than usual and more brightly coloured.

Lycaste Jamesiana.—This is another novelty into which the well-known *L. Skinneri* has broken, and a great beauty it is. In profile it would be said to be a good form of the white variety (*alba*), but upon a front view its difference is at once visible. The whole flower is of the purest white, saving the base of the petals and inside of the column, which is bright rich magenta. It is now flowering in The Woodlands collection at Streatham.

Phalaenopsis sumatrana.—This is still a rare plant, and a very fine variety is now flowering in the Kew collection. The sepals and petals are white at the base, towards the upper part passing into lemon-yellow, and on this are numerous transverse blotches of bright reddish brown (which gave rise to the name of *zebrina*, by which the species is also known); the lip has the usual brush-like appendage, and on the sides are various streaks of purple, the small side lobes being yellow.

Calanthe veratrifolia.—This beautiful species belonging to the evergreen section is now a feature in Mr. Williams' nursery at Holloway, where about forty spikes of its pure white flowers may be seen together. It was introduced about seventy years ago, and it still stands unrivalled for its grand display of large heads of flowers of the most spotless white. These evergreen *Calanthes* are not appreciated as they deserve to be.

Phajus Manni.—A grand form of an old-fashioned flower, which should be sought after by growers of these plants. I saw it recently for the first time in the Kew collection. To describe it one might say it is a gigantic form of *P. Wallichii*, the flowers being very highly coloured. The stout spike is erect and many-flowered; sepals and petals broad and spreading, rich bright cinnamon-brown; lip very large, similar in shape to that of *Wallichii*, the front pure white, streaked inside with rich crimson. It is a plant which deserves care and attention. It comes from Assam.—W. H. G.

TREES AND SHRUBS.

HARDY AZALEAS.

At this season of the year we have an immense number of hardy shrubs in bloom, included among which are many Azaleas, represented by several species and a long list of varieties. The first to bloom is the rare purplish-flowered *A. rhombica*, closely followed by the Chinese *A. mollis* or *sinensis*, while those composing the next group are generally spoken of as Ghent Azaleas (from many of the early varieties having been raised there). These consist of the American *A. calendulacea*, *A. nudiflora*, and *A. viscosa*, together with *A. pontica*, a native of the Black Sea region, and the various hybrids are the result of intercrossing these different species. Within the last few years, however, the Californian *A. occidentalis*, that does not bloom till all the others are past, has been used for hybridising, the result being the production of a later flowering section, two examples of which were illustrated by means of a coloured plate in THE GARDEN, Nov. 3, 1888. These last are not yet in flower, but the bulk represented by *A. mollis* and the different Ghent Azaleas are just at their best, at which time they are so beautiful that it is surprising the demand for them is so limited, as I know of no hardy shrubs except *Rhododendrons* that yield such a gorgeous display during their flowering season. Among the varieties now in cultivation several different colours are represented, varying as the blooms do from white to vivid scarlet, through all the intermediate shades of yellow, orange, salmon, and orange-scarlet, as well as various tints of pink. The general appearance of the blooms of the American species is explained by their

popular name of the Swamp Honeysuckle, but by intercrossing and selection a larger and bolder class of flowers has been obtained. These Azaleas are not seen to advantage when dotted about indiscriminately, but should be planted in large bold groups or clumps, as by a proper selection of varieties grand masses of colour can be obtained. It is somewhat singular that while their allies the Rhododendrons are so generally planted, very often in unsuitable positions, these Azaleas are universally ignored. The fact of the Rhododendrons being evergreen is no doubt by many considered a point in their favour, but I venture to assert that when in full bloom many would prefer the Azalea to the other. Nearly all the Azaleas are of a light graceful habit of growth, and the perfume of the flowers is, though not strong, very agreeable. This character is especially noticeable in early morning or during bright sunshine. These Azaleas are seen at their best when planted in such a way that they are backed up by some darker foliaged subjects, as they bloom before the leaves are fully expanded. They are not particular as to soil, for though peat is generally considered necessary for their well-doing, such is by no means the case, as they will grow well enough in light loamy soil, and especially if a liberal amount of leaf-mould is mixed with it. The position, however, is of more importance than the texture of the soil, as the delicate, hair-like fibres are very susceptible to drought. The best place for the plants is in a cool, fairly moist spot, partially, but not too heavily shaded, for not only do they flourish better therein, but the flowers also last in beauty much longer in such a position. These fine plants are now principally grown in the Surrey Nurseries, the soil of the Bagshot district just suiting them, and some years since they formed a very prominent feature of the once-celebrated Osborn's nursery at Fulham, now, like the site of many others in the London district, almost covered with houses. Messrs. Osborn also devoted a considerable amount of attention to the raising of new varieties, which work is now principally carried out by Mr. Anthony Waterer at Knap Hill. At Kew, again, the Azalea beds, when the plants are in flower, attract great attention. Though the soil there is of a shallow, sandy nature, with a subsoil of gravel, the plants have been induced to thrive therein by a liberal admixture of leaf-mould combined with a heavier loam. These Azaleas may be propagated from seeds, layers, or by means of grafting. Seeds, of course, cannot be employed for the increase of any particular varieties, and for them the other methods must be resorted to. It is, however, the better plan to purchase good established specimens from a nursery, as if planted in the winter they will flower the following spring, and newly propagated plants make but slow progress during their earlier stages. The roots of the Azalea are so fine and matted that there is no danger even in transplanting large specimens, provided ordinary care is used and the plants are not permitted to suffer from want of water afterwards. Within the last few years several varieties with double blossoms have sprung into existence, and though in a mass they are in no ways showier than the others, yet the individual blooms remain longer in perfection, and this character is especially valuable when the plants are employed for forcing.

The above notice of this particular class of hardy Azaleas should serve to direct renewed attention to them, and certainly where a fairly moist spot (especially if it be of a peaty nature) has to be planted, they ought at least to be liberally used, for besides the beauty of the

blossoms the foliage of many of them becomes richly tinted in the autumn. A class of hardy Azaleas, the date of whose introduction is far more recent than that of the Ghent or pontic section, includes the many forms of the Chinese *A. mollis* or *sinensis*, which are all characterised by a more sturdy habit of growth and much larger blossoms. The original colour of the flowers of this species was a kind of bright salmon, but varieties of various other tints have since been raised, and the range of colour now extends from very pale yellow (almost white) through the different yellow, orange, orange-red, and deep pink shades. This Azalea is largely used for forcing, to the exclusion of the other varieties, and besides the great numbers which are grown in this country for the purpose, immense quantities are imported yearly from the Continent in the shape of sturdy little bushes bristling with flower-buds. They are sent here during the autumn and winter months, and then simply require to be potted and brought on in a little heat as needed. Last winter a great many were disposed of at the London auction sales. The plants sold in this manner are nearly all seedlings, and, consequently, there is a considerable amount of variation among them, though, as a rule, the different shades of yellow predominate. Where these Azaleas are flowered under glass they should not as soon as the blooms are over be ruthlessly turned out of doors, and frequently allowed to suffer from want of water (as is too often done), as the plants are thereby crippled in such a manner that it will take a very long time for them to recover. If slightly protected till spring frosts are past and then planted out in a suitable position, these Azaleas will at once take hold of the new soil and flower well the following spring. By this means not only may plants be utilised that would be otherwise thrown away, but where a considerable quantity is forced, permanent groups of hardy shrubs may be formed in this manner. The last to mention, as well as the last to flower, of these hardy Azaleas is the Californian *A. occidentalis*, the only species, I believe, which is native of the western side of the Rocky Mountains. The flowers of this are white with a yellow blotch on the upper segment, but some of the late-flowered hybrids, in the production of which *A. occidentalis* has undoubtedly played a prominent part, are heavily tinged with rose. *A. occidentalis* itself does not flower till the bright cheerful green foliage is well developed, and, consequently, all the others by that time have shed their blossoms. The fact that none of the above-mentioned groups of hardy Azaleas are ever injured by even our most severe winters is another valuable point in their favour. T.

Natural reproduction of Lebanon Cedars and other trees.—Mr. Webster will, I am sure, pardon me for asking him if he will explain a simple problem that has often puzzled not a few of us who have noted the widely varying natural reproductive powers of different trees. For example, why the universal supremacy of the Sycamore over all others? Is this to be the tree of the future, the most profitable in the coming age? Or is the Sycamore to smother out our other trees by the mere survival of the fittest, that is, the strongest, the most rapidly raised from seeds, and the most quickly grown? Certain it is that, while many other trees and shrubs hardly carry their natural reproduction beyond the mere initiatory stage of seed germination, the Sycamore forms new forests or refurnishes old ones with extraordinary dispatch and to good purpose and profit.—D. T. F. P. S.—Will Mr. Webster also give us his opinion as to the wisdom and probable profit of the refurnishing of old plantations with rooted layers, and the pro-

bable profit in timber from plantations so furnished and those planted with seeds or seedlings at the same time? For mere covers or underwood, possibly layering from old stools might be best—but for timber, that is the point that I have long considered settled in favour of seeds or seedlings.

THE GOLDEN-FLOWERED GOOSEBERRY AS A HEDGE PLANT.

DRIVING through a light sandy portion of East Anglia the other day, I was attracted by a strikingly beautiful golden hedge, which at a distance looked like the common Barberry at its best. Observing it more carefully, it seemed lighter in colour and far more graceful in habit than the Barberry. Driving up to it, I was astonished to find a cottager's garden enclosed with a hedge of the Flowering Gooseberry (*Ribes aureum*). Having no spines or prickles, it has little defensive power as a hedge plant; but its gracefulness and beauty must be seen to be realised.

I could get no information as to its age. It was planted on a raised bank in the same manner as Quick, and stood wholly alone, without the support of White or Black Thorn, Sloes, Plums, Sweet Brier, or any other hedge plant whatsoever. It furnished the sole fence between the garden and an open common, and so far no fault was made as to its inefficiency; in fact it might easily have been made stronger by strengthening some of the weaker portions. No attempts seem to have been made to do this, and yet the enclosed garden showed no sign of having been overrun by the various stock that feed on the common.

The plants looked remarkably healthy. They were well smothered with bloom, and throwing out suckers in all directions through the raised bank, formed chiefly, if not solely, of hungry sand.

Here was this comparatively defenceless Flowering Gooseberry, which one seldom sees, unless as a mere isolated specimen in a secure shrubbery, and which I had never met with in mass before, protecting a garden, while fringing it with a unique glow of golden beauty early in May.

This interesting fact suggests another query, viz., why is not the common Barberry more generally used as a hedge plant? It has qualities of the highest order, while the beauty of its flowers and berries and the rich tints of its foliage especially in the spring and autumn can hardly be matched by those of any other bush or shrub. I have seen hedges of this plant as impenetrable as exquisitely beautiful. But they have mostly gone down before the mildew mania, which I firmly believe is an idle fancy, with little or no basis of sober fact to rest upon. D. T. F.

The Nepal Laburnum (*Piptanthus nepalensis*).—To see this at its best one must go to our southern and western coasts, where it forms a handsome sub-evergreen shrub that reaches a height of 8 feet or 10 feet, and under favourable conditions bears a great profusion of its large rich golden-yellow blossoms. It is certainly a tender subject, for as far south as London it cannot be depended upon to pass unharmed through the winter unless protected by a wall, and though its somewhat stiff habit is against its employment for this purpose, yet its large golden flowers make a goodly show at this season, while the ample rich green leaves serve as a suitable setting to them. The foliage is retained throughout the winter months, and in mild winters the plant may be regarded as almost if not quite evergreen, thus accounting for one of its names, viz., the Evergreen Laburnum.—T.

Hypericum aureum.—In the month of July, 1776, the younger Bartram discovered this plant upon the bank of Patse-Lega Creek, a branch of the Flint River, in Georgia, and the account of this discovery, which he afterwards published in his "Travels," gives an excellent idea of it as it now appears in cultivation. "I observed," he says, "growing on the steep, dry banks of this creek, a species of *Hypericum* of extraordinary beauty (*Hypericum aureum*). It grows erect, 3 feet or 1 foot high, forming a globular top, representing a

perfect little tree; the leaves are large, oblong, firm of texture, smooth, and shining; the flowers are very large, the petals broad and conspicuous, and, with their tufts of golden filaments, give the bushes a splendid appearance." Afterwards the plant was found to extend from South Carolina to Alabama and to Eastern and Central Tennessee, although nowhere very common; but its merits as a garden plant were overlooked until a few years ago, when seeds were sent to the Arnold Arboretum by Dr. A. Göttinger, of Nashville, who thus writes of its distribution in Tennessee, where it is more common than in the Atlantic States: "The *Hypericum aureum* is addicted to rocky situations in the Cedar glades and on bluffs and cliffs along the Cumberland River and its affluents. It is also on the base of Cumberland Mountains as far up as the carboniferous limestone reaches. It is not found in siliceous or argillaceous soils or in swamps, but prefers such situations where the moisture is longest retained and shade is provided. It associates in the Barrens with *Rosa humilis*, *Forestiera ligustrina*, *Ptelea trifoliata*, *Rhus aromatica*, *Rhamnus caroliniana*, *Cratægus subvillosa*, *Gonolobus obliquus*, *Nemophila microcalyx*, &c. It is generally not very free-flowering, but I have found on the rocky ledges near the water-line on the Cumberland River, specimens with a great profusion of flowers. It grows 3 feet to 5 feet high." *Hypericum aureum* is by far the showiest when in bloom among the large collection of *Hypericums* in the Arnold Arboretum, where it is perfectly hardy. It begins to flower about the 20th of July, and continues in bloom during several weeks. The flowers are $1\frac{1}{2}$ inches to 2 inches across when expanded, with coriaceous, reflexed, orange-yellow petals. There are few dwarf shrubs better worth a place in the garden.—*Garden and Forest*.

Berberis Darwini and B. stenophylla.—Nothing can exceed the beauty of these shrubs, which at this season are all aglow with colour, for every twig and shoot are laden with racemes of flowers, those on *B. Darwini* being of a rich orange, and those of *B. stenophylla* many shades lighter. The habit of the last-named is very graceful, as the branches arch over and droop. *B. Darwini* is also suitable for the same kind of work, and, backed up by other Evergreens, is very useful in the foreground of shrubby borders. So effective and good are both these *Berberis*, that they can hardly be misplaced anywhere in a garden. Like all the varieties of *Berberis*, they are difficult to transplant, and can only be shifted safely when the plants begin to grow, or immediately after the young wood gets a little firm. The way to increase these *Berberis* is by seed or layers. *B. Darwini* fruiting freely, and the long bunches of rich blue-black berries make a fine show.—S. D.

Hardy shrubs for cutting.—There are many hardy shrubs that are very useful for cutting, and a great help to the decorator when greenhouse flowers are scarce. Some of them are by no means common, or, in fact, seldom to be found in the majority of gardens. It is surprising that *Chimonanthus fragrans* does not find a place in every garden, whether large or small, for the flowers are produced at a time when they are very acceptable, and, given anything like fair weather, the blooming season is a lengthy one. The plant may be grown in bush form, but the flowers are produced in greater profusion when the plant has the shelter of a wall. It may be readily propagated by means of layers, and grows, when once established, with sufficient rapidity to quickly cover a wall. This statement may be somewhat qualified, as both *grandiflorus* and *luteus* (varieties of *fragrans*) are much more vigorous than the type, and I should recommend intending planters to give them the preference if they can be procured. The flowers of both these varieties are also much larger and deeper in colour than those of *fragrans*. I think, however, that the old form is more powerfully scented than any. *Rhamnus Alaternus* var. *foliis argenteis* (the silver variegated Buckthorn) I can thoroughly recommend as one of the most useful shrubs, and anyone with a spare corner of wall cannot do better than fill it with this Buckthorn. It grows very fast, will

stand any amount of cutting, and its fine slender foliage associates well with almost any kind of flower. The variation is better developed when the plant is in a light, rather poor soil. It strikes readily in the autumn in a mixture of leaf soil and sand, and small plants, well pinched in, are useful for winter boxes, vases, &c. *Veronica Traversi* is another useful shrub, which can be struck in a similar manner and at the same time as the Buckthorn. Like the latter, it can be used in a small state for winter bedding or vases, but it is seen at its best and most useful stage when grown into large bushes in the shrubbery, border, or pleasure ground. It blooms with great profusion, and furnishes a lot of useful cut flowers. Where there is a large demand for button-hole flowers, I have found *Deutzia crenata flore-pleno* very handy. The plant can be forced, and with the flower procurable early in the year, its season altogether is a long one.—E. BURRELL, in *Field*.

THE CHINESE CRAB.

(PYRUS SPECTABILIS.)

As nearly all the different kinds of *Pyrus* bloom at much the same time, it is an easy matter to compare their relative merits, and, considered from an ornamental point of view alone, the Chinese Crab is certainly entitled to rank as one of the very best. It is by no means a novelty, for according to Loudon it was introduced in 1780, and the fine specimens occasionally met with in old-fashioned gardens lead one to suppose that it was at one time planted more frequently than at the present day. When full grown it assumes the character of a medium-growing tree, the branches of which have when young a somewhat upright tendency, but become more spreading when old. The flowers are large, semi-double, pale pink when fully expanded, but coral-red in the bud state. The great difference in colour between the full-blown flowers and the unopened buds (a character shared by many other species of *Pyrus*) is very striking. The fruits of this are Cherry like and yellowish when ripe, but frequently they are very sparingly borne. The Chinese Crab is one of the best flowering trees for the lawn that we possess. This remark will apply with equal force to the Japanese *Pyrus Malus floribunda*—a coloured plate of which was given in THE GARDEN, October 14, 1876—which is for some reason or other far more popular than the Chinese representative. This blooms most profusely when but a few feet high, but fully grown it forms a low tree, with a dense head of wide, almost horizontally, spreading branches, which are unusually slender. The individual flowers are of a brilliant crimson in the bud state, but when expanded they become of a pale pink hue. Though not a large-growing kind, this is very free in growth, and will succeed almost anywhere. It may be struck very readily from cuttings, so that grafting is not at all necessary for its propagation; indeed, cuttings formed either of the branches or roots are available for increasing it. In some forms the blossoms are deeper in colour than in others, the richest tinted of all, as far as my experience extends, being *Halleana*, which, I believe, was imported direct from Japan. Another very ornamental species is the American Crab (*Pyrus coronaria*), of which a coloured plate was given in THE GARDEN, April 16, 1881. The blooms of this very much resemble those of our common species, and are noteworthy for two reasons, first, the late period at which they expand; and second, their agreeable violet perfume. This late-flowering quality is very desirable, as the season is thereby extended for two or three weeks. This *Pyrus* is found over a considerable tract of country in North America, and is said

to be hardy even in high northern latitudes. The fact that some of the leaves are more or less lobed is a distinguishing feature of this *Pyrus*, while they are retained later in the season than is the case with most other kinds. With this class must also be included the common and Siberian Crabs, some of the forms of which are remarkably handsome when laden with fruit as well as during their flowering season. A Japanese species, *Pyrus Toringo* or *P. Ringo*, also belongs to the Crab section. This is a spreading growing tree, with pinkish blossoms borne in great profusion, and very small fruit. The above include some of the most ornamental Crabs that we have in our gardens, though all the varieties are very handsome; indeed, the whole of the genus *Pyrus* is worthy of being planted for their beauty alone. T.

Box-leaved Sand Myrtle (*Leiophyllum buxifolium*).—This is an extremely neat and pretty flowering shrub nearly related to the Labrador Tea (*Ledum latifolium*), but it is smaller than any of the different forms of it. Besides the generic name of *Leiophyllum*, it is often known under that of *Ledum*, all the members of which flower about the same time. The *Leiophyllum* forms a plant of twiggy, yet somewhat erect habit, reaching a height of about a foot, and densely clothed with dark green Box-like leaves. The flowers, which are borne in a cluster on the point of every shoot, are prettily tinged with pink in the bud state, but when fully expanded they are pure white. If the flowering sprays are gathered just as the earliest blooms are on the point of expanding, they will last a very long time in water. It is a good plant for the margin of beds in the American garden, and it also does well in the cool moist parts of rockwork.—T.

American Witch Alder (*Fothergilla alnifolia*).—This is an uncommon shrub that succeeds under much the same conditions as the Azaleas. The *Fothergilla* is a deciduous shrub that reaches a height of 3 feet or 4 feet, while the flowers make their appearance before the expansion of the foliage. They are pure white and borne in clusters on the points of the shoots. The most showy part of the inflorescence is a bunch of stamens, and as several flowers are borne together quite a roundish mass is formed, which stands out conspicuously from the dark tinted bark of the still leafless branches. The flowers are also agreeably scented. This *Fothergilla*, according to Loudon, was introduced in 1765, but however much it may at one time have been grown, it is now quite a rarity.—H. P.

Chinese Tulip Tree (*Magnolia fuscata*).—As far as the beauty of its blossoms is concerned, this *Magnolia* cannot compare with most of the other species, yet it surpasses all the rest in the delicious fragrance of its flowers. It is a native of China, from whence it was introduced during the latter part of the last century, and in this country needs the protection of a greenhouse. This *Magnolia* forms a neat growing, much-branched evergreen shrub, while the flowers, which are borne in considerable numbers at this season of the year, are of a peculiar purplish brown tint, and in no ways showy. So easy is it to overlook them, that a plant laden with blossoms might pass without notice but for their fragrance. This *Magnolia* is well adapted for planting out in a conservatory under conditions such as are favourable to Camellias and similar plants.—T.

SHORT NOTE.—TREES AND SHRUBS.

Azalea mollis in the open air.—At the present time there are thousands of plants of this in full flower at Penllergare, near Swansea. Isolated specimens and groups appear here and there along the carriage drives, throughout the woods and other places, and their rich, pleasing, and varied colours are very attractive. Some of the plants were bought in, but many of them are home-raised seedlings. A little pent has been used in planting them in some cases, but in others it has not

and it is satisfactory to note that peat is not regarded as necessary to their successful culture.—J. MUIR, *Margam*.

FRUIT GARDEN.

W. COLEMAN.

PEAR BEURRE D'AMANLIS.

If any particular soil, site, and stock suited all the Beurré Pears, one might say, seek no further, as this family alone is quite capable of maintaining a supply of the finest and richest fruit from September to May. This, however, is not the outcome of my experience, as I find, and growers generally admit, that Pears above all other fruits are extremely capricious, whilst a few, including the delicious Brown Beurré and Easter Beurré, are very rarely first rate north of London. Beurré d'Amanlis, the variety here-with figured, fortunately is an exception, not only in point of quality, but also as a free hardy variety which seldom fails and never dis-

bushes right out on the open quarters where they can have full exposure to sunlight and fresh air. By adopting this method of planting and gathering the produce of each tree at different times, Beurré d'Amanlis may be made one of our most useful early autumn Pears, and having originated in Brittany or Normandy, where the climate really is very little better than that of our own best counties, our seasons must be exceptionally bad when the quality fails.

Here we have trees upon free stocks and trained against south and west walls, and to the best of my recollection they have always produced good crops of large handsome fruit, quite satisfactory in point of flavour, but not better than smaller russety samples, which keep longer from pyramids. When worked on the free stock, being a strong grower, the tree should have plenty of room for extension upwards and outwards, and, provided the shoots are well thinned out, the less they are shortened back the better. Indeed, this method of allowing them to go in all directions is the secret of



Pear Beurré d'Amanlis.

appoints the consumer. Those who dislike musk-flavoured Pears, like Williams' Bon Chrétien, which comes in with, or perhaps a little before Beurré d'Amanlis, and yet wish to have a good supply from the Jargonelle onwards, should plant Beurré de l'Assomption and Beurré d'Amanlis worked on the Quince or Pear, as they do well on either, and give them varying positions both as trained trees and pyramids or standards. Although some of the very early Pears do not always come or continue good when grown against south walls in hot seasons, a tree or two of each of the sorts above mentioned certainly should be planted facing this aspect, but the fruit should be gathered early and allowed to ripen in a warm fruit room, otherwise it will ferment at the core and be deficient in flavour. The same varieties also should be planted against a west wall simply to keep up a supply of still better fruit, and those who desire quality to take precedence of size should repeat them as pyramids or

success in getting an abundance of good fruit not only from this class of Pears, but also from Plums and other thoroughly hardy fruits. Trees on free stocks also may be trained against walls, but unless the latter are lofty and 18 feet to 20 feet in breadth can be given to each, cordons or trained trees on the Quince placed much closer together are to be preferred. In small gardens where space is valuable, the Quince stock most certainly is the best, that is, unless the trees are double-grafted and root-pruned every two or three years.

At the great Pear conference held at Chiswick in October, 1885, although rather too late for the cream of Beurré d'Amanlis, seventy-two dishes were shown, proving at once that it is a general favourite and must be well known; indeed, it is one of those decided fruits which cannot easily be confounded with any other of its season. Good average samples measure 3 inches to 4 inches in length and about 3 inches in width, with stalks long, slender, and woody

inserted in a small cavity. Shape, obtuse pyriform, sometimes obovate, uneven, and undulating in outline. Skin, bright green, tinged with brown next the sun, marked with dots of russet when grown against walls, but more or less covered with russet upon pyramids; yellowish green, with a little colour in the cheek when ripe. Eye, open, with very stout segments and prominent. Flesh, white, fine-grained, tender, juicy, sugary, rich, and melting.

The tree does well on our stiff, calcareous loam, and enjoys liberal supplies of weak liquid or soapsuds when the fruit is swelling. The fruit should be well thinned and closely watched or netted, otherwise blackbirds, no bad judges, will very soon entirely spoil the crop. As an early market Pear, owners of good intermediate or slightly sandy loams on a good open aspect should find Beurré d'Amanlis in quantity upon the Quince a profitable investment.

THE PLUM UNDER GLASS.

I WAS pleased to see Mr. Coleman calling attention to the cultivation of the Plum in pots in THE GARDEN, March 23. It has often occurred to me that this fruit does not receive the attention it deserves in private gardens. Many who live in towns and have glass accommodation might well grow a few trees in pots, if only for their beauty when in bloom. I am convinced that Plums grown under glass in cold, exposed parts of the country give more satisfactory returns than many other fruits. This is the more striking when note is made of the length of time good Plums may be had from houses.

Under glass the culture of Plums is very simple and produces the most satisfactory results, as will be seen from the following: In the garden at Didlington Hall is a large, well-heated, span-roofed orchard house. This structure is 75 feet long by 36 feet wide. There are two shelves all round the inside, these being used for the late-fruiting Strawberries in pots. There are two beds, one on each side of a centre walk. In these beds are various kinds of fruit trees which were formerly grown in pots, but at the present time many of the trees are planted out, some few being retained in large pots. The trees consist of Apricots, Peaches, Nectarines, Plums, Figs, Cherries, and a few old favourite Orange trees, which are also planted out. I have never before seen Orange trees so full of fruit, but the fruits are bitter and woolly, yet the trees are found very useful for their flowers.

The fruit trees are aged, the house having been erected about thirty years. These trees are mostly of bush form and some few are standards. The collection contains a good many Plums, including the valuable Golden Drop, Jefferson's, several varieties of Gages, Kirke's, Ickworth Impératrice, also a variety named Isabella. Some trees of the Washington planted out have formed grand bushes, and Mr. Stocking tells me he often gathers upwards of a bushel from one of these trees, the fruits being of the largest size and of good flavour. Several other kinds are equally as good, although the trees are not quite so large, some of them bearing so freely that they refuse to make any growth. Strange as it may appear, these Plum trees have never failed to give a good crop. The only attention they receive is that every winter, after having been cleaned and pruned, the surface soil is removed and a good quantity of soil and manure added as a top-dressing. In summer when in full fruit they are well supplied with manure water. These trees do not require much attention, except just a little pinching, as the abundant fruiting keeps down growth. During the first few years all the trees were kept in pots, but it was found that they caused too much labour, and pot culture was given up to some extent. I think the foregoing will show how satisfactory Plums are when grown under glass. Apricots do well here as bush trees, and give good crops annually. The trees do not die off in the way they generally do outside. Late kinds of Peaches here

are worthless in point of flavour. This orchard house is very valuable for supplying dessert in autumn, seeing that the garden is not walled in.

Forde Abbey Gardens, Chard. JOHN CROOK.

WORK IN FRUIT HOUSES.

CUCUMBERS.

As plants in frames will now be in full bearing, and old ones in hot-water pits and houses will be more or less infested with spider, no time should be lost in cutting the latter over with a view to a fresh start with young growths, or, better still, provided they can be spared, in clearing them out bodily and replanting. Cutting over—that is, the removal of all old leaves and vines, as well as fruit—is a most excellent method of renovating exhausted winter plants, but it entails loss of time; therefore, as young plants make such rapid progress, replanting wherever practicable is not only the most profitable, but also the most pleasing mode of procedure. When old plants have been properly pruned in and divested of all their fruit they should be well syringed with soap water, to which a pinch of sulphur may be added, the glass and woodwork carefully washed, and the walls dressed with lime and sulphur. A close moist atmosphere will soon start fresh breaks, and when these are prominent the roots may be taken in hand, otherwise the improvement will be but fleeting. When planted out in soil resting upon heated rubble or chambers, the old mulching and quite half the border, roots included, may be cleared away to make room for a thin layer of fresh turfy compost somewhat heavier than that in which they have been grown through the winter. Into this fresh young roots will soon find their way, especially if a few fermenting leaves be used as a moisture-producing and fire-heat economising medium. New rough turf, charcoal, crushed bones, old plaster, and the like should be added little and often as required, and the Cucumber being such a rapid grower, the supply of thoroughly warm diluted liquid must be on a very liberal scale. Another great advantage after May is out is lowering the trellis to an extent that will set every leaf quite clear of the glass, when, other conditions being right, shading in the brightest weather will hardly be necessary. When free growth has set in the usual mode of early morning ventilation may be resumed, but all openings should be closed about 3.30 for the afternoon syringing at any temperature ranging from 80° to 100°. Many consumers have an idea that one Cucumber is as good as another, but in this matter they are greatly mistaken, as fruits slowly grown are tough, flat, and bitter, whilst others of the same variety rushed on in a high tropical temperature and cut before they are full size are sweet and tender.

The frame ground.—When manure is plentiful, and good frames or pits are well managed, a large summer supply from this time forward should be forthcoming. A single hot-water pipe running along the front no doubt is a great help, and will soon pay for the trifling outlay; but, independently of this aid, an abundance of clean straight fruit may be obtained by regular attention to the linings and external covering. The best pits are built of brick upon the pigeon-hole principle, with convenience for front and back linings, and deep enough to allow the fruit to hang below the trellis. Plants in 16-inch pots placed upon a few sods of rough turf banked up along the front and well fed will continue fertile and healthy throughout the summer, indeed, once the roots find their way into the sods kept warm by the front lining, the crops in proportion to vine and foliage are quite equal to the produce of the most perfect houses. Lacking pots and sods for keeping the vines close up to the trellis, 12-inch glazed pipes set on end right along the centre and filled with the roughest of compost will answer equally well, the main point being a brisk moist heat forced through the pigeon-holes from good linings. Telegraph is now the favourite variety, but those who would have the finest fruit for eating or exhibition should grow a good black-spined sort throughout the summer.

Frames in which Potatoes and other forced vegetables have been grown should be cleansed and planted as they become vacant. A steady bottom-heat being essential to a satisfactory start, the soil should be turned off the centre, when a narrow trench taken out and refilled with a little hot manure or leaves and supplemented by external linings will soon revive fermentation to an extent that will give new life to the bed for the remainder of the season. If the old soil is dry, but otherwise suitable, we sometimes give it a good moistening with warm liquid and turn it back again, using a very small quantity of fresh turf and leaf mould about the balls at the time of planting. As frames treated in this way do best in good seasons the plants should be put out thinly, and the young growths will require frequent stopping to prevent crowding and canker in adverse weather. When the plants have partly filled the frame and begin to show fruit, each flower should be impregnated about noon on fine days, but all must not be retained to swell to maturity. If fly is troublesome, fumigate very lightly, or syringe with a decoction of Quassia wood, give air early on bright mornings, manipulate early in the afternoon, and shut up with plenty of moisture through the syringe not later than 3.30. If the summer prove extra fine and warm the plants will take water at least twice a week, not cold and in dribbles, but in copious overhead showers through a fine-rosed can and at a temperature of 80° to 90°.

STRAWBERRIES IN POTS.

Once more the forcing of this delicious, but rather expensive fruit is drawing to a close, at least for this season, and hardly will the pots be washed and dry before they are again wanted for use. One batch, probably the most valuable of all, including British Queen, Paxton, Dr. Hogg, and other late sorts, it is true, is still on hand, but the produce being intended to lead up to early varieties from the open air, retarding may be of more importance than forcing. The old British Queen, as yet unsurpassed in point of flavour and appearance, sets best in a light, airy house, but this end secured, the fruit will swell in any well-ventilated structure without the aid of fire-heat. In order to have fine berries, averaging 1 oz. each, the trusses should be well thinned and tied up to sticks, if not before, certainly as soon as they are out of flower, and watering being a heavy item, the pots may be placed in saucers until the fruit begins to change for ripening. Good diluted liquid once or twice a day will now be necessary, but the saucers should be allowed to get moderately dry occasionally, otherwise the liquid will become stagnant and putrid and destroy the crock roots. The syringe, too, must be most vigorously plied to prevent the spread of spider, and to produce genial swelling moisture after the house is closed with solar heat. If retarding is found necessary, the pots should be carefully removed to a cool, airy structure before the fruit is quite ripe, and if the roots are regularly supplied with pure water, not only will the Strawberries keep for some time, but the quality will be equal to that of the best Queens and superior to that of ordinary early sorts from the open air. Dr. Hogg and Sir Joseph Paxton are worthy of similar treatment, but the latter being so thoroughly hardy, perfect fruit can be obtained from plants plunged or planted out in brick pits and frames.

If late plants still occupy shelves in Peach houses or vineries, not a day should be lost in getting them removed to quarters where the pots can have a cool, moist foot-hold, and the fruit full exposure to the sun. All shelves should then be cleansed with soap and water, the walls washed with quicklime and sulphur, and, where practicable, the permanent occupants copiously syringed to break up colonies of spider. Having directed attention to the planting of forced plants for an autumn supply of fruit, I may simply say now is the time to place them where they are to remain. Freedom from mildew and insects, firm planting, good mulching, and copious watering are the main factors in the management of these plants. If young plants put out last August, and intended to give the annual supply

of runners for forcing and bedding, have been divested of all their flower-scapes, the fine rains of the past month will have forced forward an abundance of vigorous wires. As these should be dealt with before the premier runners root into the bed, clean pots and good compost must be prepared without delay. Whether 3-inch or larger pots be used matters little, provided they are clean and dry, and the compost, also dry enough to stand any amount of ramming without becoming pasty, is sufficiently rich and strong to grow them without the aid of much solid manure. Where heavy calcareous loam cannot be obtained, less suitable light soils may be improved by the addition of good manure free from worms, and dry, finely-pounded marl or clay. Old lime rubble, pounded oyster-shells, and bone-dust also may be used not only as correctives, but as necessary ingredients, and the longer artificial composts of this kind lie in bulk the better they will be.

Changing plants.—The Strawberry being so generally grown in every garden, no one experiences much difficulty in obtaining an abundant supply of runners; but Strawberries, like other plants, in due course deteriorate or become soil-sick. High culture under the three years system in different parts of the garden is a saving clause, but, independently of this, it is not only a step in the right direction, but also a mutual advantage, to make an occasional exchange with friends living in distant parts of the country. Runners so obtained need not be potted up at once for forcing, but a few rows put out, say in August, will give fresh blood the following year. If anyone doubt this, let him mark the falling off in Vicomtesse Héricart de Thury, only a few years ago the most favoured forcing Strawberry, but now generally voted a failure by many experienced gardeners.

HARDY FRUITS.

If the sanguine reports which have been published prove correct, the fruit crop this year will be one of the best on record, and, contrary to my own experience, the trees will be none the worse for an unprecedented attack of grub and blight and imperfect ripening. Bush fruits with us are very promising. Cherries and Plums have produced a great deal of blossom apparently perfect, and being free from aphids the set no doubt will be satisfactory. Of Peaches and Nectarines we have a very fair crop, and the fruit upon a few trees will require a little thinning, but taken collectively the yield from all our trees will be lighter than it has been for some years past. The trees, fortunately, are clean; in fact, I never saw them so free from aphids, and the young growths, kind and healthy, are now past danger. Pears flowered in an irregular way, the blossom upon some being abundant, upon others very partial, and upon not a few a complete failure. The weather at the time they were in flower was all that one could wish, but the set is very thin indeed, and grub is plentiful. Apples, our most important crop in this locality, are far from satisfactory even in gardens; blossom, it is true, was plentiful enough, but nine-tenths of the flowers were small, imperfect, and fell within twenty-four hours after they expanded. Our orchards are now in full leaf, but blossom is scarce and the reverse of promising. A great number of large standards of Blenheim Orange and other good sorts, which bore plenty of fruit last year, at the present time are barren, or nearly so; but then we are on a cold limestone marl, and may be much worse off than our neighbours on the sandstone. Our best and most promising trees are bushes and cordons on the Doucin stock, and it is to these that we must look for our supply of good Apples. Strawberries are throwing up fair trusses of bloom, also more foliage than I like, as invariably happens when the crowns are imperfectly ripened. Not very long ago a correspondent expressed an opinion that I had penned a doleful report of our fruit prospects, but as yet, I am sorry to say, I cannot amend it. Indeed, if my experience goes for anything, I may safely say I never knew a really good fruit year when the season was unusually late, and Apples were in full leaf before there was any

sign of a bold bright blossom. Fruit trees in this locality are not exceptional, for the common *Rhododendron ponticum*, and a great number of ornamental trees and shrubs are equally shy, although the foliage is unusually bright and beautiful. Readers may accept these remarks for just what they are worth, and if I am wrong, or this is the only locality which is under a cloud and the bright reports from other parts of the country are not overdrawn, why little harm is done, as this small vacuum will easily be filled by the surrounding abundance. Grub, I learn from Worcestershire, is plentiful in gardens, but gentlemen who have given the grease smear a fair trial report a great falling off in their orchards. This being so, some good may be registered as the outcome of one of the worst years on record, the devastating creepers and loopers which stripped thousands of trees of every leaf having done quite as much harm as the cold, wet, sunless summer.

The fine and sometimes heavy rains we had throughout May—on the whole a genial month—having well cleansed fruit trees generally and set at rest all doubts as to the moist condition of the roots, the fruit grower may give his undivided attention to the manipulation of the shoots, thinning, and mulching.

APRICOTS, universally admitted as partial, will still require hand-picking to free them from late brood; also the superfluous shoots must be kept closely pinched, whilst those intended for furnishing must be closely nailed in full length. As Apricots so frequently set their fruit in clusters, the final thinning to ensure full development and good form should now be made, and, provided the trees are fairly cropped, a further supply of fresh stable litter may be added to the wall path. This I have found answers better than solid manure, the advantages being a greater degree of surface warmth in the border, the retention of moisture, a stream of health-giving ammonia, and last, but not least, a clean foothold in all weathers.

PEACHES.—All trees but sparsely fruited must be closely watched and judiciously pinched to prevent the young wood from getting too strong. It is very easy to disbud a tree to a single growth, but gradual reduction and final removal are preferable, especially when the season favours a quick and extra robust growth from gross and not over-ripe wood of the past year. Heeling in with matting and tacking with shreds will require careful attention, as the future form of the tree depends upon the neat way in which the young shoots are trained. Pegging with some is a favourite mode of disposing of the young shoots, but as yet I have not discovered a single point in its favour, for certainly it is not neat; it does not train the shoots in the way we wish them to go, neither does it save time, but very often a little too much pressure chafes, presses, and bruises the tender young shoots and they are ruined, if canker does not follow. Here, as upon the Apricot wall, the finger and thumb should play an important part in maintaining the proper balance of the tree, as gross shoots may be pinched and repinched until their weaker neighbours have got the lead. It is too generally the practice to commence all shoot and leaf operations at the base of the tree, but this is quite wrong; the top and extremities should be taken first, then the breast, and finally the lower parts, especially of standards, whose base branches are pendent, or barely above the level of the union. Cleanliness and freedom from insects amongst Peaches, of course, are imperative; consequently pure water or insecticides must be used; but unless absolutely necessary, the application of large quantities to roots wet enough and shoots if anything too strong for the present should be avoided. In years gone by we have been obliged to lay on the hose in May, but our borders just now are full of genial soft water from the clouds, and this we wish to retain by weekly additions of fresh stable litter in increasing folds as the sun gains power. An occasional washing with tepid water through the engine is essential to the health of perfectly clean trees, and this at least twice a week for the present should form part of the curriculum.

PEARS AND PLUMS upon walls may now have all

their strongest growths shortened back to within three or four eyes of the base, and those retained for furnishing should be tacked in before they get injured by wind and rain. Plums may be thinned, but Pears, where this process is necessary, may stand over for the present. Bushes, pyramids, and standards, whose heads are within reach, may be treated in the same way, pinching and depression being favourable to the inlet of light and air and the destruction of aphids. As this work is performed the trees should be well washed with pure water to cleanse the fruit and leaves, or fly being troublesome a good drenching with soapsuds may precede the cleansing bath. The same remarks apply to Cherries, so far highly satisfactory, but in all cases, although aphids may not be perceptible, a good preventive dose of soapsuds will do good service, always provided pure water be used for cleansing the fruit before it begins to change for ripening. The breastwood upon sweet Cherries may now be pinched back to two or three joints, but side shoots should be laid in full length wherever there is room for them. An even spread of foliage is a great protection to the fruit, and the retention of a reasonable number of young shoots, whilst carrying off superfluous sap, is one of the best preventives of gumming, so prevalent amongst strong growing trees on cold rich soils.

MORELLOS must be kept clean and free from black aphid at any cost, either by washing with soapsuds or dipping the infested points of the shoots in weak tobacco water. If the attack is slight and the enemy is taken in time, dipping first and washing afterwards generally produce the desired result, especially where, contrary to the prevailing custom, the fruit is thinned and the borders are well covered with ammonia-laden litter. Trees on warm, light soils will stand and repay by stronger growth good solid mulches of rich manure, but here, where our greatest difficulty is rampant growth, this mode of stimulating the roots would prove fatal, as we could not keep the trees within bounds and in fruiting condition.

STRAWBERRIES AND RASPBERRIES are now safe from drought for some time to come, but an enemy in the slug this year with us is unusually strong. The foliage and trusses being extra strong, we purpose placing three or four sticks to each stool and running a band of matting round just high enough to support the fruit. The work may be considered tedious, but really it is not so, and once finished we are free from attacks of vermin and loss from damping in wet weather. If not already done, the young suckers in Raspberry quarters should be well thinned to about four or five, and those naturally the strongest and best from each stool. If stock be wanted, those which start further away from home may be retained, but otherwise they may be hoed or pulled up, as superfluous growths rob the ground and impede the circulation of air.

VINES against walls are late and the reverse of promising, but this defect must not be an excuse for neglect, as we never know what brilliant weather we may have for ripening up well-managed growths. The young shoots in all cases should be stopped at the first joint beyond the fruit, closely nailed or tied in to the wall, and every lateral pinched at the first leaf to prevent waste of force and overcrowding. Outdoor Vines for some years past have been a failure, but owners of these graceful trees too often court disappointment by neglect.

W. C.

Strawberries.—The bloom on plants everywhere seems to excel in abundance all previous records, and unless there be wholesale thinning there seems to be no doubt but that after the first few fine fruits are gathered the bulk will be small. Not that the bloom indicates lack of strength; I am rather thinking of the impossibility of the plants ripening such a wealth of fruits if all the bloom sets. It is worthy of note that because of the abundant rains we have had from time to time, and especially during the month of April, the roots of the plants have gone deep and the foliage is strong and plentiful. Still a big crop of fruit taxes the energies of

the best plants, and only where they are young and the soil deeply worked, very holding, and well manured can later fine samples be looked for. The Strawberry breadths are not so late relatively as were tree fruits, whilst the great heat of the recent weeks has set the bloom in the most profuse fashion; therefore we shall have outdoor fruits plentiful enough in the proper season. A novel method of getting fruits ten to twelve days earlier was adopted by a neighbour of mine who grows for shops and who planted up a quantity of stout young plants last autumn into a turf pit and protected partly with glass and partly with stout calico covers. The result seems to have been very successful, as the plants are abundantly set with fine fruit, and he will gather ere the fruits outdoors are showing colour.—A. D.

MILDEW IN VINERIES.

MR. BARKER, on page 309, alludes to a subject which causes much mischief in vineries, and is often a source of annoyance to those in charge. Especially to amateur cultivators of Grapes is mildew troublesome, and, as Mr. Barker says, and rightly, too, the method of giving air has much to do with the introduction of this pest. Where mildew is troublesome to Grape growers, in some instances I think its introduction may be traced to faulty methods of ventilation. Then, again, the position in which the vineries are placed has much to do with the spread of mildew. In some positions air may be given freely both at the top and through the front ventilators, and no harm will occur to the Vines, but in other positions air, even in the smallest degree, cannot be given to the Vines through the front ventilators until July without running the risk of having an attack of mildew. When once the berries are affected by this pest, they may as well be cut off if much disfigured, as the skin always shows traces of the mildew, and when badly attacked in a young state, say directly after thinning has been done, the skin is so injured that expansion does not regularly take place and it cracks. Mildew may be killed, but its traces are always left behind.

The worst case of mildew in vineries that I have seen occurred a few years since. The house planted with late varieties was situated at the end of three, all facing south, the vinery in question being at the east, from which there was no protection in the shape of trees to ward off the wind. The position was also high and the effects of east and north-easterly winds were much felt. During the month of April, when the Vines were in bloom, a strong gale of wind, accompanied with hot sun, blew from the east for a week. Air was freely given both at the top and bottom ventilators, causing a direct draught. At the time when the berries were thinned, a few specks of mildew were noticed on the footstalks, but nothing was done to prevent the spread of the fungus. After stoning was completed, the mildew spread so quickly that the whole crop of Grapes was practically worthless. Sulphur was applied to the pipes when hot at night and the house kept closed all night. No harm accrued to the Vines, but the mildew had got such a firm hold on the Vines that it could not be stopped, and the crop was so entirely spoiled that the bunches were cut off. I advised the painting of the rods of the Vines their entire length, and continual applications of sulphur to the pipes when hot. Strong retentive soil, which is always colder in spring than that of a lighter character, also favours the spread of mildew, as it did in the case in question. The year following, some signs of mildew appeared on a few of the bunches, Trebbiano being the worst affected. The rods were again thickly coated with sulphur directly the bunches were thinned. This was yearly continued, the rods being also painted in winter, and now the Vines are quite free from mildew. The method of giving air was altered, none being allowed to pass through the front of the house until the Grapes began to colour. The same treatment is now annually adopted, with the result that good Grapes are produced, and which colour well in spite of the fact that air is never admitted

through the ventilators at the front of the house until colouring has commenced. A. B.

Squirrels as pests.—The gamekeepers here are paid so much per head for destroying all kinds of pests. Some years ago they received 6d. each for squirrels, and they soon reduced them until they were a rarity; then the remuneration ceased and the squirrels increased again, until at the present time they abound everywhere. Although some people may admire their agility and gracefulness, they are when numerous great pests. Their disposition to steal fruit is well known. They are most partial to stone fruit, and we frequently catch them in the act of conveying Peaches, Plums, Apricots and such like over the wall. Perhaps the greatest damage they are guilty of is that which they inflict on trees. There are some noble specimens of Horse Chestnuts here, but hardly one of them will produce a flower this season, as the squirrels have destroyed them before they were well formed, and the young growths are otherwise disfigured. Some of the young Pines, valuable sorts, too, have had the points of the leaders eaten out, and many of them will bear permanent marks of their depredations. It is evident that we will have to again resort to the destruction of the squirrels.—J. MUIR, *Margam*.

FERNS.

PSOMIOCARPA APIIFOLIA.

THIS is a very pretty, but rare Fern, and one that I have never seen alive but once, and this was in the nursery of the Messrs. Veitch and Sons, of Chelsea, in 1863. Since, however, the Philippine Islands are now receiving so much attention in the search for Orchids, some of the collectors could perhaps send it home to us, for it was in the Isle of Luzon that the plant was found by the late Mr. John Gould Veitch. The plant in question, which was growing and fruiting in the Messrs. Veitch's nursery, was from Mr. John Veitch's introduction, but whether from an imported root or from home-sown spores I am unable to say, but the specimens now before me are from the plant above referred to. It is a somewhat peculiar Fern, having much the appearance of an Anemia in a barren condition. In the example before me the frond is about 4 inches long and nearly 3 inches broad. The stem and rachis are densely clothed with long ferrugineous hairs, and the colour of the frond is a light and cheerful green. The fertile frond is taller than the barren one. In the specimen before me it is quite 5 inches high, slender, and perfectly smooth. Although less compound, this fertile state of the plant much resembles that of *Stenosemia aurita*, another Philippine Island Fern which belongs to the same section (*Acrosticha*). The plant in question is named *Acrostichum apiifolium* by Hooker, *Polybotrya apiifolia* of J. Smith, and *Psomiocarpa apiifolia* of Presl in 1849, this last, to my mind, being the most appropriate.

Psomiocarpa apiifolia is a pretty dwarf Fern when growing, and, I believe, attains to larger dimensions than those given here, but I do not think it exceeds a foot in height at any time. It is a plant which, I trust, some of the travellers to the Philippines will send us home in a living state. By the way, there are other kinds of Ferns in these islands which, now that these plants are again coming to the front, would amply repay the cost of collecting and introducing into cultivation. W. H. G.

SHORT NOTES.—FERNS.

Name wanted (*P. Inghald, Huld*).—The specimen received I cannot determine, unless seen in a

fertile state. It is certainly neither a *Davallia* nor an *Aspidium*; it may be a *Lastrea*, and I fancy I have seen the species before. When fertile please send me a specimen, as it cannot be correctly named until that time.—W. H. G.

Insects amongst Ferns.—Will you oblige me by naming the enclosed insect? It is amongst the *Adiantum* Ferns in the vinery.—JOHN RICKARDS.

* * The beetle you find among your Ferns is the black vine weevil (*Otiorynchus sulcatus*). It is a most destructive pest, as it eats the foliage and young shoots of Ferns, Vines, and many other plants. Its grubs live on the roots of Primulas, Ferns, Cyclamens, Strawberry, and various other soft-rooted plants. The weevils feed only at night, and should be searched for soon after it becomes dark. They may be shaken off on to a white sheet, or sheets may be spread under the plants during the day, and then when quite dark, if a light be suddenly thrown on the plants, the weevils will often fall off. Small bundles of dry Moss or hay tied round the stems of your Vines or laid in the Fern pots might be useful as traps, as the weevils like such places to hide in during the day.—G. S. S.

HARDY FERNS.

ONE sometimes sees an attempt made to cultivate on so-called rockeries the smaller species of hardy Ferns, but the result is not always satisfactory. It may interest some of your readers to know of the entire success of an experiment in this direction I made some years ago. In one part of my garden there is an old and disused chalk pit which is entered by means of a narrow passage cut through the rising ground in which it occurs. To keep the earth from falling down, a rough and nearly perpendicular wall was built on each side of the passage with rough flint stones, and in the interstices of this wall I have been able to establish and grow successfully a large number of the more interesting of our hardy rock-loving Ferns, both British and exotic. Within the space of a few yards I have now growing and flourishing the following species:—

<i>Asplenium</i>	<i>Adiantum-nigrum</i>	<i>Cystopteris tenuis montana</i>
<i>fontanum</i>		<i>Woodsia alpina ilvensis</i>
<i>germanicum</i>		<i>obtusum</i>
<i>Ruta-muraria</i>		<i>polystichoides Veitchii</i>
<i>septentrionale</i>		<i>Polypodium vulgare</i>
<i>Trichomanes viride</i>		„ <i>cambricum</i>
<i>Ceterach officinarum</i>		„ <i>Whytei</i>
<i>Cystopteris alpina fragilis</i>		<i>Phegopteris Dryopteris calcareum</i>
„ the American form		<i>Scolopendrium vulgare</i>
var. <i>Dickeana</i>		(many varieties)
<i>bulbifera</i>		

With them I grow the alpine Primulas, *Primula viscosa*, *P. marginata*, *P. Auricula*, &c., also *Erinus alpinus*, which is seeding all over the wall and when in flower is a perfect picture; some of the smaller Campanulas, Edelweiss, Saxifrages, Sedums, *Sempervivums*, &c. There is no part of my garden which is so interesting nor which contains in so small a space so many different plants. Many of these things will not grow on the flat, but planted in this manner seem almost as much at home as in their native haunts. The all-important thing is to see that there is plenty of good rich soil at the back of the stones, and that no vacant spaces are left behind them. For Ferns to be grown successfully it is of course necessary that the situation should be sufficiently moist and shady. I would strongly advise anyone who has the opportunity of doing so to make a similar experiment to that which I have described.

One of your correspondents in a recent issue of THE GARDEN expresses a doubt whether *Primula rosea* is perfectly hardy. It appears to be quite so here. I have had it growing out of doors for some years. I find that it does best in a very damp situation. May I ask if any of your readers have tried to grow *Ranunculus glacialis*? I never could succeed with it until I tried to imitate as nearly as

I could the conditions under which it grows naturally, but when I gave up coddling it and planted it in a cold, wet sandy bog, it began to thrive immediately. F. W. HARMER.

Oakland House, Cringleford, Norwich.

GARDEN FLORA.

PLATE 703.

CHINESE CATCHFLIES.

(WITH A COLOURED PLATE OF LYCHNIS HAAGEANA.*)

ADVOCATES of the stereotyped bedding system are always ready to challenge the production of hardy plants that will give the same effect as *Geraniums*, *Ageratums*, &c., but we never hear of them giving some of our treasures a fair trial. There are dozens of plants, faultless in habit and profuseness of flower, quite capable of meeting these demands. Amongst the number we would draw attention to the one of which the present plate is a fair representation. We have every confidence that these hardy plants, if properly handled and liberally treated, would more than answer the purposes required by ordinary bedding. Hardy plants would not require the annual dismantling we see our *Geraniums* subjected to almost before they have filled their allotted space, and amongst the varieties of *Lychnis* we have now such vivid and varied colours as to represent all the leading types of *Geranium* flowers. Apart from their use as bedders, however, they make handsome clumps both for the rockery and flower border, the great beauty and duration of their flowers rendering them objects of admiration for at least four out of the twelve months. They are very easily managed, and can be increased almost to any extent by division. They can also be raised from seed with the chance of adding to the varieties already in our possession. Their cultivation is comparatively easy, and they may be treated in the ordinary way. They are useful in shady cool spots where the *Geranium* would be at a discount.

L. FULGENS, which is taken as the type of this group, is a really charming plant, producing its large vermilion flowers in the greatest abundance. It makes a handsome border or rock plant, and we have never had any trouble on account of its reputed tenderness. It is a native of *Dahuria*, and is synonymous with *L. Sieboldi* of the "Flores des Serres," tab. 980, and introduced to gardens in 1822.

L. GRANDIFLORA OR *CORONATA* is one of the oldest cultivated plants of this group, it having been introduced by John Fothergill, M.D., in 1774. In the text to the plate in *Botanical Magazine*, tab. 223, the following statement occurs: "Persons here differ in their mode of cultivating this species of *Lychnis*, some treating it as a stove, others as a greenhouse, and others as a hardy herbaceous plant. The last plan is to be preferred, provided care be taken to plant it in a sheltered situation and to guard it against the inclemency of particular seasons." These plants must have vastly improved since their introduction, both in colour, form, and habit, as we read at the above plate, "The rich and elegant blossoms of this Chinese or Japanese beauty possess a flatness and stiffness which give them an artificial air to which their colour, which is exactly that of common red lead, may perhaps somewhat contribute." *Sieboldi*, *Sembo*, &c., are similar in habit and variable in shade of colour.

* Drawn for THE GARDEN by H. G. Moon in Sir Herbert Maxwell's garden, July 20, 1888. Lithographed and printed by Guillaume Severeyns.



LE. HIN. KAR. P. 111.

L. HAAGEANA, the subject of this week's coloured illustration, is a reputed hybrid between *L. fulgens* and *L. coronata* or *grandiflora*, as it is usually called in gardens. It is one of the most lovely of this extremely valuable group of border plants, and an excellent substitute for the *Pelargonium*. The flowers come as near to perfection both in beauty and duration as those of any plant I can at present call to mind. The group includes *Bungeana*, *Senno*, *grandiflora*, and *fulgens*, which is usually taken as the type, and the others placed as really good garden forms. Some authors give them a specific rank, and as they are really distinct it saves confusion to use the specific names under which they have all been widely distributed. Of all those mentioned above, however, none are more desirable than *L. Haageana*, as in itself it is extremely variable, affording nearly every shade of colour, from the brightest scarlet to pure white. The flowers are large, of good substance, and produced in the greatest profusion all through the summer months; indeed, as a permanent bedder we have rarely seen its equal. Where it can be managed, a partially shady spot should be chosen for the most brilliantly coloured forms, as the flowers fade somewhat when exposed to bright sunshine. Apart from this they will be found to grow more strongly, and continue longer in beauty in a partially shady or cool spot. The plants vary in height and compactness very considerably, and this should be taken into account when choosing for permanent bedding use. The variety called *hybrida* is a veritable gem, dwarf, compact, and giving such an abundance of prettily fringed, vivid scarlet flowers as almost to defy description. The colours seem fixed, and we have now good distinct scarlet, crimson, pink, salmon, and several white forms, all worthy of attention, and perfectly suitable as substitutes for *Geraniums* in summer bedding. They can be increased with the greatest ease either by cuttings, division, or when in quest of new forms by seed, which is best sown as soon as ripe in boxes and placed in a cold frame. The seedlings by the end of May will be ready to plant in their permanent quarters. Although perfectly hardy in dry or sandy soils, *L. Haageana* and its numerous forms often suffer through excessive moisture and cold combined, and this should always be taken into consideration when planting. They may almost be treated as annuals or biennials, this applying especially to heavy retentive soils, where the hopes of their living through an ordinarily severe winter in northern counties will be very limited indeed. In the neighbourhood of London they give very little trouble, and are a source of much enjoyment. They are said to be of garden origin. D. K.

Ixias in flower.—*Ixias* form exceedingly attractive objects in the greenhouse at this season, their large and in many cases brightly coloured flowers being borne on tall wire-like stems, which at a little distance are almost invisible, so that the flowers appear to be suspended in mid-air. The bulbs are very moderate in price, and they are by no means difficult to cultivate, or at all events to flower well the first year, for, like *Tulips* and many other subjects, freshly imported bulbs will flower under anything like favourable conditions, though they may not do so well the next season. The principal consideration is to see that they do not get neglected when the flowering season is over. Pots 5 inches in diameter are very suitable for the *Ixias*, and in each one half a dozen bulbs may be put. Good drainage is very necessary, and a suitable soil is composed of good sandy loam, lightened if too heavy by an addition of silver sand and leaf-mould. The different *Ixias* are largely grown in the Channel Islands, and are imported into this country during the winter months, when they

should be at once potted at such a depth that the upper part of the bulb is well below the surface of the soil, when if given ordinary greenhouse treatment, i.e., just kept clear of frost, they will bloom well. After flowering water should be gradually withheld till they go naturally to rest. In the open ground a thoroughly drained sheltered border is essential to their well-doing.—H. P.

KITCHEN GARDEN.

LOW PRICES FOR GARDEN PRODUCE.

ONE of the principal results of the influx of so many private gardeners into the ranks of market growers is a great lowering of prices all round. The consumer is to be congratulated upon the abundance and cheapness of garden produce that is generally offered for sale, but those who are behind the scenes are only too well aware what an unthankful lot has befallen the private gardener who is supposed to realise a considerable sum annually for so-called surplus produce, and yet keep the family well supplied as before. If the owners were content with the price of anything not wanted by them, or, in other words, if there was no real necessity to grow specially for the markets, no fault could be found with the system. Less than twenty-five years ago comparatively few private places marketed their surplus fruit, flowers, and vegetables, but now the majority are doing it, the consequence being a lot of work and worry for the gardener, and which, in most instances, brings no real benefit to the owner. Every attempt is made to grow extra quantities of what can be sold to the best advantage, and as this from first to last entails much extra labour, other important work has perforce to be neglected. The sums actually realised for large quantities of garden produce are really trifling, and if a fair balance could be struck it would be found that the produce costs very much more than it is worth. When I have previously expressed this conviction, the question has been put to me, How is it that market gardeners get on so well? They must make it pay well. There is no doubt many of them have realised fortunes, and others are still doing so; but compared with market growers, private gardeners are badly handicapped. The former have a clear course—that is to say, are not fettered by numerous restrictions; they can grow what they like, are invariably located within easy distance of good markets, and can clear off large breadths of ground rapidly. The private gardener is called upon to maintain a long succession of various vegetables and fruits, and a great variety of other necessary, but as a rule unsaleable, produce has to be found room for. If the private gardener attempts to market early vegetables he soon finds that the growers in Cornwall, including the Isles of Scilly, and not unfrequently still further distant Continental competitors, are underselling him, as they can afford to do, and yet obtain remunerative prices. Then, as far as later crops of Potatoes, Carrots, Beans, Turnips, and salading are concerned, these are not unfrequently quite unsaleable, unless hawked about from door to door. In some seasons Broccoli sells well in April and May, but this year it is most abundant, and as a consequence only the best can be got rid of at about 9d. per dozen. Good early spring Cabbages sold well for a fortnight, but at the present time I know there are a dozen large breadths in this neighbourhood spoiling on the ground. They cannot be sold in the district, and it does not pay to send them to other towns. Spinach there is no demand for and much of it will be dug in, and even Asparagus soon dropped

from 8d. per bundle of fifty heads to half that price. Many thought Lettuces would be scarce, and those who had plenty would do well with them accordingly. Already, however, they are being carried from door to door by persevering cottagers, and the prices are low. Up to the present spring Cucumbers always sold well hereabouts, but early in May the markets of all the towns in the district were glutted with them, and large quantities have been spoilt. Instead of 5s. per dozen being allowed for good samples, they could hardly be got rid of for 3s. 6d. per "baker's dozen." Tomatoes are not yet plentiful, but the prices are low.

If it was our district (I am writing within easy distance of Bath and Bristol) which only is affected, there would be less excuse for giving the foregoing depressing details, but I have good reason for asserting that prices are very low everywhere, the same kind of struggle going on wherever inquiries are made. The sooner, therefore, employers fully realise how little comparatively can be made of their surplus produce the better it will be for those who serve them. If they are kept well supplied with all they require from the garden, and perhaps the seed, plant and manure bills paid, or it may be in some cases all ordinary outlay other than the wages, from the proceeds of sales, not much more ought to be expected. At any rate it is quite useless to anticipate making a garden profitable or even self-supporting, and if circumstances necessitate economy, some other method of effecting this must be devised. Personally, I would much prefer to manage a place with fewer hands than formerly than retain all and with their help have to clear as much as their wages amount to with garden produce. Only a few years ago I would not have advised reducing hands as being the most satisfactory means of economy both for master and gardener, but the state of the markets brought about by keen competition has completely cured me of any ideas, as to the possibility of making a garden pay its way, I might once have held.

It does not follow that nothing should be sold from a garden. On the contrary, I would much prefer to market anything perishable in the way of vegetables or fruit rather than spoil it, this practice being both praiseworthy and time-honoured, but making a business of it is quite another matter. Nothing has a more demoralising effect on the private gardener than having to attempt effecting as much as he formerly did and yet do his best to imitate market growers, and it is very certain the revolution necessary is not always to the advantage of the owner. One of the first discoveries made by a gardener who studies the markets is the fact that only the best of everything is wanted, and the question is, Shall this go to the markets or shops, or must the employer have it as before? If the employer is content to utilise what will not sell readily, well and good; but if not, then it is bad for the gardener, always supposing the employer insists upon having his or her "pound of flesh" in the shape of profits from the garden. Where so many owners of gardens err is in imagining the same prices can be obtained for surplus produce, or any prepared especially for sale, as they have to give should they order any from a greengrocer. In very many instances they are charged 50 per cent. more than the producers obtain for their fruit, flowers, or vegetables, as the case may be, and the growers, as I have previously pointed out, have also to face the contingency of not being able to sell some of their crops at any price. In numerous gardens everything sent by the gardener to either the town or country house is charged for at the market rate given in

the gardening periodicals. Naturally the retail, not the wholesale, rate is charged, and rightly so, I hold; but it must not be thought that because an owner has decided to discontinue having bi-weekly hampers from his country-seat, the gardener in charge can make the same price for them at home. The latter, as I have shown, is impossible, and those who fancy it is to their advantage to buy what they require in town and sell what is grown in their own gardens, will soon realise that this new and by no means imaginary practice is the reverse of economical. The foregoing, I would add, deals more especially with the commoner kinds of fruit and vegetables generally, but it is doubtful if a fair review of the state of the markets for choicer fruit and flowers would prove very encouraging to any contemplating growing these for sale.

W. IGGULDEN.

CULTURE OF THE BROCCOLI.

THIS well-known and highly esteemed vegetable is not so hardy as many other forms of the Cabbage family. Within the last dozen years many excellent varieties have been introduced into commerce, with the result that in many cases it is very difficult to distinguish between some of the new Broccoli and Cauliflowers. Broccoli may now be had nearly all the year round in the south by growing a selection of varieties.

SOWING THE SEED.—It will be advisable to make two small sowings of the several varieties grown by each cultivator, one in the middle of April and the other three or four weeks later. The ground, having been previously dug, should be trodden over when the soil is dry enough not to stick to the feet, the seed sown thinly, and covered with soil to the thickness of half an inch. A piece of garden netting, supported by a few forked sticks, should then be put over the beds to protect the seed from the ravages of birds, the most troublesome of which are the chaffinches. Should the soil be moderately dry at the time of seed-sowing, water should be given through a rose in sufficient quantity to moisten the soil, and afterwards, as occasion may render its application necessary, until the seedlings appear.

PRICKING OUT THE YOUNG PLANTS.—As soon as the young plants are large enough and before they become crowded in the seed-beds, they should be pricked out in rows or beds at 6 inches apart, putting the plants down to the bottom leaves in the ground, making the soil firm about the roots, and giving water to settle the soil about them. Plants of all the Brassica tribe, Lettuces, &c., are too frequently allowed to remain too long in the seed and nursery beds, with the natural result that they become "drawn." If a little shading be afforded to the young plants from sunshine for a few days after they are pricked out, it will greatly facilitate root-action.

TRANSPLANTING.—The plants should, as already stated, be finally transplanted before they get crowded in the nursery beds. The early varieties, those which are fit for cutting in September, October, and November, should be planted in drills 3 inches deep and 2 feet apart, and at the same distance from plant to plant in the row, putting the plants down to their bottom leaves. Strong-growing varieties may with advantage be given 6 inches more room every way. The winter and spring Broccoli should, as already stated, be planted in hard undug ground where practicable, and in holes made with the crowbar. But the plants should have their roots dipped into a "puddle" made of clay sufficiently thick to adhere to them, and into which a double handful of fresh soot should be stirred prior to dipping. This will render the roots and the soil about them distasteful to the attacks of the grub or larvæ of the crane-fly, or daddy-longlegs (*Tipula oleracea*), which sometimes work havoc among the plants. If the weather should be dry at planting time, with no immediate prospect of rain, the plants should be well watered at the roots an hour or two before taking them up, and in order to take them up with a little soil attached

to the roots, the ground should be loosened about them with a fork.

If the plants are set out in their final positions in showery weather they will experience very little check in the process of transplantation. But in the event of the work having to be done during a spell of dry, warm weather, the plants should be watered at the roots when put out, and afterwards every second or third day until they have become established, after which, if the soil should be of a stiff and consequently retentive nature, they will not require any further supplies of water. In due time the plants should have a little soil drawn up to them on either side, and be kept free from weeds.

SOIL.—The Broccoli delights in a good loamy soil resting on a gravelly subsoil, and inclining to be heavy rather than light. For the growth of plants heading in during September, October, and November the best possible results will be secured by deeply digging and liberally manuring the ground prior to planting. But for plants which have to remain in the ground and to withstand the effects of severe weather during the winter and early spring months the case is quite different, because if the ground be too loose and wet, the plants would make a too luxuriant and sappy growth, which would, therefore, succumb to severe frost. On this account all mid-winter and late Broccoli plants should be grown in hard ground, which has not recently had manure applied to it, such, for instance, as that from which the Pea crop or old Strawberry plants had been taken, the plants being let well down to the bottom leaves in holes made with the crowbar, and a little of the soil worked into each hole with the setting stick in planting, afterwards giving a little water to settle it about the roots of the plants. Broccoli thus planted—always assuming that they had been pricked out and subsequently transplanted before they become crowded in the seed beds—will make a sturdy growth, which will stand severe frost with impunity, there being no bare, sappy stems exposed to the weather to get injured by the first severe frost. The higher and more exposed the situation in which Broccoli plants are growing the less liable will they be to sustain injury from frost.

HEELING OVER.—The practice of heeling over Broccoli plants as a means of checking exuberant growth if it exists, and also of saving the crop from being injured by severe frosts, is sometimes had recourse to early in November. It is rather a perplexing point to advise upon, seeing that unless the winter be a severe one, the heeling over process is not only so much labour wasted, but the produce is also considerably diminished thereby. However, where the plants have made a luxuriant growth, and upon the principle that "half a loaf is better than no bread," it may be desirable to heel over, if not all, at least a portion of the plants with their heads inclining northwards. This may easily be done by removing two spadefuls of soil from the end of the row on the north side of the plants and putting it into a kind of ridge sloping towards the plants, say at an angle of 30° or thereabouts, so that the base of the head may rest against the top edge of the ridge. The spade should then be thrust to its full depth about 1 foot in front of the plant, and the latter, with the assistance of the spade, inclined forward. The stem, which, as previously stated, when fully exposed to severe frost suffers from its effects, should then be covered with a couple of spadefuls of soil taken from the front of the next plant. But where plants have made a short, sturdy growth, they are not likely to suffer much harm from frost.

The following varieties I have found useful in their various seasons, viz.:—

For use in September, October, November and December.—*Michaëlas White*, *Self Protecting*, *Autumn Mammoth* and *Autumn Cape*.

For use in January, February and March.—*Winter Mammoth*, *Vanguard* and *Winter White*.

For use in March, April and May.—*Dwarf White*, *Champion*, *Eclipse* and *Matchless*.

For use in May and June.—*Late Queen*, *Model* and *Latest of All*.

H. W. WARD.

* * In addition to the above we would strongly

recommend the *Purple Sprouting Broccoli*, which, although the colour may by some be considered detrimental to it, we think one of the most useful and best-flavoured varieties grown.—ED.

VEGETABLE MARROWS.

THE various plans adopted by growers of Marrow plants on a large scale to protect their plants whilst young and while the weather is cold are interesting, as showing the odd ways which people have of arriving at the same end, that is, forwarding their plants and protecting them from late frosts. In some market gardens where frames are plentiful, manure beds are made up so as to give a little bottom-heat, and the plants put out on to these beneath frames early in April literally fill the frames with growth in about a month, so that it is needful to lift the frames up several inches off the soil to enable the strong shoots to run out freely. Then, a little later, the frames are removed altogether, and such protected plants produce not only a very early crop of Marrows, but get such a start that the soil is well protected from the sun-heat ere July is reached. But frames in such abundance mean a stock of expensive protectors, and others who have been employing cloches during the winter for the protection of Cauliflower or Lettuce plants, transfer these glasses to the Marrow plants, and they afford efficient protection for a couple of weeks. Later the glasses must be set upon bricks or blocks of wood to enable the plants to run out, but it is not wise to leave the plants entirely exposed until after May is out at least. Old-fashioned handlights may still be found in some gardens performing the same service, and very useful means of protection they afford. In a market garden at Gunnersbury the other day, I observed men busy planting out Marrow plants on large prepared beds, and covering each pair of plants with boxes about 2½ feet square and 1 foot in depth. Each box had a movable lid which is placed on the box at night. The dimensions of the boxes allow the plants free action for a month at least, and later they will need no further protection. Boxes of this kind are cheaply provided, and may be made by any ordinary labourer during bad winter weather. They were in this case coated with paint, and with ordinary care would endure for several years. Very likely many more uses may be found for them during the year. On a long border looking south I lately observed hundreds of white-looking objects. These were basket-shaped protectors for Marrow plants made of coarse canvas stretched over a frame of wood and painted. These when not in use will drop one into the other and may be stored away in a moderate compass. Even yet a more crude form of protection is old bushel baskets of the ordinary round flattish type, so familiar to London markets. These too are to protect the plants after being put out and until they are considered to be safe from frost. Where Laurel or Spruce Fir is abundant, branches of these stuck in round the plants afford some protection. However, it is one of the essentials of early Marrow culture that the seed be sown early and on a manure bed, or where warmth is available in some way. Then before planting out, no matter what the future form of protection, the plants should be strong and well hardened by having all possible safe exposure. Generally it is the rule to turn out plants in couples from 5-inch pots, and being both well rooted and well hardened they soon get hold of the soil and fruit early. A. D.

Late Peas.—For the regular supply of a family there are no better Peas than *Huntingdonian*, *Veitch's Perfection*, and *Ne Plus Ultra*. The end of May is quite as late as it is profitable to sow Marrow Peas. I have sown them up to the middle of June, and have secured a crop from them. Isolate the rows, and let them run from north to south if possible; in fact, this rule may with advantage be carried out in planting all kinds of vegetables. On porous soils the late Peas should be grown in trenches which have been well manured. The manure should not be placed in contact with the seeds, but buried beneath them to tempt the roots downwards away from the heated

soil on the surface. Plant the seeds thinly at equal distances apart. From 2 inches to 3 inches in the case of large Marrows will not be too much. Veitch's Perfection will grow from 3 feet to 4 feet high; Huntingdonian 5 feet, or sometimes a little taller, or in dry seasons not quite so high; and Ne Plus Ultra generally attains the height of 5½ feet to 6 feet. Stake the plants early, so that the tendrils may have something to cling to, the moment they strike out in search of support. When dry weather sets in, place a mulch of manure 2 inches thick on each side of the rows as far as the roots will extend, and there will not be much trouble from mildew. Gather every pod as soon as it is fit for use.—E. H.

KITCHEN GARDEN NOTES.

TOMATOES AGAINST SUNNY WALLS.

THE fact of the crops partially or completely failing last season ought not to militate against an intelligent attempt being made to grow them successfully this summer. Open-air culture will always be more or less of a lottery, but it is not often that a complete failure occurs, and a light crop more than compensates for any trouble taken with the cultivation of the plants. During the season of 1887 Tomatoes grew and ripened an abundance of fruit in almost any position or district, but, as a rule, the very best site that can be chosen for them is against sunny walls and fences, or where they derive the full benefit of sunshine, coupled with the warmth and shelter from the walls and in a lesser degree from a fence. A considerable number of plants are annually grown at the foot of south and south-west walls, the plants being trained wherever there are blank spaces, but if the walls are properly furnished with fruit trees, vacancies suitable for Tomato culture are few in number. We have surmounted this difficulty by utilising the front walls of forcing and fruit houses, these answering even better than garden walls. Wherever there is a sunny front wall not less than 3 feet in height to a house this might quickly be clothed with Tomatoes, and in a favourable season a great weight of fruit will be obtained. A deep border is not necessary, all that is needed being a narrow bed of fairly rich loamy soil 12 inches deep if on a hard bottom, and less if the ground underneath is loosened, and in any case about 18 inches wide. These raised ridges are the best in a dull cold season, and if duly mulched with strawy manure they require very little water in hot, dry weather. The plants should be put out about 12 inches apart, and if head room is limited be trained obliquely rather than perpendicularly. We usually train the plants up a front wall and on to the roof of a long low forcing house, and heavy crops generally result. Where Tomatoes are planted among fruit trees against a hot wall it is advisable to remove a portion of the poor dry soil usually to be found in such positions and replace it with fresh loamy compost. It is unwise to use solid manure freely, as this causes a too rank growth, and the other extreme ought also to be avoided. Plants being plentiful, they may be put out 12 inches apart and kept disbudded to one stem; but if scarce, then plant nearer 2 feet apart, and lay in one or two side shoots, these being also kept cleared of all side shoots as fast as they form. All should be well hardened off and in a moist state at the roots when planted, and if the first bunch of bloom can be saved this will be a great step towards securing ripe fruit in July. At the present time (May 21) we are having very genial weather, but should a change for the worse occur some kind of temporary protection should be accorded to newly-planted Tomatoes.

TOMATOES IN THE OPEN.

Those who have neither walls nor fences that can partly be given up to Tomatoes may yet try other methods of cultivating them with a good prospect of success. Temporary wooden screens, such as deep shutters, old doors, and even wattled hurdles, duly fixed on a sunny border frequently answer for the purpose of sheltering and supporting Tomatoes. These may be either at the back of a warm border or may occupy the whole of it,

taking care to fix them as far apart as they are high, or otherwise they will unduly shade each other. It is immaterial whether the plants be tied or fastened with shreds and nails to the supports, but it is of importance that their training is never neglected, as should they break down the chances are they will be of little service. In this, and all other respects, the treatment from first to last may be the same as advised in the case of those planted against walls. Large numbers of Tomatoes are annually planted in sheltered positions, but clear of either walls or screens, each being supported by a strong stake. The ground ought not to be very rich, and the plants should be put out early in June or after all danger from severe frosts may reasonably be considered past, and always fully 2 feet apart each way. A strong stake from 3 feet to 4 feet in height should at once be placed to each and the plant securely fastened to it, all side shoots being pinched out as fast as they form. The leader ought in no case to be stopped before at least three clusters of fruit are set. For these open positions we prefer the moderately vigorous growers such as Mikado, Perfection, Dedham Favourite, Large Red, and Trophy, but those of dwarf habit, including Open Air, Earliest of All, and Dwarf Orangefield, or Vilmorin's Dwarf Red, have also done well when grown in the open. The four last-named and Large Red are the best for walls where head room is limited, and these succeeded better last year in all positions than did the majority of the more handsome, smooth, round-fruited varieties.

CAPSICUMS AND CHILLIES.

During an average summer these succeed well planted out in a sunny sheltered position, yielding a profusion of green pods for pickling, and ripe ones for making into pepper. Single plants in small pots may be put out about 12 inches apart each way, and if they are several together in 6-inch pots, they can either be planted in clumps and given rather more room, or they may be divided and put out without experiencing a severe check. As, however, there is some uncertainty about their ripening fruit properly, and seeing, also, that they are of an ornamental as well as useful character, it is advisable to shift the plants from small pots into 6-inch pots, those already in that size not being disturbed. All, however, should be plunged in a sunny spot, so as to just bury the rims, the front of a Vine border answering well. If watered occasionally at the outset the roots will soon find their way into the surrounding soil, but this will not much interfere with the lifting and housing of the plants in autumn. In cold districts, if Capsicums and Chillies are wanted, it is advisable to plant them in frames and pits in succession to Potatoes or Beans, or frames may be especially prepared for them. In any case they should be planted not less than 12 inches apart each way, and be kept rather close and warm till well established, after which air ought to be given freely and the lights drawn off during bright days. This class of plants is naturally of a branching fruitful habit of growth, and none of them need stopping nor training beyond, perhaps, being kept upright with light stakes.

RIDGE CUCUMBERS.

It is doubtful if these often pay for the trouble taken with them. Cucumbers from frames are much to be preferred to any grown in the open air, and unless required for pickling purposes the latter are but little cultivated now-a-days in private gardens. In the neighbourhood of London especially immense quantities are usually grown for the large firms of pickle manufacturers, and a considerable surplus also finds its way to the markets. Cucumbers out of doors are always an uncertain crop, a wet and cold summer proving fatal to the bulk of the plants. The Stockwood and Long Prickly grow to the largest size and are the best, but for pickling purposes the Short Prickly, better known as Gherkins, should be selected. A somewhat earlier start can be made by raising the plants under glass singly in 3-inch pots, but if kept too long in these in a semi-starved state, they become hard and sickly and rarely make satisfactory progress afterwards. Rather than plant such I should prefer to raise a fresh batch, or, better still, to sow

a few seeds where the plants are to grow. The latter plan is that usually adopted by market gardeners, a belt of Rye Grass between the beds affording the necessary shelter against cold winds. A large hotbed is not needed; in fact the plants when grown on these not unfrequently collapse suddenly owing to the decay of the roots. At the same time a certain amount of warmth is necessary to give the plants a good start. An open, yet fairly well sheltered plot of ground ought to be selected for these and Vegetable Marrows, and a trench 4 feet wide lined out. From 6 inches to 9 inches of the surface soil should be thrown out; this, after from 18 inches to 2 feet of warm partially decayed manure or manure and leaves have been rather firmly packed in the trench, to be returned to the top again. On the level ridge thus formed either put out the plants or sow the seeds in a double row about 18 inches apart each way. If hand-lights can be afforded, place them over the plants till the latter have grown considerably, and, failing these, give some other temporary protection when the nights are cold. During the summer very little trouble need be taken with them, it being the wisest course to let the haulm ramble and fruit unrestricted in any way.

GOURDS AND VEGETABLE MARROWS.

Much that has just been advised concerning ridge Cucumbers is also applicable to Gourds and Vegetable Marrows. It is simply a great waste to devote a mass of good manure to the production of one or two giant Gourds or Pumpkins, and the most productive Vegetable Marrows are those grown in the open ground with one or two spits of good decaying manure under them. If a wide flat ridge or bed is not formed, or say only two or three plants are grown, the simplest alternative is to open a circular hole for each plant, 3 feet in diameter, returning either the soil thrown out, or, if this is hard and lumpy, about 6 inches of good loamy soil on the top of some nearly fresh manure. Intelligent cottagers in the southern counties sometimes put out a few Vegetable Marrow plants or seeds among a breadth of early Potatoes, the plants, which in this case receive very little manure, eventually covering the ground after the Potatoes are lifted. Further north more trouble has to be taken and more artificial warmth afforded, but in any case it is imperative that the young plants should be sheltered from winds, and they ought also to be steadied with stout pegs till less liable to be blown about. Many of the Gourds when ripening, and after they are ripe, are of quaint strange form and fairly ornamental, but for real utility they are far behind the Marrows, the latter when ripe keeping quite as well and being equally as serviceable as Pumpkins. All are alike suitable for quickly covering temporary arbours, and if the roots have access to a good spit of manure the plants will ramble freely over anything it is desirous to cover, always provided the position is a warm one.

GARDEN PESTS.

I do not remember having previously heard so many complaints of the ravages of slugs, both these and snails being exceptionally numerous and voracious. Peas have been cleared off wholesale, a good early row being a rarity; while young plants of the Brassica tribe and Lettuces cannot be trusted as yet in the open ground. Frequently stirring the ground with flat hoes and a free use of soot and lime or fine ashes have a deterrent effect, but in many instances nothing short of collecting and destroying the pests, large and small alike, will save some of the crops. As a rule, they can be found in great numbers early in the morning, but this season they are most numerous in the evenings soon after dark, and it is then, with the aid of lamps or candles, that they can be most readily destroyed. They travel a long way, and will collect thickly round heaps of brewers' grains, mounds of bran, and heaps of Broccoli leaves. If tiles or slates are laid near their haunts, many slugs will remain under them and the Broccoli leaves during the day, and the back of a spade is the surest way of settling them. Slugs are particularly fond of Asparagus. They eat the young shoots and completely skin the stems of old growths, thereby quite crippling the plants.

One or two liberal surfacings of common salt will destroy most of the slugs on the beds, but if this cannot safely be used owing to the clayey nature of the soil, soot and lime may be substituted.

W. I.

CHRYSANTHEMUMS.

E. MOLYNEUX.

CHRYSANTHEMUM NOTES.

ALTHOUGH Chrysanthemum societies strive their utmost to cater for the public in the best manner possible consistent with their means and convenience, they do not always achieve such success as their efforts deserve. Now-a-days, when there is so much competition, Chrysanthemum societies not excepted, it becomes extremely difficult for members of committees to devise new classes which will prove attractive to the public, as well as create a competition. These are points a society specially organised for the improved culture of this extensive family ought mainly to have in view, and the question of finances is often the first consideration. There is not the slightest doubt but that the springing up so rapidly of so many special societies for Chrysanthemums has much to do with the increased number of cultivators in all parts of the country. I know this is the case in and around Portsmouth since the inauguration of the Chrysanthemum Society in that town four years since, and which originated mainly with a view to benefit the large body of the working-class population, who are so fond of flowers and who are so freely encouraged to visit the show, as well as become competitors thereat. Among the artisan classes in the dockyard the spirit of rivalry is strong, and sore are the straits many of these enthusiastic cultivators are subjected to, owing to a want of space both for growing the plants during the summer and housing them in the autumn. So good are the productions of some of these amateur cultivators, that many a professional grower in a much more favoured position as to convenience, &c., has been put to the blush by the quality of their blooms. Many societies in populous towns might take a lesson from the Portsmouth Chrysanthemum Society in the way they admit the public and swell their receipts at the same time. The committee of this society have a laudable object in view—the encouragement of the growth of the Chrysanthemum in the poorer parts of the town. By fixing the charge of admission to the annual exhibition at the low rate of 1d. on the evening of the last day—a privilege highly appreciated by as many as 6000 persons—the handsome sum of £25, taken in pennies, resulted.

CHRYSANTHEMUM SCHEDULES.—There are some classes which have come under my notice, and which I consider would be better left out of prize schedules. The one I wish to draw attention to is that for a number (say twelve) of blooms of a variety sent out during a certain year, or previous to a year which is named. I have often seen prizes offered for such a class as this, and have assisted in the adjudication of the prizes, but I have rarely seen really good blooms produced, or the awards satisfactory to the exhibitors. The chief reason for this is the fact that the difficulty lies in determining the particular year such and such a variety was raised, sent out, or introduced, terms which are all used by various bodies and persons. Take, for instance, the variety Mr. Ralph Brocklebank, which originated during the year 1885, but was not sent out until the spring of 1887, although it received several first-class certi-

icates the season previous. Here lies the stumbling-block in the awarding of prizes. Who is to determine when any special variety was introduced to the public, or it may be when it was obtained? Judges cannot be expected to know when all the varieties are introduced. Often varieties are staged which the judges never heard of in any form by the names under which they are presented. Sometimes a mistake may have been made in the naming, but in such cases if the variety is distinct from any other staged, who is to dispute the fact of its being new and within the stipulations? This is the chief difficulty in awarding prizes in such classes. The blooms in such classes as these are hardly ever a credit to the exhibitor or to the show, as they are generally staged in such small numbers as not to merit their admission except merely as novelties. If a variety belonging to any section possesses merit, it is certain to find an outlet and become known to the public, who are ever ready to grasp a deserving sort, especially if it has the merit of novelty. It is the wish to place exhibitors and judges on good terms that I advocate the exclusion of classes from schedules at which a proper decision cannot be arrived at with certainty.

TREATMENT OF CHRYSANTHEMUMS.

MAY I ask for your advice on the following points? I have a number of Chrysanthemum plants, many of which are now not more than 6 inches high. They are of three kinds:—

1. Those struck in December which have never made much root, and which still remain thin-stemmed and weakly.
2. Those struck in March and April in heat, but which seem to be fairly healthy, though small and sappy.
3. Cuttings from the growing plants lately struck and now in a cold frame in 3-inch pots.

Will you kindly tell me the best course to pursue under each of these three conditions to enable me to secure the best blooms this year and plenty of cuttings before Christmas? If I cut down or top an early-struck and sturdy plant, and also a late (March) struck plant, at the end of this month, will the result in each case be to delay the crown buds from appearing at the time they otherwise would, or will it bring them forward?—S. L., *Sydenham*.

*** 1. In answer to the above, the treatment your plants have received since they were struck in December must have been of the wrong sort, or they would be each from 1 foot to 2 feet high at this date. From these plants you should obtain the best blooms next November if the treatment were right. The soil in which they are potted cannot be of a suitable kind, or the plants struck in December should now be in 5½-inch pots and well filled with roots, and ready for their last shift into the blooming pots, 9 inches in diameter. Presuming that the plants are now in 3-inch pots, you should transfer them to 5½-inch ones if the roots are visible around the outside of the ball of soil. It is essential that the pots should be perfectly clean, and clean crocks should also be used, as, when the drainage is dirty, the continual watering the plants require washes the fine soil down to the bottom of the pot and often causes a stagnation of water about the roots. Care in placing the drainage in the pots is not sufficiently attended to. The object should be to allow the surplus water to pass away as quickly as possible after the plants are watered. The compost best suited for the plants at the present stage should consist of loam as fibrous as possible, half-decayed leaves, some spent Mushroom-bed manure, and coarse silver sand. To this should be added a small portion of some chemical manure. If the pots are not filled with roots, remove the soil in which the plants are now growing until the roots are reached, which will induce a quicker root action into the new soil. This should be encouraged, as owing to the sparseness of active roots the plants cannot make satis-

factory progress. Retain the compost in as rough a state as possible to allow of its being placed firmly around the ball of soil in the pot. If the soil is in a moist state when used, as it ought to be, no water will be required for at least a couple of days, when the soil should be soaked thoroughly. After that the plants should never be allowed to suffer for want of moisture, neither should they have too much. The water used should be soft, if obtainable; if from the water company's pipes, it should be either placed full in the sun for at least a day or warm water should be added, as extremely cold water applied to the roots gives a check to free growth. Cold water applied in the manner described is the chief cause of the plants being checked at this stage of their growth. A cold frame facing south is the best position for Chrysanthemums, although at this time of the year the plants should be entirely outside, but in your case they need some encouragement to make up lost growth. Keep the frame rather close for a time until new growth is being made freely; tilt the lights on one side about 3 inches during the day-time, closing them at night. Syringe the foliage about 5 p.m. after a bright sunny day, and as the plants make satisfactory progress, increase the supply of air gradually until the lights can be removed entirely. Should mildew make its appearance on any of the leaves, dust the parts affected with dry sulphur, taking care not to wet that part for two or three days. If green-fly is troublesome, dust the tips of the plants with tobacco powder in the evening, and in the morning vigorously syringe the points, which will remove both fly and powder. The base of the frame on which the plants stand should have a thick covering of coal ashes to prevent worms entering the soil. Failing the use of ashes, boards, tiles, or slates should be used. If the plants are treated in the manner described, they ought in six weeks' time to have the pots filled with roots, and be ready to place in the pots in which they are to flower. As fast as side growths push from the main stem at each node, they should be removed, restricting the stems to one to each plant until the first natural break takes place, which is known by the formation of a flower-bud in the point of growth. This should be removed, and three of the most promising shoots retained, tying them securely to a stake to prevent their being broken by wind or otherwise.

2. The same treatment should be given to the plants styled as above. It is not to be expected that blooms of the same quality can be had from these plants as from those struck earlier, because the time does not allow of the plants making growth in the same steady manner. For this latter reason the wood cannot become so thoroughly solidified. The word "sappy" is mentioned as though the plants should not be in this condition. My advice at this time of the year in your case is to encourage as much sappy growth as is possible; the stems of the plants cannot be made too thick.

The plants styled 3 should not be placed in pots so large as recommended for the others. Four and a half-inch ones will be large enough, and from these they can go into 7-inch or 8-inch ones in which they can be flowered.

The cutting down or topping of early-struck sturdy plants will cause them to form the crown-bud at the same time as they would if grown on without stopping, but in your case, owing to the plants being weak, it would make the crown-buds much later.

Although cutting down the plants or topping them may produce dwarf growth as compared to plants allowed to break naturally, it should be remembered that such dwarf growth is at the expense of the size of the blooms. Cut-down plants are suitable for effective grouping, but the quality of the blooms cannot be compared to that of others obtained in a more natural manner. In your locality no difficulty need be experienced in obtaining crown-buds at the time required if the plants are treated properly from the time the cuttings are struck until the blooms are developed.

The principal points in the treatment of the plants are early propagation, successional pottings

as required, and a proper supply of water to the roots.—E. MOLYNEUX.

EARLY-FLOWERING CHRYSANTHEMUMS.

THESE are very useful in many ways when a judicious selection of varieties is made, whether it be for the decoration of the herbaceous borders, flower beds, or for an early supply of flowers under glass. One reason of their comparative scarcity is that, owing to a want of

ranging from 1 foot 6 inches to 2 feet 6 inches high. By growing this variety in such small pots, the foliage is good and retained to the rim of the pot. For producing blooms in greater profusion, the plants must have a little more pot-room and a longer season of growth; therefore, for ordinary decoration, I prefer to grow a few extra plants to make up the display. There are two or three reasons for this. Plants which are allowed to develop from three to six flowers only, bloom earlier, and they can be removed to make room for the next batch prior to the ordi-

quaring similar treatment to its parent. The golden-yellow sport named Mrs. Hawkins, from the same parent, to be sent out shortly, is said to be a very fine yellow variety, and will prove an acquisition if it is as good as represented. To have plants such as I have described in flower say the first week in September, the cuttings should be inserted singly in $2\frac{1}{2}$ -inch pots toward the end of December in the usual way. When the plants are 4 inches high, top the point of each to induce the growth of side branches. From three to six shoots will be produced as the result of this topping. These should be carefully secured, and will in time produce flower-buds which will develop the blooms desired. All side growths should be removed as fast as they appear, also all suckers which spring from the base of the plants. The plants should be potted as fast as the roots reach the sides of the pots, first into $3\frac{1}{2}$ -inch pots, then into 5-inch ones, and finally into pots 7 inches in diameter. To preserve a sturdy growth, the plants should be kept as near to the glass as possible, giving an abundance of air on all favourable occasions until they can stand out of doors. Great care should be exercised in watering the plants. If they are allowed to become dry at the roots, the leaves are almost sure to turn yellow at the bottom, thus spoiling the appearance of the plants. One stake to each plant will suffice to support the shoots until the blooms begin to expand.

During the summer's growth the shoots can be lightly tied to one central stake. The plants should be liberally fed after the bloom-buds are formed, and stimulants are necessary, especially when small pots are employed. To have larger plants with a greater number of flowers to each 9-inch pots will be necessary. The shoots should be topped at least three times when 4 inches of growth is made from each topping. The plants will then form densely flowered masses. Mme. Desgrange (see illustration) and G. Wermig are capital varieties to plant in the beds or borders. One of the finest beds at Hampton Court was composed last season of the former variety planted in a bold mass, with a broad edging of *Aster Amellus bessarabicus*.

There are two ways of securing a stock of plants for the beds. Early in March divide the old stools of the previous year into as many pieces as have roots attached; plant them in boxes of sandy soil to which a goodly portion of partly decayed leaves has been added, and place the boxes in a gentle heat. Afterwards remove them to a cool house and then to a cold frame. About the middle of April they can be planted where they are to flower, and in this manner they will get a good start into growth. Early in March stout cuttings should be inserted and the pots plunged in a very gentle bottom-heat. After roots are formed the plants should have cool treatment. Pinch out the points once or twice to induce a bushy growth. These in October will give abundance of blooms, making the borders quite gay at a time when the regular occupants are past their best. Another use may be made of the plants which flowered the previous year. Instead of throwing the roots away after cuttings are taken from them, they should be planted out of doors in an open space, as such plants will supply flowers freely the following autumn. Allow from six to ten shoots to grow from the base of each. These will in time multiply into numerous growths. When the flower-buds form dig up the plants, either potting them or placing them on the beds where Cucumbers have been growing, when they will produce abundance of blooms.

There are numerous varieties of early flower-



Chrysanthemum Madame Desgrange, grown in the open air.

bright-coloured varieties, they are not so imposing in appearance as the ordinary November kinds.

Mme. C. Desgrange family is the most useful of all the early-flowered kinds either for border or indoor decoration. From the first week in August until the end of September a very fine display of bloom may be had in the greenhouse. Sturdy examples may be grown in 7-inch pots, each carrying from three to six blooms, the plants

nary November kinds requiring the space. The flowers are also fuller in the centre, have more solidity, and consequently last longer in perfection than do small ones, which have a tendency to droop somewhat when the plants are allowed to develop all the flowers which form on the points of the shoots.

The pale yellow sport from Mme. C. Desgrange, and named G. Wermig, is an excellent companion, flowering at the same time and re-

ing kinds beside those mentioned which make a good show during September.

The following are some of the best:—

Mlle Leoni Lassali.—Snowy white, the blooms of neat reflexed form; the plant when allowed to grow in a natural manner does not attain more than 3 feet in height; it is very bushy in habit, produces abundance of bloom on the points of all the side branches, and as they flower simultaneously the spikes can be cut of good length. *Blushing Bride*.—Rosy blush, very fine, free flowering variety, 3 feet high. *Early Blush*.—Blush pink, splendid habit, free-flowering, and only 1½ feet high. *Mrs. Cullingford*.—Pure white, splendid for cutting, 3 feet. *Lyon*.—Rosy purple, a very showy sort. *Flora*. Bright yellow; it grows 2 feet in height. *Nanum*.—Creamy white, blooms profusely; height 1½ feet. *Mme. Jolivet*.—Blush white, flowers profusely; height 1½ feet. *La Petite Marie* grows only 1 foot high, flowers abundantly, pure white; it is capital for small pots. *Mignon*.—This is a capital sort, growing 1½ feet high, compact habit, profuse bloomer, the flowers being deep rich yellow. *Miss Davis*.—A fine pink sport from Mrs. Cullingford; the flowers are of good form. *Torcadore*.—Small flowers of a bronze colour. *Frederick Pélé*.—Crimson, tipped gold, neat blooms. *Alice Butcher*.—Orange-red, very showy, 3 feet high. The above varieties all belong to the pompon, or what is termed hybrid pompons, a definition used to distinguish them from the ordinary pompons on account of their size. They are all well suited for flowering in the greenhouse during September. The best method of cultivating them is by striking cuttings early in January, topping the shoots twice, and afterwards allowing them to branch at will. The plants should not be disbudded. Flowered under glass the blooms, especially of the white varieties, are much cleaner and purer in colour than when the plants flower out of doors, and therefore are all the more valuable when required for cutting.

The following four varieties belong to the early flowered Japanese section, flowering mainly towards the end of September and early in October. Cuttings should be put in at the end of December, and the plants grown on in the ordinary way without topping, allowing all the side growths to flower: *Mons. E. Pynaert Van Geert*.—Deep orange-yellow, striped with crimson, very showy, 4 feet high. *Bouquet Estival*.—Rosy purple, very free-flowering sort, and growing only 2 feet high. *Isidore Feral*.—Rosy lilac, very free and good, 3 feet. *E. G. Henderson et Son*.—This is a very distinct variety, of rather tall growth (5 feet), the flowers yellow, shaded crimson. The above heights are taken when the plants are cultivated without topping the shoots, but allowing them to grow naturally.

The following sorts in addition to those mentioned flower freely in the borders from July to October if given good treatment. Strike the cuttings early in February, topping them twice to induce a bushy growth, which is better able to stand winds than taller plants without support: *Nanum*, *Flora*, yellow; *Mrs. W. Piercy*, *Anastasio*, magenta; *Fiberta*, yellow; *Frederick Maronnet*, bronze; *Mme. Piccol*, rosy purple; *Golden Fleece*, yellow.

SHORT NOTES.—CHRYSANTHEMUMS.

Fair Maid of Guernsey.—There were some splendid flowers of this variety in one of the stands in Covent Garden on the occasion of the Gardeners' Orphan Fund Fête. They were large, clean, and of

the purest white. This is worthy of note—Chrysanthemums in the best condition at the latter end of May.

Destroying aphides on Chrysanthemums.

—About a month ago I sunk a large petroleum barrel to catch the rain water from my potting shed, principally to use in watering and syringing my Chrysanthemums. A week afterwards, when the rain had filled the barrel, I observed an oily medium floating on the surface, and took it for granted that it was some remnant of the petroleum that remained in the crevices. At first I syringed Callas with it and *Lilium auratum* that showed signs of green-fly. After the second syringing with soft water from a metal tank exposed to full sunshine, there was not a trace of aphids of any kind, while the foliage seemed if anything more luxuriant. A week ago, observing the first appearance of black aphids on some of the newer Chrysanthemums, and feeling uneasy lest it should spread to the others, I took the plants one after the other with head inverted in the hand and plunged them into the barrel. This method is much safer and better than any syringing or watering, as in this way the leaves become thoroughly wetted. I have never since observed a trace of aphids of any kind on the plants operated on. Petroleum and, I believe, other mineral oils are excellent insecticides, accessible and cheap, but the great danger is in having the mixture too strong. As described it would not be one part in 500, and it was quite effective.—W. J. MURPHY, *Clonmel*.

THE BLUE CHRYSANTHEMUM.

I HAVE just read the interesting notes on the blue Chrysanthemum by Mr. H. Payne at page 399, and the question that arises is a very natural one, viz., whether it is likely a blue Chrysanthemum could be produced. For my part I see no reason why it should not, and if so, who more likely than the Japanese to be the raisers of such a novelty? At the same time I fancy it is not safe to place too much reliance on the examples that may be found on Cloisonné enamels, pottery, and porcelain. I have a copy of Bowes' and Audsley's "*Keramic Art of Japan*," but do not feel inclined to trust the evidence it furnishes. The figures on Plate 13 are undoubtedly the best, but they are more conventional than natural, and a close examination will soon establish this fact.

The vases alluded to are of the Late Period (*Satsuma faience*), and are good specimens of the skill of the Japanese artists in the arrangement of flowers and their treatment in decorative art. The flowers are of as deep a blue colour as those of the *Nemophila*, and are of two types, the pompon and the large-flowered; but the best evidence of the conventional character of the flowers is in a small quite unopened bud of the deep blue pompon variety, which undoubtedly ought to be green, but is of the same deep blue colour as the flowers. Further, at the base of the vases are some small star-shaped flowers, blue and red, like the Chrysanthemums. The pompons are also like the large-flowered type of three colours—blue, red, and rose. Plate 16 is of the Japanese Iris, Chrysanthemums, and an unknown flower, all growing and flowering together, harmoniously arranged with a pair of silver pheasants; but no one can suppose that the dark slaty blue colour of the flowers, which may be intended for Chrysanthemums, exists in Nature. The bird paintings are exquisite. The drab-tinted vase of Kaja ware has on it a medallion, in which are painted a number of perfectly round flowers, which may be pompon Chrysanthemums—slate colour, red and white. The vase is also in the Japanese collection at South Kensington Museum, where any Chrysanthemum fancier can see it. If the paintings were true to Nature, there must be several blue varieties both in the pompon and large-flowered sections. My own opinion is that they are simply imagination. Is it at all likely that such flowers could have existed in Japan for so many years and not have found their way into Europe? The foliage in none of the pictures is copied from Nature, not even in its form; in fact,

the flowers and foliage have been painted by the Japanese artists with an eye to effect.

J. DOUGLAS.

FLOWER GARDEN.

TULIPS OTHER THAN SHOW VARIETIES.*

THE history of this family would, in itself, afford sufficient material for opening a discussion at a meeting such as ours. It is always interesting and instructive to know the history of any family, but I must own I am not well up in the history of the Tulip, and so will leave the treatment of that part to someone else. The lines I wish to follow are practical and commercial. The latter word prevents me from including the show varieties here. I believe show varieties will never become popular as cut flowers. As a proof of this, one has only to look at the leading florists' windows to see that it is not broken, but solid or decided colours that are used for effect. All efforts, I fear, will fail to revive this section for market purposes.

The three classes I wish to refer to are the Dutch or bedding, the Parrot, and the species of the genus *Tulipa*. Their culture is simple and well adapted to this country. The treatment of the varieties varies but little. The few species that are not quite hardy I will take no notice of. The first thing to be done is to select a sheltered situation. The land ought to be sandy, light up to medium loam. Wet heavy land ought by all means to be avoided. Select a piece that has grown a crop without manure, then apply plenty of new stable manure. It may be put in just before planting with the plough, or by bastard trenching, so as to place it 6 inches from the surface. When recommending new manure I am aware many good cultivators do not agree with me, but my results have always been better from new than from old. However, let the manure be new or old, it ought never to come in contact with the bulbs.

Early in October is the best time to plant; 3 inches to 4 inches deep, 3 inches between the bulbs, and 8 inches between the rows represents my practice. Some recommend planting the bulbs 6 inches deep, but when grown at this depth in large quantities the expense is increased in lifting. After planting there is little to do except to keep the bulbs clean. In ordinary seasons they will be ready for lifting early in June. The time varies a little according to the season, but one is always safe to lift whenever the foliage begins to get yellow. If the Tulips have been in good quarters, the flowering bulbs in most instances will have produced a good second-sized and also a small bulb, and the small ones will have developed into flowering bulbs. I may here say that if the latter are allowed to remain in the ground after they are ripe, the skins will be dark and not of the bright colour a saleable bulb ought to be. When lifted they ought to be placed in trays, boxes, or laid out in lofts with plenty of air. A dark shed or outhouse is preferable for if exposed to the sun or much light the skin will crack and come off.

I have already said that the treatment is simple, but there can be no success if annual lifting is not practised, and the lifting and planting done at the proper time. I have also said that the culture is well adapted to this country. Now how is it that we do not grow our own bulbs? Seeing there is no nation in the world grants us the same privileges that we grant

* Read by Mr. James Walker at the Horticultural Club.

them, it becomes us to look round and see if we are not spending large sums of money on a plant we could grow equally as well, if not better. For a number of years I have planted Dutch-grown bulbs alongside of home-grown ones, and the latter produced larger flowers than the former, and this was more striking in the Parrot and the species—a clear proof that these two sections prefer medium loam to sand. I am a little surprised that the species are not more cultivated. If we take *Gesneriana*, *fulgens*, *elegans*, *alba*, *retroflexa*, &c., their effect in beds or borders is simply grand.

The question will naturally arise, Can they be grown to pay? I have had some experience in growing them by the acre, and cannot throw out the hope that a fortune can be made, but if properly managed a fair profit may be realised. In field culture one cannot always be certain of sound market flowers. I have seen a shower of hail damage thousands of buds, and the sun shine out ten minutes afterwards and smile on all the destruction the hail had done. Part-ridges and rooks are fond of the buds when young. Such are a few of the difficulties to contend with. However, so far as I have seen, none of these misfortunes interfere with the development of the bulb.

Now, if we compare our advantages and disadvantages with the Dutch growers, how do we stand? One thing is very certain, we do not find the Dutch growers asleep. What they do they do well. Our advantages over them consist in better and cheaper land, and no one can dispute but that we have more of it. There are hundreds of acres of suitable land in this country. We can also procure cheaper manure. Our great disadvantage is the want of skilled labour; in this the Dutch grower has a great advantage over us. I believe one of their workmen will lift as many bulbs in one day as ours will do in four. No doubt if cultivation increased here our workmen would improve. Taking all things into consideration, I believe we could place the Tulip in the market as good and as cheap as the Dutch grower.

I firmly believe that with a sturdy will and a little skill, England may be made the true home of the Tulip.

Origin of Parrot Tulips.—In THE GARDEN, May 18 (p. 449) the suggestion is advanced that Parrot Tulips doubtless originated from *Tulipa acuminata* or *cornuta* and *Tulipa viridiflora*. It has not been proved that any Parrot Tulip has come from these parents, but frequently Parrot Tulips change from different late varieties of Tulips. A very peculiar case was shown to me some time ago, viz., that of a good byblemen Tulip having become a Parrot Tulip, the Parrot Tulip retaining, however, the colour of the byblemen. Over two hundred years ago there were eight varieties of Parrot Tulips known, and, judging from the descriptions of them, the same varieties are now in cultivation at the present day. Green Tulips were not known before the last century, and probably have nothing to do with Parrot Tulips. *Tulipa cornuta* seems to have been introduced into European collections about the beginning of the present century. Parrot Tulips frequently change, but then the new forms they assume are those of the so-called Tulip thieves, and if once they have accepted these forms they remain constant as such.—J. H. KRELAGE, *Haarlem*.

Mimuluses.—I quite agree with all that "A. D." says (THE GARDEN, May 18, p. 464) as to the hardness of these very useful flowers, for we are now lifting from the open ground good clumps that have received no protection whatever during the past winter. Although the past winter was by no means severe yet it was very prolonged, and any plant that will live out of doors through an English winter may certainly lay claim to be half-hardy.

Those who have been in the habit of wintering their *Mimuluses* in heated houses or pits may safely store them in cold pits for the future, as it is quite certain that such plants as bedding *Calceolarias*, *Mimuluses*, and a host of other useful subjects start more strongly into growth in spring if kept quite cool during the winter months. Although I should not like to risk the entire stock of any plant of doubtful hardness in the open air without protection during the winter, I should feel quite safe about the *Mimuluses* if they had a slight covering of Bracken over them, as our soil is naturally well drained.—J. G. H.

ANEMONE CORONARIA.

SOME charming beds of these are to be seen at Gunnersbury Park, where Mr. Roberts has planted them out for cutting from. They are all from bulbs imported from Holland last autumn, with the exception of Gilbert's King of Scarlets, a very fine and brilliantly coloured double variety, apparently selected from the old double scarlet. By the side of this showy variety, which deserves a place in every garden where it will grow, Mr. Roberts has beds of the double scarlet as imported from Holland, and which appears to be later and decidedly paler in colour. This old favourite does not appear to be nearly so good as it was thirty years ago. But the single varieties are very pretty indeed, and they range in colour from creamy or yellowish white to deep shades of scarlet and crimson. Some of the mauve, violet, and purple, and also of rose and scarlet colours, are extremely pleasing, and not only do they make a good display, but they are very useful for cutting from, ranking with the late Tulips for richness of colour and striking contrast. Beds of the double form of *A. fulgens* looked poor also by the side of King of Scarlets.

The *Anemone* has, unfortunately, become a neglected plant. One can go into gardens where hardy plants are well represented, but few *Anemones* are found in it. They are hardy, will grow in good loam, and give comparatively but little trouble. The wonder is that a larger number of flower lovers do not raise seedlings. The *Anemone* is a flower that yields a large variety of tints, but it is capable of and will bear improvement. If anyone will enter upon this task, taking seed only from the very best varieties, and resolutely throw out all inferior forms and grow only the very finest, great and valuable additions might be made to our somewhat limited collections. Time was when named *Anemones* were as common as named *Auriculas*, and when the florist made a great pet of them. There is no reason why such a time of popularity should not work round again.

Perhaps the extensive cultivation of *Cobelia fulgens* has had the effect of keeping the crown varieties somewhat in the background. *A. fulgens* has proved a most useful spring flower, and when grown in a large patch, as I saw it at Cliveden the other day, is perfectly dazzling in its wealth of vermillion. This bed occupied a position where it was exposed to the sun during the middle of the day, but shaded from it morning and evening. Here in a piece of well-prepared ground the *Anemone* had grown with great vigour, and is now supplying numbers of richly coloured blossoms. R. D.

A double Primrose.—I enclose flowers of a double Primrose given me three or four years ago by a gentleman. He said the plant was found in a wood. I see in THE GARDEN, May 18 (p. 450), mention is made of a similar Primrose. Would "R. D." kindly say if the enclosed is the same, or has it been in cultivation before? I have seen other forms of hardy double Primroses, but not a double yellow one before.—A. BROOKES, *Beechwood, Urrington, Kent*.

** The flowers of the double yellow Primrose seem to be identical with those described on p. 450, and they appear to lend further testimony to the assumption that the late double yellow Primrose has sported from the common single of the hedgerows. The flowers of the varieties grown

as the late double yellow, giant yellow, Cloth of Gold, Giantess, and Duchess appear to be the same as those of the one in the possession of Mr. Brookes, but there may be little diversities of foliage in all. I have a double yellow Primrose from Scotland under the name of Early Sulphur, which is quite distinct from the Early Sulphur grown round London and later in flowering. I have also one under the name of Cloth of Gold, which is different from the Cloth of Gold generally grown. If anyone residing in a locality suited to these double Primroses were to gather together a collection, grow and flower them, they would find them a very interesting study, and among them would be found greater diversities of flower and foliage than are generally supposed.—R. D.

THE PRIMULAS.

PRIMULA ROSEA, alluded to at p. 468, is hardy and seems to thrive best in a place where the plants are occasionally under water in winter. I exhibited a plant at the *Auricula* and *Primula* Society's meeting at the Drill Hall finely in flower, and it was dug up from amongst the Grass on the margin of a small pond, where it was sometimes covered with water, sometimes exposed, and often frozen hard. When a plant survived this and flowered freely, and, moreover, was good enough to be exhibited in a first prize collection, it could not be said to be in any way tender.

P. obtusifolia, mentioned at p. 450, flowered well with us last year, and much more freely this. We had quite two score of trusses of its rich purple flowers, with a slight suffusion of violet upon most of them. The flowers vary in size as well as in the shades of colour, but we have had none amongst our seedlings that are not of a rich dark purple colour. The eye of the flowers in all cases is of a rich orange-yellow shade. I have not planted any out of doors yet, but intend to do so. *P. obtusifolia* is totally different from *P. japonica* in root, leaf, and flower; the flowers are not produced in whorls, as those of *P. japonica* are. *Primula japonica* is also a much more variable plant; we have pure white forms distinctly marked with a golden eye. Some are nearly white, with just a flush or streak of rose; others are pale purple, lilac, deep red, &c. A group of twenty-five flowering plants of *P. Reidi* in our collection formed a most charming feature; the flowers are creamy white. It loses its leaves towards autumn, and the crowns of flowering plants are not larger than dried Sweet Peas. Older plants seem to branch out from one root-stalk, and produce three or four trusses each, but they have not yet broken into several crowns, which may be parted out, as may be done in the case of *P. rosea*, *P. luteola*, and a few others. The secret of the successful culture of most of the Himalayan *Primulas* consists in annually raising a few seedlings, and growing them up carefully into flowering plants. Young plants flower much better and more strongly; indeed some of them are more biennial than perennial in character.

There is also a beautiful truss open to-day (May 18), the first of the season, upon *P. Parryi*. This does remarkably well with us in pots, but I would rather grow these and other hardy plants in the open borders or in the rock garden if we could. The plants in cold frames are strong and healthy, whereas those planted in a damp place on the water margin have gradually dwindled away; others, in what I thought good positions on the rock garden, have not done better. When well grown it is a lovely species, and carries the hardy *Primula* season well into June. It comes from the Colorado district of the Rocky Mountains and flowers there in July, and gives the name of *Primrose Creek* to one of the affluents of the Colorado River. It is more impatient of the temperature of the forcing house than any *Primula* known to me. Its right place is a cold frame near the glass, with the frame against the north side of a wall or fence. Some species may succeed in full exposure to the sun, but, taking the general run of the *Primula* family, partial shade is best.

P. prolifera is also in flower, and is a vigorous-growing plant, producing spikes of flowers in whorls of a deep yellow colour. It is doubtless worth growing as a distinct form, but cannot be said to be of the first class.

I also flowered this year, for the first time, *P. reticulata*. The flowers remind me of those of the well-known *P. sikkimensis*, but they are much smaller than those of that species. The leaves of *P. reticulata* are cordate, while those of *P. sikkimensis* are not.

P. geraniæfolia is also opening its flowers. It is distinct in the form of its leaves, which resemble those of the plant from which it is named. The flowers, produced three or more together on a truss, are of a pretty rosy tint, but not very striking. The great charm of growing a collection of *Primulas* is found in the diverse character of the various species, and to the enthusiasts in their culture all of them possess some points of interest. J. DOUGLAS.

THE EARLY TULIP FOR MASSING IN SPRING.

In their spacious trial grounds abutting on the Great Western Railway, near Reading, Messrs. Sutton and Sons illustrate both the usefulness and striking character of the early Tulips for outdoor decoration. As the railway train rushes by, the traveller sees laid out before him a kind of whirling panorama of large patches of colour—crimson, rose, purple, violet, yellow and white, and some of these colours in combination. It is a production on a small scale of the bulb fields of Holland, and one can form some idea of the brilliancy of the Tulip when massed as at Reading. There are beds of Hyacinths also. There is one bed of about 3000 double Tournesol Tulips, and it is worth going miles to see it, so regular in growth are the plants and large in size the flowers. I wondered how many of the passengers travelling by the Great Western Railway on one side, or by the South-Eastern or South-Western on the other, were aware that these plants of gorgeous and delicate colours, that seemed to be lit up with surpassing brilliancy under the midday sun, were formed of simple Tulips, and that this blaze of colours could be reproduced in their own gardens—on a smaller scale, it is true, but at a comparatively small expense.

Some varieties are well adapted for massing because of their dwarf growth, striking and effective hues of colour, large, well-built flowers, and strong rigid stems. The latter is a matter of the first importance, because they are not so liable to be beaten about by rain and blown about by wind. Among these I place Canary Bird and the true form of the Yellow Pottebakker, both having bold flowers, the last-named a little deeper in colour and of the finest form. Of white varieties, l'Immaculé, one of the earliest to flower, and that queen among the white varieties, the White Pottebakker, which I take to be the very best white Tulip in cultivation for outdoor decoration. Of rose, Le Matelas, very bright and effective, a little expensive, but highly pleasing, and the delight of all who see it in the open ground. Of scarlet Tulips, Artis, very fine, but rather late in flowering, which is somewhat of an advantage, as a succession of bloom is desirable; and as a crimson, Cramoise Pourpre, or Purple Crown, a hue of purple-crimson, the deepest in colour and very effective. If another scarlet is wanted, then add Vermilion Brilliant, with its rich vermilion hue; but it should be the true form, as it would appear the commoner scarlet Van Thol is often sent for it. Of violet Tulips, President Lincoln, or, as known under its new name, Queen of Violets, dwarf and very showy; Van der Neer, violet, shaded with purple, the flowers large and of the finest build; and, as a dark purple, Wouverman. The striped form of the White Pottebakker is a very pretty variety, but it cannot always be depended upon to come true, as it is evidently a sport from the White Pottebakker, and shows a tendency to drift back to it; some of the more heavily-striped flowers are very pretty indeed. Brind Van Haarlem and a cheaper one named Standard Royal can also be used as striped bedding Tulips. In the way of edged or feathered flowers,

the single Keizer Kroon and the old double Tournesol are decidedly the two best, and both are highly effective; at the same time, they are not too expensive. Duchesse de Parme among the singles, and the old Gloria Solis among the doubles, are also very useful bedders.

Now, seeing that these Tulips were not planted until Christmas, and in somewhat stony and poor ground, it is astonishing how finely they have bloomed. The Tulip adapts itself to a poor soil; provided it can but root freely into it, it will do well and reward the labour of the planter. And in a much larger measure than the Hyacinth, the Tulip bulbs, if lifted as soon as the foliage shows signs of decay, and put away carefully in shallow boxes when dry enough, and kept in a cool place, will be found very useful for planting another season. The bulbs suffer most from being kept too long in the ground, and early rather than late lifting is to be commended.

But it may be asked, What hardy flowers have we in flower early enough in the spring to be associated with Tulips? It can be replied, a very satisfactory list. There are Daffodils in great variety, the white *Arabis alba*, the blue and purple *Aubrietias*, *Alyssum saxatile compactum*, with its masses of yellow blossom; the blue and white *Myosotis dissitiflora* and the later *M. sylvatica*, *Polyanthuses* and *Primroses*, double *Daisies*, *Wallflowers* in variety, *Pansies* and *Violas*, *Anemone coronaria*, *fulgens* and *apennina*, *Pulmonarias*, and among annuals the early-blooming *Silene pendula* and *Limnanthes Douglasi*. If this is not an exhaustive, it is at least a useful list, and comprises most of the plants available for the purpose that flower in April and May.

R. D.

FLOWER GARDEN NOTES.

CARPET BEDDING.—Of the kind of bedding that is generally understood by this term, I have no admiration other than for the marvellous manner in which plants can be made to work out all sorts of figures and intricate designs. The nearest approach to this style of carpet bedding that I have ever come is that of using all the best forms of dwarf growing foliage plants that are available for the purpose in set patterns or designs, but such plants I have always supplemented with others in the form of standards. The latter quite destroy the flatness, and in addition to that we get a greater variety of plants and formal designs with natural forms of plant growth. *Grevillea robusta*, *Aralia Sieboldi*, *Dracæna australis*, *Agaves*, *Echeverias*, &c., dotted about the beds in the centres and angles of the design make the most formal carpet bedding pattern look graceful and attractive. From the foregoing it will be seen that it is not to carpet beds as foliage arrangements I object, but to their excessive formality. Arrangements of coloured foliage are desirable features in gardens of any extent, as they continue bright and effective long after most of the flowering bedding plants have faded. The only great drawback to the form of foliage bedding I have here mentioned is that of obtaining a sufficient variety of plants, especially of bright colours, without having recourse to the small Brazilian *Alternantheras* that are so tender. I have many times resolved to discontinue their growth on this account, but their summer beauty is so charming that the resolve has hitherto been as regularly broken as made. The following are the names of the dwarf plants for this form of bedding: *Herniaria glabra*, *Cerastium arvense*, and *Veronica repens*, green; *Echeverias* and *Sedum glaucum*, grey or silver; *Sedum acre elegans*, *Mesembryanthemum cordifolium variegatum*, cream colour or light yellow; *Leucophyton Browni* and *Antennaria tomentosa*, white; *Alternantheras*, several kinds, ranging in colour from orange-yellow to a deep bronzy purple. There are others that are perhaps equally good, but these are the species and varieties that never fail. With the exception of the *Alternantheras*, we have finished planting the beds that are arranged after this fashion, and the *Alternantheras* will be put out the first week of June.

TYING AND TRAINING CLIMBERS.—Most of us are slow to own a mistake. I have made a great one in respect of planting climbing *Roses* and *Clematises* alternately to cover an arched trellis. The idea was to cover a given space of the trellis with *Clematis* and a similar-sized space with *Roses* throughout the whole length. The *Clematis*, despite all our efforts, will grow over the *Roses*, so that next autumn one or other of the two must go. Meanwhile, we strive to keep the growth of each separated by repeatedly training and tying the shoots to the portion of trellis allotted for each.

TUBEROUS BEGONIAS.—We have just transplanted these to the flower beds from frames where they were started in light vegetable mould and a little loam. They have not flagged in the least by removal. This is evidently the right way to prepare these plants for the flower beds. We used to start them in pots and plant out direct from them, but they never did half so well as they do from frames. I fancy that much finer plants could be had for the conservatory by the planting-out system. The *Begonias* should be put in frames and potted up a month or six weeks before they are required in flower. W. W.

SHORT NOTES.—FLOWER.

Bluebells and Poet's Narcissi.—One of the prettiest sights we have seen this season was a mass of *Bluebells* with the white *Poet's Narcissi*. The contrast between the two was charming.

Lance-leaved Tickseed (*Coreopsis lanceolata*) is one of the finest herbaceous perennials for a sunny border that we have, and that is saying much with the many beautiful hardy plants in cultivation. It grows about 2 feet in height, unless in a specially suitable position, and maintains a good succession of brilliant yellow flowers. Ordinary soil will suffice.

Spiræa astilboides.—The old *S. japonica* is a well-known and valuable subject for pot culture in spring, but this newer variety eclipses it completely. Its habit of growth is much the same; it flowers as profusely, but the heads are three times the size of those of *S. japonica*; they are much more feathery, pure white, and most valuable for all kinds of floral decoration of a choice character. I regard it as the finest of all the *Spiræas*.—J. MUIR.

Saxifraga pyramidalis in pots.—At Penllergare Mr. Warrington grows the above *Saxifrage* in 6-inch pots, and at the present time each plant has produced a flower-spike upwards of a yard in height. The pretty little light-coloured flowers are most gracefully disposed, and as a pot plant it merits more attention than it generally receives.—J. MUIR.

* * This plant is now being taken in hand by the market growers for Covent Garden, and in the flower market some handsome specimens may frequently be seen.—ED.

Annual Poppies.—Very beautiful are the Shirley Poppies, now blooming profusely from seeds sown last autumn. I find them to be very hardy and useful in providing some nice greenery for the borders during the winter. The flowers show not only a wondrous variety of colours, but also many exceedingly refined and delicate tints. I think the pink, rose, and carmine shades are very lovely. In habit, however, I think this Shirley strain compares rather unfavourably with the umbrosium variety. The flowers of the latter are well borne above the leafage on stout stalks, and the leafage itself is at least very pretty and neat. The flowers of *P. umbrosium* are of one colour, but then it is a rich striking crimson-scarlet hue, and the deep black blotch at the base of each petal is a feature lacking in other forms of annual Poppies. The foliage of the Shirley strain is of a very diverse character. When raised from seed sown in the autumn the plants come tall and strong; indeed, with me, many of the plants were 18 inches high and as much through before they flowered. *P. umbrosium* blooms earlier. I hope we may yet get a strain which shall embody the wondrous variety of tint and of beauty found in the Shirley Poppies with the fine form and character of the Japanese *P. umbrosium*.—A. D.

Aquilegias.—A group of *Aquilegias* of the coronaria section, but from seed, which had been partly cross-fertilised with pollen from other types,

the true coronaria habit being well preserved, however, are now blooming with me in the open field. How hardy *Aquilegias* are ample evidence is offered here, but the hardest usually with me, because perhaps the most robust, are hybrids of species such as *chrysanthia* × *coronaria* and *chrysanthia* × *cærulea*, the products of these crosses showing much more robust form and greater freedom of flowering than is seen in the original species. Hybridisation has in no way served to render these forms infertile; indeed, they are as productive of seed as even the common *A. coronaria* is. Purples and deep blues are abundant, but so also there are many white, red-rose, bronzy and other tints, and not a few quaint-looking doubles. A special feature of the coronaria type is that the plant blooms freely some ten or twelve days before the best of the species and hybrids of species are in bloom, thus materially lengthening the season. The flowers are in all cases borne on stout erect stems, and as the plants are blooming for the first time, the product is remarkable evidence of the value of sowing seed early in the spring so as to ensure very strong blooming plants the following year. *Aquilegia* foliage is very ornamental, and during the winter has a pretty effect and is useful in helping to dress hardy plant borders.—A. D.

PLANTS FOR A BOG.

SPIRÆA ASTILBOIDES.—This is stated to be very beautiful as a pot plant at Kew (see p. 475). This I can well believe, but it may not be so generally known that it succeeds admirably as a bog plant. Many fine masses of it are now coming into flower in the artificial bog in the nurseries of Messrs. Paul and Sons at High Beach. We grow it in our flower borders as a hardy plant, and as it seems to be so amenable to culture under such varying conditions, it ought soon to be more universally cultivated. It is worthy of note that many robust flowering plants were growing in juxtaposition to it in Messrs. Paul's bog garden.

THE MARSH MARIGOLD (*Caltha palustris*).—In the bog garden referred to above early in May were fine flowering masses of the double forms of the common Marsh Marigold (*Caltha palustris*). The variety *monstrosa* was the earliest to flower, followed by two other double-flowered forms, *nana* and *pallida*.

On the edge of the bog *Iris cristata* has made good growth, and has flowered fairly well; while *Iris Kämpferi* never seems more happy than when its roots are quite in the water.

I found *Senecio pulcher* grew and flowered best in our own garden in wet, rather heavy soil, but it also does well in a bog. It is really a handsome Composite for late autumn flowering, producing its blooms until they are injured by sharp frosts.

ORCHIS FOLIOSA seems to like the boggy soil, and has grown and flowered freely side by side with the Bog Bean (*Menyanthes trifoliata*).

RUBUS ARCTICUS has formed a dense colony on the margin of the pond.

Some of the Lilies succeed admirably on the drier portions of the bog, some of the best of them making vigorous growths. *L. canadense* does well, and is a very handsome species. *L. pardalinum* and a variety of it (*Robinsoni*) succeed well. This species we have grown well in our rock garden in wet, rather heavy soil.

CLAYTONIA SIBIRICA, with pretty rosy tinted flowers, I noted as being in flower on the 1st of May.

I thought the alpine *Primulas* did not seem to take kindly to bog culture, the one that succeeded best being *P. ciliata purpurea*. J. DOUGLAS.

Wood Hyacinths.—The common Wood Hyacinth is one of our most familiar wild flowers, but few comparatively are aware of the rich series of varieties now in cultivation. We were in Messrs. Barr and Son's Tooting nursery the other day, and in one shady corner was a splendid break of the various forms of *Scilla campanulata* and nutans, the plants one forest of spikes, some white, others of the deepest violet-blue, and a few of the palest pink. Of the varieties of *campanulata*, the pure

white alba and the fine deep blue *atro-cærulea* are remarkably beautiful. Of nutans, the best were alba major, pure white, fine bells; rosea, bright rose, and rubra, red. It is by planting large breadths of Bluebells of various colours that our gardens are rendered beautiful. Masses of the delicately-tinted forms in a wood, or those with large bells of the richest self blue beautify in a charming way the natural scenery.

NOTES ON HARDY PLANTS.

Euphorbia pilosa.—Are any of the Spurge good decorative border and rockery plants? I think so, and especially this one, as it is hardy, of a showy bright colour, lasting for many weeks in early spring, perennial, and of neat habit. These are all good points, but there is something more; the effect of good-sized plants from March to May, when the ample bracts are nearly of as fine a yellow as are the flowers of Sweet or common Alyssum, may be said to be unique. I shall be much mistaken if, when the plant becomes better known, it is not eagerly sought for. Then the plant puts on another charming set of tints in the autumn. I grow it on a dry sunny bank where the soil is composed almost entirely of rubble. The specimen is about 15 inches high, the erect stems being numerous. The bracts and flowers being in corymbs cause the tops to have a full and flat effect, but the whole plant is of a yellowish hue in spring.

Euphorbia capitata is a neat trailer of only a few inches high, and just now it is lovely. The small neat foliage and stems are sea-green; the compact clusters of bracts and flowers are scarcely the size of a marble, yellow, and the central fruit is crimson. As every little stem is tipped in this way the effect is most pleasing, and the plant keeps in good condition for a long time. I grow it both in pots out of doors and at the base of a sunny rockery in ordinary loam of a light character.

Dryas lanata.—A plant reached me under this name which I can find no authority for. It more nearly resembles octopetala than Drummondii or integrifolia. Still it is very different, and it is much earlier with me. Though the flowers are only eight-petalled, like those of octopetala, they are much smaller and more imbricated; the distinctly two-lobed character of the petals gives the flower a fuller effect. The flowers too are more freely produced and shorter stemmed. The leaves are more cordate and woolly underneath, and have also longer stalks. I wonder if the variety is much grown, and under what name. The plant is certainly worth looking after.

Dianthus Atkinsoni.—In consequence of former notes on this plant, I have received many complaints both from the trade and others that it does not prove either hardy or perennial. I have now to record that my three-year-old specimen has not only come safely through its third winter, fully exposed to cold, wet and slugs, but it is now 6 inches or 8 inches high, and making many flower-stems. All the while it has never been cut or lifted or layered, but I have taken stem and root-cuttings from it. I have a suspicion that the stem cuttings are more apt to die the first year from their too free-flowering habit. Two young plants from autumn cuttings of 1887 were, however, planted out last spring. They flowered finely last summer and they are good plants now in the open, with the exception of one that has been badly eaten by slugs. I cannot make out why so many have failed with this most brilliant Pink. I have not half the trouble with it that I have with *D. glacialis* and *neglectus*.

Primula Reidi.—I have fairly tested this as an open garden plant, and it is now growing strongly. It is clear, however, that a little protection in cold frames makes considerable difference to the early growth, because plants in frames are now in flower.

P. Rusbyi has also proved hardy under similar conditions with the above. The two kinds are side by side.

P. suffrutescens does better in all respects on rockwork without the least protection. The plant

makes thickish, stringy roots, quite a foot long. This habit, to my mind, suggests that the roots require more freedom than they can well have in ordinary pots. Cuttings put in last autumn have just been lifted with roots 8 inches long. The plant should have deep soil and be well grown, but it does not flower freely until it has made some hard stems or become leggy. The woody portion should not be earthed over. In other words, the plant cannot be grown too well, but, as indicated by its tree-like habit, it is longer than perhaps any other known *Primrose* in coming to a state of maturity. I have grown it five years, and only leggy plants have ever bloomed.

Aster graminifolius is the earliest of all the Starworts, not even excepting *A. alpinus*. On slender stems, 4 inches to 8 inches high, the pretty little heads, which are like those of the field Daisy, are freely borne; the leaves are not exactly grassy, but more resemble those of Hyssop. I think that most people fond of dwarf and interesting plants would be pleased with this. It is perfectly hardy, and thrives with me on a small bed of ordinary soil.

Andromeda fastigiata.—It is a rueful pleasure one must have on seeing this gem flower so profusely. A very small plant is weighed down with flowers. It blooms far more freely than the commoner and rampant growing *A. tetragona*. Indeed I have lost several plants from their flowering so freely.

Daphnes for rockwork.—*D. rupestris* is in flower. How much better this grows and blossoms when worked on Laureola or Mezereon! *D. Cneorum* is now in brilliant form. What other flower so sweet! I believe many fail to grow this. Let me say, try it in clay—clay chopped and liberally sprinkled with fine peat during the process. I have done it, and seen it done by others, and the results are all that can be desired. Of course, the position should be moist, open, and sunny. *D. Blagayana* has been charming, and already it has made its new wood since the blooming period. *D. Fioniana* is growing in favour year by year. It is, perhaps, taller than many would like, 1½ feet to 2 feet, but its almost carmine flowers so early and sweet are indispensable, and besides the bushes are neat Evergreens, of undoubted hardiness.

Woodville, Kirkstall.

J. WOOD.

Fraxinella emitting inflammable gas.—Mr. Wolley Dod (p. 489) does not believe that the *Fraxinella* emits inflammable gas. I do, and with good reason. The fact has been stated by Linnaeus, Darwin, Miller, Sweet, and others, and I quite believe them, for I have seen it myself. I do not remember to have ever made the experiment myself, but my father was fond of showing it, and I have seen him show it more than once. It requires a dark night, a thundery atmosphere, and a lighted match. But in its native habitats it ignites spontaneously. General Munro told me that it abounds in the Crimean cornfields, and that he had often seen the fields lit up by it, and his testimony is unimpeachable. Your plate of the plant will attract attention to it, but it is not quite correct that it has not been figured in England before. Without mentioning Gerard's and Parkinson's figures, which are not good, there is a good coloured plate (natural size) in the plates to Miller's "Gardeners' Dictionary," pl. 123.—H. N. ELLACOMBE, *Bitton*.

— I am quite at a loss to understand the difficulty that your correspondent, Mr. C. W. Dod, has experienced in firing the *Fraxinella* blooms. Among my earliest recollections I look back to this exceedingly pretty and curious experience. On a dry and quiet summer evening, when the *Fraxinella* was in bloom, we used to go out and apply for an instant a lighted match close to the stem at the base of the flower. Immediately a light feathery flame flickered with a bristling sound up through the flowers and vanished. Sometimes when one blossom was near another, the second would be lighted by the first. The flame does not visibly injure the flower, but the warmth is easily felt if the hand is held among the blossoms. After a few nights, or a week at most, the "gas" can be fired again, and this goes on until the seed vessels are

formed, and they produce the same effect. I do not think there is any inflammable "gas" whatever round the bloom, but that very fine resinous hairs are ignited by the match, and that the flame from the lower one is able to start those above. The white variety never grew so strongly, nor did it burn so well, but even with this Mr. Dod ought to have observed some effect unless he tried to light the "gas" as from a jet at the top of the flower. The observations described above were made in the garden of Wing Rectory, Rutland. It is a pity that this very beautiful phenomenon is so very little known.—C. V. BOYS.

ROSE GARDEN.

ROSES AND ASPARAGUS.

NOTES have recently appeared in THE GARDEN on the desirability of planting these together. The writers, however, leave us in doubt as to whether standard, dwarf, or bush Roses are intended for the purpose. If standards are meant, then there may be some gain in hiding their bare stems with something pretty, but as such plants are losing in favour and the other forms are being planted in increasing numbers, it would be well to have the doubt removed. But surely there is something incongruous about this mixture, for the two plants have nothing in common, except, perhaps, a liking for good soil. From an artistic point of view, such strong contrasts are rarely satisfactory, either in the garden or in the vase, some similarity of form, habit, or density in the plants used being required to make happy combinations. As "good wine needs no bush," so good Roses need no foliage but their own to set them off to the best advantage, and the ground between the plants would be better occupied in the case of Hybrid Perpetuals with low-growing annuals that would begin to flower just when the first crop of Roses is going off. Tea Roses especially require no outside help in the matter of foliage, for nothing can be finer than the ever varying tints of the healthy leaves and shoots common to this class of Roses, and it would be an act of vandalism to hide any portion of such plants in their growing seasons.

If Asparagus would act as a shelter from cutting winds when the Roses are starting into growth it might be useful, but at that time it is bare of growth of such a kind as to form shelter, and later on when the Roses would want all the sun, air, and ripening influences they could get, they would in the case of bush plants and dwarfs be simply smothered. Neither would the combination be useful economically, for the ground occupied by a plant of the one would support a plant of the other equally well. "D. T. F." has recently complained of unripe growth on Roses, and if he adopts this novel arrangement, as he intends to do, he will undoubtedly increase his difficulties in that way. I do not quite see how he can reconcile his idea of "each drooping Rose resting its beauteous cheek on the soft feathery fronds of bending Asparagus foliage" (April 20, p. 371) with a sentence of his written earlier (March 30, p. 278) in which he says: "Few plants suffer more from lack (?) of normal measures of sunshine than Roses." Asparagus growths, though light and graceful, collectively give dense shade, and if Roses require an abnormal or even a normal amount of sunshine to ripen their wood, they are not likely to get it in this connection. (C. J. TALLACK.

Livermere.

Ants destroying Roses.—In answer to Colin Romaine (GARDEN, May 25, page 474), the ants probably overrun your Rose bushes in search of aphides or green-fly, and finding the juicy broken stalks where the Roses have been disbudded, are attracted by the juice, and when the supply fails they work further and further into the stem for more. Covering the ends of the stalks with clay or cobbler's wax would, I should think, stop the ants. They may be trapped by placing a flower pot with the hole in it closed bottom upwards over

the nest and then watering the ground round frequently so as to swamp the nest. The ants will in time re-make their nest within the dry pot. When this is done, perhaps in a fortnight or so, remove the pot, nest and all. This is best done of an evening when few ants are about. A ring of sand well soaked in paraffin oil laid round the tree would keep the ants off. Boiling water, carbolic acid, paraffin oil or a quarter of an ounce of corrosive sublimate dissolved in a gallon of water poured into their nests will kill them. More than one application will probably be necessary.—G. S. S.

Rose Gloire de Dijon.—Despite all that has been written in favour of this deservedly popular Rose, it is almost impossible to say too much. Among outdoor Roses it is undoubtedly the best all-round variety in cultivation. Generally the first to bloom in spring and the last in autumn, for long after frost has made its appearance I have cut bunches of good bloom. A fortnight ago I saw a magnificent plant, covered with buds just on the point of bursting, on a cottage near Southampton. For covering walls it is admirably adapted, for, although thriving best on a south or south-west aspect I have seen it do remarkably well on east and west walls. Where cut flowers are in requisition Gloire de Dijon should always find a place.—C.

Marechal Niel outdoors.—I was somewhat surprised to read Mr. Muir's note anent this Rose outdoors in South Wales in THE GARDEN, May 25 (p. 474). He says, "I have rarely seen the Marechal Niel Rose a success in the open." Whilst admitting it is more tender than the majority of Roses, I am of opinion that it is much hardier than many suppose. In Hampshire I have seen it do well on a wall, making equally as vigorous growth as when under glass. Again, in the West Riding of Yorkshire I have seen a fine plant growing on a south wall; and only last year I came across a fine specimen outside in a Lincolnshire garden. True, in the two last-mentioned cases they were in sheltered positions, and were afforded slight protection during winter.—C. C.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL TEMPLE SHOW.

MAY 30 AND 31.

THE exhibition in the Temple Gardens which closed yesterday showed that the Royal Horticultural Society has still a powerful hold upon the nurserymen and gardeners of England. They came from all parts, and thus we had a representative display, weak in some points and strong in others. It was a show of a different character to the ordinary type. There was very little competition, but the miscellaneous collections were quite sufficient to fill comfortably three large marquees, one of which was occupied largely by Orchids. If everything but these had been removed there would still have remained a grand show of flowers, as the Orchids were the finest in quality and variety we have seen since the great conference. The show in other respects was not so fine as the one held about the same time last year. Then it was the hardy flowers were as fine as the Orchids, and miscellaneous plants were noteworthy. Although there were plenty of classes for market growers, these were very poorly filled, and certainly if the society had relied upon competition for making a display, there would have been an exceedingly weak, uninteresting exhibition. Few sites in London are better adapted for a show of this kind than the Temple Gardens on the Embankment. Although close to the Strand, they are quiet and free from the bustle, noise, and dirt of busy streets.

ORCHIDS were without a doubt the finest feature of the show, as the leading nurserymen and amateurs who make a speciality of the plants showed large groups. Messrs. Sander & Co., of St. Albans, had a bank that occupied half of the central stage in the large marquee, about 1000 specimens being shown, including 300 plants of *Miltonia vexillaria* in many varieties, running through rich shades of rose, a few passing into pure white. We have

seldom seen a finer display of this flower. A similar remark may be made with respect to the group of *Odontoglossum crispum*, the plants one mass of the arching racemes of large, well-coloured flowers. Some were beautifully spotted, others nearly pure white, with a blotch of brown on the lip, and the majority flushed distinctly with a rich rose tint. There is no *Odontoglossum* to approach *crispum* for usefulness and beauty. Besides these two species *Lælia purpurata* was represented by densely-flowered plants of well-marked varieties, and there was a rich series of varieties of *Cattleya Mossiæ*, *Mendeli*, and *Gaskelliana*. One form of *Mossiæ* had a lip of surprising richness, finely fringed, and a mixture of magenta of deep and soft shades, set off by a suffusion of yellow on the inside of the lobes. *Odontoglossum Ruckerianum* in several forms; *Harryanum*, *polyanthum*, *Coradinei*, *Londonense*, buff-yellow spotted with rich brown; and *Halli* were the chief members of this genus exhibited. There was a fine mass of *Oncidium Harrisonianum*, *Cypripedium caudatum*, *selligerum majus*, *Cattleya Brymeriana*, *citrina*, *Skinneri*, and the chaste *Utricularia montana*. A choice exhibit was a plant of *Odontoglossum guttatum rubrum*, a fine spotted variety, the sepals and petals about equal size, and each with a large central blotch of brownish red surrounded by a cloud of rose. A noble group was that from Mr. James Cypher, Cheltenham, in which were large plants of the finer forms of *Cattleya Mossiæ* and *Mendeli*. A charming form of *Mendeli* is delicate, white, with a blotch of rose in the centre of the lip and yellow in the throat. *Mossiæ gigantea* has a very large and finely-coloured flower; and a variety of *Lælia purpurata*, named *Darnelliana*, has rose-magenta sepals and petals, with a lip of very deep colour. A very pretty piece of *Dendrobium tortile roseum* was in this group. It is a lovely variety, the lip white, and the twisted sepals and petals rich rose. Mr. Cypher also had good specimens of *Cypripedium lævigatum*, *Dendrobium Jamesianum*, the large-flowered *D. Bensoni grandiflorum*, *Devonianum*, and *Lælia purpurata Wyattiana*, in which the lip is beautifully veined with rose-lilac. One of the finest displays was that from Mr. Ballantine, gardener to Baron Schroeder, The Dell, Egham. It is impossible, just as we are going to press, to enumerate all the choice treasures in this group. *Cattleya Skinneri alba* is a lovely variety, with flowers about the same size as these of the type, but without a trace of colour except the soft lemon shading at the entrance to the throat, the deep mauve blotch at the very base, and the faint tint of magenta on the front of the lip. *Epidendrum prismatocarpum* was splendidly shown. A choice flower is *Masdevallia Harryana armenaica*, quite distinct from any of the other types. It is of a coppery shade, very unusual and distinct. *Cattleya Mossiæ Wageneri* is one of the whitest forms of this species. A beautiful *Lælia* is the variety *bella*, which was one of the gems of the collection. It is a hybrid between *Cattleya labiata* and *Lælia purpurata*. The lip is broad and of a rich crimson-purple colour, edged with almost white, the sepals and petals rose purple. Quite as choice was the hybrid *Phalenopsis John Seden*, a cross between *P. Luddemanniana* and *amabilis* (*grandiflora*). The flowers are a charming mixture of delicate shades, chiefly pale yellow, which is spotted with rose-lilac, a tint that spreads over the base of the sepals and petals. A good form of *Odontoglossum* is excellens, in which the flowers are yellow blotched with chocolate, and in the group were remarkably fine specimens of *Cymbidium Lowi*, *Cattleya Skinneri*, and a variety of *Lælia purpurata*, known as *Schroederiana*, in which the lip is bright rose-lilac, veined with a deeper colour. *Cattleya Warszewiczii Sanderiana* has a flower of great breadth, especially the lip, which is so densely spotted with rich crimson on a slightly paler ground, as to scarcely show the spotting; at the entrance to the throat there are two eye-like blotches of old gold colour. *Lælia Delliensis*, of which there was a small plant, is described as a natural hybrid; its characteristic feature is the pointed, somewhat long lip, of the richest self crimson-purple shade, without a blotch of any other colour. The beautiful *Thunia Veitchiana*, *Aerides Veitchii*, the pure white *A. Williamsianum*, *Mil-*

tonia vexillaria alba, quite white, except for the yellow centre; Vanda Denisoniana, bearing a spike of seven flowers; and the highly polished *Cypripedium Harrisonianum* superbum were also worthy of note in this unique collection. Mr. Bickerstaffe, gardener to Sir Trevor Lawrence, Bt., Dorking, brought well-grown plants from the Burford Lodge collection. *Epidendrum prismatocarpum* was in fine condition, and also the beautiful purple-flowered *Thunia Bensoniæ*. *Lælia pumila*, rich rose-purple, a finely coloured flower; *Dendrobium Dearei*, white, and whose flowers keep fresh for weeks; *Cattleya Reineckiana*, sepals and petals white, lip mottled with crimson-purple, against which the old gold-yellow in the throat is in rich contrast; *C. Sanderiana*, and *Vanda teres* were especially worth noting. There was also a fine form of the rich yellow *Oncidium Marshallianum*; the handsome *Maxillaria Sanderiana*; the fairy-like *Utricularia Endresi*, a charming flower of a soft mauve tint; *Cypripedium Hookeræ*; *Masdevallia Harryana regalis*, bright crimson; and *M. Denisoniana*, flowers of a rich crimson tinge. Another fine bank was that from Messrs. H. Low and Co., Clapton, in which *Phalænopsis gloriosa* (recently illustrated by a coloured plate in THE GARDEN), *amabilis*, and *grandiflora aurea* were conspicuous. The last-mentioned variety is distinguished by rich yellow colouring on both the inner and outer faces of the lower half of the side lobes of the lip. Another choice flower was the variety of *Cypripedium bellatulum*, named *excellens*. It has a flower heavily blotched with the deepest maroon-crimson. It is well worth a varietal name as something finer than the usual run of forms. *C. Hookeræ* was also good, and there was a well-flowered plant of the charming *Vanda cærulescens* Boxalli, in which the lip is rich violet-blue of a delightful and uncommon shade. Mr. G. T. White, Winchmore Hill, showed a group of *Cattleyas*, tastefully arranged, and comprising principally forms of *Mendeli*, *Mossiæ*, and *Lælia purpurata*. A variety of *Mossiæ* named *Arnoldiana* has fine broad sepals, with rose shading in the centre, lip white, brilliantly pencilled with magenta in the front, a rich yellow colour running into the throat. Mr. Smee, The Grange Gardens, Wallington, exhibited a group in which were several fine forms of *Cattleya Mendeli*, *Mossiæ*, and *Lælia purpurata*. One form of *Mossiæ*, called Mrs. Smee, has brilliant rose-coloured sepals and petals, the lip showing magenta and yellow shades. *Lælia purpurata Brysiana*, *Thunia Bensoniæ*, *Cattleya Mossiæ Reineckiana*, and *C. M. Londinensis*, sepals and petals rich rose, lip fine purple, were also well represented. The collection from Mr. Tautz, Shepherd's Bush, was rich in good plants, not the least choice of which was *Cattleya Aclandiae*. *Odontoglossum hastilabium*, grande, *Angræcum falcatum*, white; *Saccolabium ampullaceum*, the large-lipped *Cypripedium Curtisii*, and *Epidendrum macrochilum* were well grown and flowered. Mr. F. Wigan, Clare Lawn, East Sheen, showed plants of some of the principal Orchids in flower now. *Cypripedium hirsutissimum*, *lavigatum*, and *Vanda tricolor*, *V. suavis*, *Oncidium sphecelatum*, and *O. ampliatus majus* were the chief. A good group in the competitive classes also came from Mr. Whillans, gardener to the Duke of Marlborough, Blenheim.

Mr. B. S. Williams, Upper Holloway, had a remarkably fine group. *Calanthe veratrifolia* was a mass of the tall spikes of white flowers. A brilliant show was made by a specimen of *Masdevallia Veitchii grandiflora*, the colour rich scarlet. Also in this collection were good pieces of *Odontoglossum Coradinei*, *Lælia purpurata*, *Cattleya Warneri*, *C. intermedia*, *Calanthe masuca*, *Anguloa Clowesi*, *A. Ruckeri*, *Aerides Houllettianum*, and *Cypripedium Dominionum* and *caudatum*. A small, but well-grown group of *Masdevallias* and *Odontoglossum crispum* came from Mr. Partington, Heaton House, Cheshunt. A group also came from Messrs. J. Laing and Sons, Forest Hill, in which *Cattleyas* were a feature. A plant of a *Cattleya* named Mundy's variety was shown by Mr. E. Miller Mundy, Derby. The sepals and petals are as transparent and exquisitely tinted as porcelain; the lip deep rich magenta, with a yellow suffusion within

the lip. *Lælia purpurata* Studdæ is the name of a good form exhibited by Mrs. Studd, Bath.

FERNS, fine-foliaged plants, *Caladiums*, &c., were shown by a few of the leading growers of such plants. Messrs. James Veitch and Son had varieties of *Acer palmata*, hardy *Azaleas*, and things of this character. It is unnecessary to describe the *Caladiums* of Messrs. J. Laing and Sons, as in the cultivation of this particular plant there are none to approach them. The specimens were not only finely grown, but the varieties well selected. Mr. Melles, Sewardstone Lodge, Chingford, also showed *Caladiums*. In the group from Mr. W. Iceton, Roehampton, were well-coloured plants of *Dracæna Lindenii*. It is impossible now to refer in detail to the magnificent collection of Ferns from Mr. W. J. Birkenhead, Sale, Manchester. There were 600 kinds exhibited, comprising both hardy and indoor species and varieties. *Adiantum pedatum* was especially fine, and the lover of *Athyriums* would have found a rich series of forms, while of *Scolopendriums* there was a fine collection. Mr. H. B. May, Edmonton, showed *Crotons*, *Dracænas*, *Palms*, *Acers*, and Ferns in great variety.

An exceptionally well-grown batch of specimen *Clematis* came from Messrs. Richard Smith and Co., Worcester. The specimens were remarkably well-flowered, the finest varieties being *Excelsior*, rich purple; *Mme. Van Houtte*, white; *Sensation*, purple; *Grand Duchess*, very pale lilac; Mrs. George Jackson, white; Lord Neville, deep violet-purple, and *Venus Victrix*, double lilac. A fine group of tuberous *Begonias* was that from Messrs. H. Cannell and Son, Swanley, to which we shall refer again, and Messrs. J. Laing and Sons had an excellent display. *Azaleas* and *Roses* came from Mr. Turner, Slough; hardy *Azaleas* in pots from Mr. Anthony Waterer, Knaphill Nursery, Woking; *Rhododendrons* from Messrs. H. Lane and Son, Berkhamsted; and a rich group of pot *Roses* from Messrs. Paul and Son, Cheshunt. The plants were magnificently grown; one specimen of the variety *Charles Lawson* measured 8 feet across and carried upwards of 230 flowers; *Mme. Victor Verdier*; *Juno*, a lovely rose-coloured flower; *Celine Forestier*, *Alba rosea*, and *Souvenir de Gabriel Drevet* were in their full freshness and beauty. Herbaceous *Calceolarias* made showy breaks of colour. The strain from Messrs. Cannell and Sons is remarkable for its density of bloom, excellent habit and rich variety of colours, especially of yellow shades. Messrs. James Carter, High Holborn, also had a large bank of herbaceous *Calceolarias*. Fifty *Pelargoniums* of the French varieties came from Mr. G. Braid, Winchmore Hill, N., the plants densely flowered. A variety of *Pelargonium* named *Bush Hill Beauty*, a sport from *Mme. Thibaut*, which it much resembles, came from Messrs. Low & Co., and a compact-growing variety of the common Musk from Messrs. J. Carter & Co.

Hardy flowers were not so fine as last year. Masses of both common and uncommon kinds came from Messrs. Paul and Son, Mr. T. S. Ware, Collins and Gabriel, Waterloo Road, and Messrs. Barr and Son. The cut-flower tent was one of the most interesting. Messrs. Barr and Son showed bunches of *Centaureas*, *Irises*, *Pæonies*, *Anthericums*, *Anemones*, &c. Messrs. W. Paul and Son, Waltham Cross, showed boxes of cut *Rhododendrons* and *Roses*. The *Roses* were exceedingly beautiful, especially the flowers of such kinds as *Lady Sheffield*, rich shining rose; *Merveille de Lyon*, Queen of Queens and *Alfred Colomb*. Bunches of *Pelargoniums* and one of the finest displays of tufted *Pansies* we have seen for a long time at any exhibition came from Messrs. H. Cannell. We reserve our remarks upon these. Cut flowers were also sent by Messrs. Paul and Son, Cheshunt, and Messrs. Ryder and Son, Sale, had tufted *Pansies* in great variety and beauty; while from Messrs. Kelway and Son, Langport, came flowers of *Pyrethrums*, *Pæonies*, and *Delphiniums*, three flowers that they have in a sense made their own.

Fruit demands passing notice. Excellent collections for the season were those from Messrs. Cheal, of Crawley, Bunyard, of Maidstone, and Mr. A. H. Smee, Wallington. Mr. Chas. Turner showed

Lockie's Perfection Cucumber; and fruit also came from Mr. J. Hollingworth, Woodseat, Uttroxteter, and Mr. J. R. Featherby, The Vinery, Gillingham. The collection of Guernsey produce from Mr. Geo. Munro, Covent Garden, comprised principally Melons, Tomatoes, and Grapes.

Besides the exhibits mentioned in this report, there were bouquets from such well-known men as Perkins and Son, Coventry, and Garcia, of Covent Garden.

The trustees of the "Turner Memorial" Fund offered prizes for old-fashioned show Tulips. Mr. S. Barlow, Stakehill House, Manchester, was first, and Messrs. Stewart and Mein, The Nurseries, Kelso, second.

Wood wool for fruit packing.—When in London some six weeks ago, Mr. George, with his usual keen eye to business, showed me a sample of fine wood shavings, which he thought likely to supersede natural Moss and cotton wool for packing purposes. A similar or identical material having fallen into my hands by accident some months ago, I was enabled to give him an encouraging reply as to its adaptability, provided the slight resinous smell could be got rid of. Since that time Mr. George has made arrangements with the manufacturers for a supply of the wood wool, if anything finer and softer than the first sample, but the smell remains. The sample of one pound exhibited at the Drill Hall, Westminster, on Tuesday last, price 3d., filled a large box, the bulk giving one an idea that it would pack one dozen Peaches. Cotton wool, much more expensive, being greatly inferior to natural Moss, this material is well worthy the attention of fruit growers who cannot obtain a plentiful supply of the latter. Here we have an abundant supply of Moss, and as this is the best material for packing fruit and flowers, I am not likely to patronise the vendor, but were I driven into the market I should most certainly lay in a large store, as I believe this slight odour is volatile, and may be got rid of by full exposure to the atmosphere. Another advantage is its durability, as I believe it may be used over and over again, that is, provided the fruiterer can be induced to return it to the grower, and the more it is used the softer and less objectionable it will become. If this material is the waste from some particular manufacture, full exposure is the only mode of preparation for the fruit grower, but, assuming a soft white Pine is cut up specially for packing purposes, surely some soft inodorous timber like Lime, Poplar, or Willow might be substituted, when the doubt which exercised the minds of gardeners on Tuesday last would be set at rest for ever. In reply to my suggestion to this effect, I was told there was a difficulty in the way, but it cannot be the cost, as all these varieties of timber and others would be forthcoming at a reasonable price by no means insuperable, as we learn from London that seasoned Lime weighs 37 lbs. per cubic foot, Poplar 32 lbs., and Willow 30 lbs. These weights would be further reduced by drying the shavings, but then there would remain a good margin for conversion and profit.—W. C.

BOOKS RECEIVED.

"Vegetable Culture for Amateurs." Illustrated. By W. J. May. London: Upcott Gill, 170, Strand, W.C.

"Guy's South of Ireland Pictorial Guide." Cork: Guy and Co., Limited. London: Simpkin, Marshall and Co.

Names of plants.—*Thorne Falcon*.—*Cratægus punctata*.—*Mr. Williams*.—*Salix cuprea*.—*Sorbus*.—*Viburnum dentatum*.—*G. G.*—*Staphylea pinnata*; *Berberis vulgaris*.—*Roussy*.—1. *Leiorhynchum baxifolium*; 2. *Vaccinium amarum*.—*J. H.*—1. *Ceanothus azureus*; 3. *Phlox subulata* var.; 4. *Philomis frutescens*; 6. the common Twayblade (*Listera ovata*); 7. *Staphylea pinnata*; 2. 5. and 8. next week.—*H. D.*—*Staphylea pinnata*.—*J. G. M. G.*—*Lælia purpurata*.—*M. M.*—1. 2. 3. forms of *Geranium*, all flowers dropped; 4. *Lithospermum purpureum caruleum*; 5. *Santragelotus*; 6. *S. Maenabiana*; 7. *S. lentosema*; 8. varieties of late Tulips. We only name four at one time.—*Gabara*.—1. *Prunus sinensis* fl.-pl.; 2. *Staphylea pinnata*; 3. looks like a *Colutea*.—*T. G. M. G.*—Others next week.

WOODS & FORESTS.

THE WALNUT.

THE common species (*J. regia*) is a native of Persia, and is thought to have been introduced into this country in the sixteenth century. Independent of its value as a fruit tree, the Walnut ranks high as regards size and the superior quality of its timber. Although the tree is a native of a warmer country than ours, yet when thoroughly established I have found it to be perfectly at home in a great many places in Great Britain and Ireland, and as it ripens its fruit even in the far north, it is astonishing that it has not been more extensively planted. A piece of dry, sharp sandy or gravelly soil should always be selected for sowing the nuts, as the plants produced on such a soil are generally of a harder and firmer texture than such as are raised upon rich soft soil. In place of sowing the nuts in drills, I have sometimes inserted them in the ground with a dibber about 4 inches apart in the rows, and the plan answers perfectly well. The nuts must be protected from vermin during winter, and in spring when the plants make their appearance above ground they should be protected by evergreen twigs placed along the lines in order to protect the seedlings from frost. These twigs should be removed as circumstances may direct, and the ground kept free of weeds. In order to promote the formation of roots and the hardiness of the plants, the seedlings should be removed from the drills when one year old and planted into nursery lines about 12 inches asunder and from 4 inches to 6 inches apart in the rows. The operation of transplanting should be repeated every second year until the plants are removed to the forest or elsewhere where they are to remain. Transplanting is very effective in promoting the hardiness and fruitfulness of this tree. Trees so treated not only mature their growth earlier in autumn, but likewise ripen their fruit sooner and produce it in larger quantities than trees that have never been transplanted, but raised from seed on the spot. This I attribute to the roots being near the surface and within the influence of heat and surface moisture, both of which are beneficial in promoting growth and early maturity.

The Walnut is naturally one of the deepest rooting trees, and when left to grow on the spot without transplanting it sends its tap-root right down into the subsoil, and supports itself at a greater depth from the surface than most other trees. For this reason it is well adapted for planting in hedgerows and other places where it is desirable to prevent other crops in the vicinity of the trees from being robbed of food by surface roots. The Walnut is very impatient of pruning, and bleeds copiously on the removal of a small branch or twig. When, however, pruning does become necessary, I have generally performed the work in the month of August. Large specimens of this tree are to be found here and there throughout the country growing upon a great variety of soils and situations, some of which in the north of Scotland are at an elevation of from 400 feet to 500 feet above sea level. Many of these fine old trees present bold ramifying tops little inferior to that of the Oak, and whether mixed with other species or grown as specimens by themselves, their elegant forms and massive contour never fail to attract attention. The timber of the common Walnut is of great value, and instances are recorded where it has realised a higher price than any other wood produced in this country. This arises principally from the close firm texture of the wood, which neither shrinks, warps, nor

cracks, and as it is also highly ornamental, exhibits great variety in its grain and colour, and is capable of taking on a fine polish, it is extensively used for all the finer sorts of cabinet work, where strength, durability, and elegant finish are requisite. In its early stages the Walnut makes an annual growth of about 18 inches, according to soil and situation. The Black American Walnut (*J. nigra*) is, however, a more rapid growing tree in this country than the European species. Although the American form is not so valuable as a fruit-bearer as the European form, yet its claims as a timber-producer are of a high order. In its native habitat this tree is said to attain a height of about 100 feet, with a uniform thickness of trunk in proportion, and when planted on good soil and under favourable conditions as regards site it grows rapidly in this country and attains a large size. The tree is generally propagated from imported seed in the same way as that recommended for the European species, and the after nursery treatment is in every way similar. Although the American species does not always mature its seed in this country, yet it is found to be perfectly hardy when once established, and as its leaves are larger than those of the common species, it forms a well-furnished massive head of noble dimensions and great beauty. The timber when cut up for use is of a dark brown colour, close, finely grained, of firm texture, and capable of taking on a fine polish.

J. B. WEBSTER.

Wellingtonia gigantea.—There are few subjects in forestry which seem to excite more interest in the general public than that of the health, growth, and prospects of the American Conifer generally known under the name of Wellingtonia. I think that you may like to hear something about a remarkably fine specimen which I lately saw at Charlesfort, the residence of Mr. John Tidall, in Co. Meath. Its size is, I think, very great, considering that it was only planted in 1860. I give you its dimensions: Height, 60 feet; circumference at 1 foot from the ground, 13 feet 6 inches; circumference at 3 feet from the ground, 10 feet; circumference at 6 feet from the ground, 8 feet. The exceedingly rich soil of Meath seems to suit it. In vigour and colour it is all that can be wished. It has a fitting neighbour in a fine *Cedrus Deodara*, planted in 1854: Height, 61 feet; circumference at 6 feet from ground, 4 feet. I should like to know whether any of your readers can beat either of these measurements in trees planted at the same period.

—DENIS KNOX, *Virginia Rectory, Virginia, Ireland.*

Evergreen Oak, otherwise known as Spanish Oak, is a hard, tough class of wood, highly marked in its medullary rays; but, from its colour being a dull reddish brown, it finds but little favour as a furniture Oak. Bog Oak, from its blackness, has considerable value; but from being tender or short in the grain, from long immersion, it is not in much favour. Wood exhumed under such conditions is far more saturated than ordinary wood, and in giving off this superfluity it shrinks and splits or cracks to such an extent that it is almost worthless. The Bog Oak of Ireland is a perfect black, from the fact that very little sediment washes down the sides of the crystalline hills and mountains of that country, and the bogs are pure vegetable deposits. The Bog Oaks of Lincolnshire and the Fen district are associated with a considerable amount of sediment, and in colour are brown or imperfect black. In old times the inlaying of Oak furniture was carried out in Bog Oak, or Sycamore, or Holly; it is generally believed that these old inlays were ebony, but upon close inspection they are invariably found to be Bog Oak. In Ireland the Bog Oak is wrought into furniture, and although not of good or creditable design, it attracts considerable attention in the furniture departments of our exhibitions.

Liquidambar styraciflua.—The wood of the North American Liquidambar is heavy, rather hard,

tough, although not particularly strong, close grained, satiny, and susceptible of a good polish. A cubic foot of the thoroughly seasoned wood weighs 36·82 lbs., or rather more than that of our common wild Cherry and of the Black Walnut, but a good deal less than white Oak. The colour is bright brown faintly tinged with red, and of the sap-wood nearly white. It is difficult to season, showing a tendency to warp and shrink badly. Experience and the adoption of better methods are gradually overcoming this difficulty, however, and large quantities of this lumber are now manufactured into furniture or used in the interior finish of buildings, for which, when once thoroughly seasoned, the hardness, solidity and pleasant colouring and texture adapt it. It has been used to a considerable extent in some parts of the west for the plates and even for the frames of buildings, and largely in some western cities for street pavement blocks. The American Liquidambar is destined to supply a large amount of useful timber long after more valuable trees like the Cherry, the Yellow Poplar, and the Black Walnut are practically exterminated for commercial purposes. The fact that the real home of this tree in those parts of the country where it attains its greatest development is in deep swamps, always inundated every year during several weeks at a time, and incapable of being drained and therefore of being cultivated, will ensure with slight attention its perpetuation, and will make the future supply of the wood of this tree reasonably certain.

The Elder as a nurse tree.—It is somewhat remarkable that the common Elder is not oftener used as a nurse, as it is about the hardiest tree with which I am acquainted. In places where the strong west wind blows for several months in the year, and where even common Gorse looks as if it were rolled, Elders will grow and thrive, and anybody about to start a plantation in such places would do well, as a preparatory step, to plant the ground in the interior thinly over with Elder bushes, but as thickly as possible along the margin, especially on the windward side. This skeleton plantation of Elder, filled in with timber trees, will have a massive and telling effect. No plant grows so rapidly as young Elder, or so slowly when it is old. Elder will also withstand sea breezes as well, and perhaps better, than any other shrub or tree. On the dreary, sandy wastes at Formby, in Lancashire, where the shore is covered with wrecks and the wind nearly always blows a hurricane, may be seen a large solitary Elder tree, conspicuous for a mile in every direction, growing in the dry sand, and defying the tempest. No other tree or shrub will grow in the shade, or stand the drip of trees better than the Elder. In woods, the darkest and gloomiest spots may be made cheerful and lively by means of the Elder planted freely. As cover in woods and plantations, where little else would live, keepers used in winter to dibble in cuttings of Elder in all bare, naked places, being well aware of its utility as a plant for "thickening up." Lastly, the Elder makes a good plant for filling up gaps in hedges, especially where they pass under trees, and for boundary fences, where nothing else will grow. It will preserve the continuity of a hedge right up to the trunks or stems of even Beech and Horse Chestnut. Moreover, a well-developed, full-grown Elder tree, ornamented with about a thousand of its enormous creamy white cymes seen at a distance, is a noble object. There are now many varieties of it, such as the gold, silver, Parsley-leaved, round-leaved, green-fruited, white-fruited, and other sorts.—EAST LANCASHIRE.

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London: 37, Southampton Street, Strand, W.C.

No. 916. SATURDAY, June 8, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE." *Shakespeare.*

ROSE GARDEN.

MARECHAL NIEL AS AN OUTDOOR ROSE.

A DEAD set seems about to be made, some would say has already been made, against the growing of *Maréchal Niel* in the open air. Those who magnify its faults, and have been more than a little blind to its marvellous merits, are declaring through various channels that it cannot be grown in the open air. Through these latest utterances, the results of riper experience or of the natural prejudices resulting from occasional failure, there is some danger of our grandest of all Roses being swept from our gardens, as was its great forerunner of almost equal merit, the *Cloth of Gold*. There is, however, this great and striking distinction between these two rivals—equals, rather—the *Cloth of Gold* was an out-of-door Rose, or it was little or nothing worth; the *Maréchal Niel* is as good inside as out—possibly a majority of rosarians will declare better—ininitely better. But at this stage it is not desirable to go beyond the above cautious and well-balanced estimate of the *Maréchal Niel* Rose inside and out. The fate of the *Cloth of Gold* should prove a warning against our readily giving up one of the strings to our bow, viz., the out-of-door culture of the *Maréchal Niel* Rose. Had as much pains been taken to successfully grow and bloom the *Cloth of Gold* under glass as in the open air, the chances are that that magnificent Rose might have been generally cultivated to this day, instead of being now virtually extinct. Observe, I do not affirm that it is extinct, for we have ample evidence to the contrary in the pleasant surprises it affords us when found in cosy nooks and corners, hugging the warm walls of houses, churches, and stables, or starved into beauteous bloom on the roof of an antiquated conservatory, or struggling into beauty out of a deserted-looking green or grey pot. But these all too rare instances but serve to prove our point and to reveal to the inexperienced what a depth and fulness of golden glory has perished with the *Cloth of Gold*.

Can it be that its only worthy successor is in danger of also disappearing at no very distant date, doubly strangled by warts and by misrepresentation?

Leaving the warts for other pens or times, let us grapple as best we may with the latest misrepresentation, "that the *Maréchal Niel* cannot be grown to any great perfection in the open air" (*GARDEN*, p. 474). From whence has this become true? Admitting that the *Maréchal Niel* has a more ticklish constitution and is more tender than the majority of Teas, I would boldly affirm that it has been grown to the highest perfection in the open air in the past, and would as fearlessly prophesy that it is likely to be grown equally well in the future. By all means grow it in quantity under glass as at once the most beautiful and profitable of all indoor Roses. But grow it also in quantity and in every variety of aspect, place, and form in the open air to prolong its season, preserve its health, and extend its life. *Maréchal Niel* cannot be grown to any great perfection in the open air. Why not? Not a few of the very finest ever grown or shown have been so produced.

Closely hugging southern, western, eastern walls; boldly crowning standards of various heights; depending from stout bushes; drooping low from more slender-growing dwarfs, the writer has culled *Maréchal Niel* Roses of the very finest quality without spot or wrinkle, or any such thing.

True, the *Maréchal Niel* out of doors is neither time or clime proof. But what of that? Is it either indoors? Let the giants wrecked in a day, and the many yards of bare wall, rafter, or roof but yesterday so richly clothed with golden glory answer such questions.

The very perishability of the *Maréchal Niel* Rose furnishes the strongest argument for growing it as extensively as possible outside as well as indoors. It can be done, and therefore, alike for its intrinsic beauty and commercial value, it ought to be done.

What though the plants may not grow so large, nor live so long in the open air as under glass. It matters little, considering how rapidly the *Maréchal Niel* can be propagated, so long as it grows large enough and lives long enough to be profitable, and prove beautiful and useful. It is also certain that the *Maréchal Niel* in the open is by no means the dreary failure that not a few writers picture or predict it. The very paucity of their objections proves the weakness of their case against this fine Rose. Its beauty is hidden because of its drooping habit; therefore, no more of it in the open air is the substance of its summary dismissal by one of our cleverest rosarians. The flower is too heavy for the strength of its stem or the thickness of its neck; therefore it cannot be grown to any great perfection in the open air.

Besides, while we have a plethora of Roses that stare us out of countenance and carry their hearts in their eyes, it is quite a treat to have to look upon a few modest Roses of the *Maréchal Niel* type, that hold to the charming old legend, that beauty half concealed is ever most beautiful. And as to safety, while hosts of stand-up, upstaring Roses are compelled to take all that atmospheric friends or foes choose to send them, which at times may be rain in bucketfuls or hail of the calibre of buckshot, the drooping *Maréchal Niel* Roses have only to duck their heads and they are safe; and as our climate is so volatile and the *Maréchal Niel* Rose is somewhat ponderous, a permanent habit of drooping was one of its most valuable preparations for its culture in the open air.

But then it cannot be seen, nor seen all at once, nor seen just from the same standpoint as other Roses. So much the better. If we cannot look down into the face of the *Maréchal*'s beauty, we may look up to it on high fences or walls or on high standards; and in the case of dwarfs, we either stoop down to enjoy them or gather the Roses and raise them up to our level. Roses so well worth growing are assuredly worth placing in the most favoured positions for enjoying. Modes of culture may also do a good deal towards enabling us to place our *Maréchals* in the most sightly sites or positions; the artistic placing and posing of the flowers will do the rest. Besides, I have yet to learn that the *Maréchal Niel* droops its flowers more or lower out of doors than under glass. Few things, indeed, strengthen and stiffen the neck of this fine Rose more effectually than a vigorous free run in bed, border, or on wall in the open air.

Neither does colour or constitution necessarily become limp in the open air, though a fashionable set seems to have been made against open-air *Maréchal* Niels. Starved, stunted,

starveling *Maréchal* Niels may indeed be found indoors as well as out in various directions, and assuredly as many or more of such abortions under glass than out of doors. And as for the washed-out colours of *Maréchal Niel* in the open air, I have seldom or never met with them. How could I when the flowers droop so much as to render such a phenomenon as washing out a physical impossibility? Nondescript colouring, indeed! And yet there are rosarians amongst us who are ready to make affidavit that they had never known the indescribable richness of the colouring of the *Maréchal Niel* until they grew or gathered it in the open air.

D. T. F.

SOME NEW ROSES.

MR. BENJAMIN CANT obligingly sends fine blooms of *Ernest Metz*, the new Tea-scented Rose that Guillot has sent out this season, and which promises to be a valuable addition, and likely to maintain its raiser's great reputation. The flowers are of good size and substance, well formed, with a high centre and fine petal, and the colour is a very pleasing bright flesh-rose tint that does not quickly fade or become dull when the flowers are cut. The plant is likely to be especially valuable in the garden, as the blooms, although solitary, are carried erect upon stiff stems, and therefore displayed to the best advantage.

There is no question about the climbing character of the new sport *Climbing Niphetos*. Of a couple of spring-grafted plants just received from the raisers, Messrs. Keynes, Williams, and Co., of Salisbury, one has a shoot 7 feet long, and "is still growing;" and the other carries an even greater total length of growth, for though the main shoot has been accidentally stopped at a height of $4\frac{1}{2}$ feet, four or five lateral branches have started and are already each from 1 foot to $1\frac{1}{2}$ feet in length. The only difficulty will be to find situations that afford the plant sufficient room to develop to the best advantage.

Plants in pots of the new *Polyantha* Rose, *Minutifolia alba*, received from Mr. Henry Bennett, the raiser, are most charming. The habit of the variety is very dwarf and compact, and the snowy white flowers are produced in the utmost profusion. Most of these miniature *Polyantha* Roses make admirable pot plants, but none are more distinct and effective than *Minutifolia alba* from its close bushy habit and the exactness of its pure white flowers, which, unlike those of most other varieties of the section, are delightfully fragrant.

BLANCHE REBATEL (Bernaix), and the new variety of the same class with crimson flowers, is the deepest coloured *Polyantha* Rose yet sent out, and, judging from a well-bloomed plant received from Messrs. William Paul, is a very promising addition. From Waltham Cross comes also a plant in flower of *The Queen*, the new white sport from *Souvenir d'un Ami*. Of the flower's whiteness there is no question, and as thus bloomed under glass, it might easily be mistaken at the first glance for *Niphetos*.

MME. GEORGES BRUANT (Bruant), the new hybrid *rugosa* raised from a cross between *Rosa rugosa* and the *Bourbon Tea Sombreuil*, is now flowering freely. The buds are fuller and better formed than those of last year, though still somewhat rough-looking; but from their pure whiteness they are decidedly effective on the plant, which is exceedingly vigorous and free, and their fragrance is simply delicious.

WHITE PEBBLE, described as a sport from *Perle des Jardins*, was exhibited at the Temple show of the Royal Horticultural Society, and though there was hardly enough of it to form a very definite opinion, yet the novelty produced a favourable impression, and appears likely to prove an acquisition. The flowers, which are full and well formed, are of a very pleasing pale lemon-yellow shade.

T. W. G.

Tea Rose Narcisse.—This is a lovely Rose and should be better known. It is a pale yellow

variety, tinged with pink at the back of the petals. It is also a very free-blooming kind and grows freely. One of its great merits is that it blooms early on a warm sheltered south wall without any protection. Here (Somerset) we began cutting good blooms early in May. The value of good Tea Roses cannot be overrated where cut flowers are in demand, and they should be planted by everyone on warm sheltered spots on the open walls.—J. C. F.

Gloire de Dijon Rose in the open air.—Throughout the spring we have cut hundreds—I might say thousands—of this Rose under glass, but not one of the blooms equalled those we are now gathering from the wall plants in the open air. Unfavourable seasons may cause, and do cause, many subjects to flower scantily and weakly the following year, but this Rose appears impervious to all this, as it is now blooming as profusely as ever, and for size, substance, form, and colour, I never knew the blooms to be finer than they are at present. They are not confined to one spot or one aspect, but are in all directions, and those on cottage walls equal those on the mansion. How the bulk of the Roses will succeed in 1889 remains to be seen, but there can be no doubt about the one in question being as great a success as ever.—J. MUIR.

Roses too close to the glass.—Mr. J. Muir does well to call prominent attention to this growing evil. Roses, like most plants, make for the light, and hence the tendency of so many Roses in houses to hug the glass too closely. Even Mr. Muir's distance, 15 inches, is far too close in span-roofed and very light houses. It seems to be so often forgotten in our various arrangements for training that mere proximity to the glass is not essential to the enjoyment of a full measure of light, for but little is lost in the passage through clear glass. It is the obstruction the light meets with inside that reduces its intensity or force. And this is mostly greatest where vegetation is placed in closest proximity to the glass. The Rose shoots or blooms that harbour moisture and generate aphides, red spider, or scalding also obstruct the light and check the free circulation of the air. The latter, in fact, leads to the most serious injury to the health and cleanliness of Roses. In houses of no great elevation it often seems best to keep the Roses off the roofs or rafters, and grow the plants in the form of bushes, varied with standards of different heights. More and better Roses might thus be gathered from a given area than by the more common methods of clothing the roof. Where, however, the construction of the house favours the latter method of culture or training, it is most important that a clear space of from 2 feet to 3 feet should intervene between the glass and the Roses.

HORTUS.

Manure water for Roses.—In soils that are light or naturally well drained it is surprising what beneficial effects liquid manure has on the health and strength of Roses at this season, as not only does it make the plants more vigorous, but it quite shows itself by adding a deep rich colour to the leaves, and greatly increases the size and splendour of the blooms. Those who do not happen to have the drainage of a farmyard or manure heap to make use of may easily form a good substitute by soaking cow or sheep manure in a large tank or tub of water, to which should be added some soot, and the whole stored up and left a week or so to subside and become clear. To make sure of having it in this desirable condition, the best way is to have a tap about 6 inches from the bottom and draw the liquid off through that instead of dipping it out, as this is apt to stir the whole up, and it should never be applied in a thick condition. Most of the artificial manures sold are also valuable for application in the liquid state and readily dissolve in water, but the thing with these and guano is not to overdo it, as it is better to give them weak and often than overmuch at any one time. If the liquid manure is in the state referred to, that is clear and free, it may with safety be poured on over the heads of the plants through a rosed pot, and if it leaves a slight sediment on the foliage, that may be washed off by following on immediately with a pot of clean water, but if the ground

round the plants is mulched the liquid manure may be poured on without the aid of a rose. For pot plants liquid manure is almost essential, and it may be given to Roses in a weak state almost as often as they require water when they are making free growth. Soot water, if clarified before being used, is a capital thing to syringe Roses with, as it agrees well with the plants, and is inimical to green-fly and all insects.—S. D.

PROPAGATING.

NERIUMS.—There are many beautiful varieties of Nerium which, when in flower, are remarkably attractive. If the plants are well grown and kept clean they also form handsome foliage plants. They may be propagated from cuttings with little difficulty. Some growers advise them to be rooted in water, but I prefer to put them in pots. The cuttings should be selected from the strong, well-ripened leading shoots; they may be put in singly in small pots, using light sandy soil and a little extra sand at the base of the cuttings. They should be placed in the close propagating pit and kept rather moist. Neriums do not root so quickly as some subjects. As soon as roots are formed the plants should be removed to a more open position. When sufficiently established they may be potted on into 5-inch pots, using good rich loam, and the plants should be potted firmly. After they have made a good growth expose them fully to the sun, and keep rather dry until the flower-buds are set. It is, perhaps, on account of the poisonous properties of these plants that they are not more popular.

CEANOTHUS AZUREUS.—There are several very pretty varieties of this Ceanothus, which are useful either as pot plants or for planting out, but it is only in sheltered positions that they will stand a severe winter. They may be propagated either from the young shoots in the spring, or from the matured growths in autumn. The former method is the best, especially if the cuttings can be obtained from pot plants which have been growing in a little warmth. These will strike freely under similar treatment to that required for Bouvardia cuttings, but only one leaf should be removed from the base. In putting the cuttings in they should not be inserted far below the surface. When propagated in the autumn rather longer cuttings may be made, and they will succeed best in a cold pit, but must be kept close and shaded until they are rooted. Plants propagated in the spring should be potted off as soon as ready, and if grown on freely they will make useful plants for the following season.

CLETHRA ARBOREA.—This pretty evergreen greenhouse shrub may be propagated from the half ripened young shoots. They should be put in singly in small pots, using sand and peat in equal portions. The cuttings should be taken off close to the older wood. They will succeed best in a close case where there is only a moderate bottom-heat. It takes some time for them to form roots. After the cuttings are callused they have the appearance of being ready for removal from the close case, but if exposed they will soon show that they have no roots to sustain them, and wither. After they do strike root they soon become quickly established. Young plants grow away very freely, but it is only after they have attained a considerable size that they flower well. It is one of the most desirable plants that can be grown in large conservatories.

SAXIFRAGA PYRAMIDALIS.—Like many other hardy plants, this Saxifrage is much prettier when grown in pots under glass, as the beautiful pyramidal racemes of pure white flowers are then more fully developed. When well grown it is one of the most elegant plants we have for flowering at this season of the year. It may be readily propagated from offsets, which are produced about the time the plants begin to throw up the flower-stems. There will usually be some plants which fail to produce bloom, and these generally bear a great number of side shoots or offsets. A few may also be obtained from the flowering plants. The offsets

should be taken off with a short piece of the stem and put into shallow pans filled with light sandy soil, which should be rather dry. Any dry position will suit them. A cold frame is a good position, and little or no water should be given until they begin to make roots. As soon as sufficiently rooted they may be potted off singly, using loamy soil with some chalk or lime rubbish added. The plants may be grown on during the summer in the open air, and only a slight protection during the winter is required. If taken into an ordinary greenhouse early in February they will soon begin to start, giving them a light open position. A.

NOTES OF THE WEEK.

The Covent Garden Fete in aid of the Gardeners' Orphan Fund realised, we understand, about £200.

The beautiful Calceolaria amplexicaulis is now not to be found in the London market, though decidedly the best of all the Calceolarias for the flower garden.

Ipomœa paniculata.—This was very beautiful a few days ago in the Water Lily house at Kew, wreathing the railings round the water with masses of large, soft, rose-magenta flowers. It is a lovely climber when well grown.

The Mexican Orange Flower (Choisya ternata) at Scarborough.—At the present moment I have two large bushes of *Choisya ternata* in full flower in the open on a south bank.—G. P. DALE, *Falconer House, Scarborough.*

Scarlet Alum-root (Heuchera sanguinea) is flowering well in a border at Kew. There are few more useful hardy flowers than this. It is a choice plant for the greenhouse in early spring, and one of the best things for a border during the summer.

Royal Horticultural Society—Temple show.—A Veitch Memorial medal was presented to Mr. A. F. Barron, at the recent Temple show, for his services to horticulture. In our advertising columns we give a full list of the awards made at the above-mentioned exhibition.

Rodgersia podophylla.—By this post I send a photograph, by Mr. Greenwood Pim, of *Rodgersia podophylla*, as growing in Mrs. Lawrenson's garden at Sutton, Howth. It is the finest plant of it I have ever seen.—F. W. B.

* * A tuft very gracefully associated with Bamboos. We hope to publish an engraving from the photograph by and by.—Ed.

Orchid photographs.—We have received from Mr. J. Tabor, gardener to Dr. Wilks, Ashford, a series of photographs of Orchids, &c. Among them was one of *Dendrobium thyrsiflorum* with thirty-six spikes of bloom. Another showed a well-flowered plant of *Oncidium sphacelatum*. Other photographs showed excellent examples of plant culture, some of which we may engrave.

Gunnera manicata at Trelissick.—Last week, while looking around the grounds here, I was struck by the grand effect produced by some noble specimens of the above. One plant on measuring I found to be 12 feet through, with leaves 7 feet across and foot-stalks 5 feet high. The fruiting cones are just pushing up, and in the autumn will be an additional charm to these noble plants. Mr. Sangwin, I believe, raised these plants from seed.—R. G.

Flowers from Wantage.—I send blooms of new herbaceous Poppies. The large dark flower is, you will observe, of a much deeper shade of colour and finer form in every way than *bracteatum praecox*. They are both my own seedlings.—W. CAUDWELL, *The Ives, Wantage.*

* * Richly-coloured varieties of Oriental Poppies.—Ed.

Olympian Mullein (Verbascum olympicum).—We never saw this finer than a few days ago at Messrs. Cannell and Sons' nursery, Swanley. There was a large specimen in full flower in the hardy plant grounds. It was about 5 feet high, and carrying a magnificent spike of flowers of the most brilliant shining yellow, a fitting contrast to the rosulate woolly leaves. Standing out singly like this was, one can tell something of the grandeur of the finer kinds of Mullein.

The Thrift edging at Kew is one of the charms of the Royal Gardens. It gives a finish to the bulb border which is between the herbaceous ground and

rockery. It is a pity more do not think of our common seaside wilding when making edgings to beds and borders. The plants grow freely, and whether in or out of flower are always pretty to look at.

Dictamnus Fraxinella in Geneva.—This is very inflammable here, and it is strange that Mr. Dod has never noticed the peculiar character. I have found that the best result is obtained when the place is hot and dry, and I fear the climate of Cheshire is possibly too damp. The hairs of the *Fraxinella*, seen with the microscope, are charged with little glands which secrete resin, which on only hot days burns very easily and rapidly. In the dark it appears like a flash of lightning over the whole surface of the flower.—H. CORREYON, *Jardin d'Acclimatation, Genève*.

Cotton Grass (*Eriophorum angustifolium*).—Snow in June would aptly describe the charming effect of the Cotton Grass as it is now to be seen upon Ashdown Forest. Every year it is beautiful, but I have never seen it so plentiful as this season. Boggy ravines are literally filled with it, and one bog I came upon of about half an acre in extent was a sheet of white. Thousands of tasselled plumes soft as silk and of a spotless white, as seen in the light of the setting sun upon a warm June evening, produced an effect defying description.—A. H.

Cephalanthera ensifolia.—I send you a few spikes of this Orchid, and I am glad to say that I have been successful in growing it in my herbaceous border. I asked your opinion about taking it up five years ago, and you advised me to leave it alone, as very likely it would not do with removal. But I thought I would make the attempt. It was in full bloom at the time, and therefore not a very good season for shifting it, but out of nine plants six have grown. I may state that it is three years since I planted it.—JOHN HARPER, *Annick Lodge Gardens, Dregthorn*.

*** Fine flowers of the beautiful early summer blooming *C. ensifolia*.—ED.

Littonia modesta.—This is one of the most beautiful climbers for a warm house that we could possibly select. It is neither coarse, unduly luxuriant, nor weak, but sends its graceful, slender, twining, and flexible shoots round a pillar or rafter in a charming way. The leaves are rich green, narrow, and terminated by a long tendril, that gives them a characteristic appearance. In early summer this *Littonia* has another attraction besides its grace, and that is the rich orange bell-shaped flowers, which are exceedingly showy and pretty. Curiously enough, although introduced as far back as 1853 from South Africa, it is only in places like Kew and Pendell Court that it is to be found. The genus, which belongs to the Liliaceæ order, commemorates a Dr. S. Litton, at one time professor of botany at Dublin.

The Butterfly Orchis (*Habenaria bifolia*).—Among *Butterfly* woodland flowers this generally winds up the season. When the leafage of the trees grows dense and the ground is darkened and the flowers take rest, then the fields, hedges, and roadside banks keep up the display. Many do not see this lovely Orchis, for by the end of May or in early June the underwood is in full growth and obscures the colonies of Orchises which generally cushion themselves near a "stub." I recently walked through a wood where there are many groups of this Orchis. Some of the finer spikes had from thirty to forty-five flowers upon them. In a cut state the *Butterfly Orchis* is delightful, lasting fresh for a long time and retaining its delicate Vanda-like perfume.—A. H.

Arum Lilies at Trelissick.—Mr. Sangwin has here, I should think, one of the most glorious sights extant in the Arum way. In a large pond he has planted the Arums around the edge, with their roots quite submerged, and the luxuriance of the foliage with the abundant crop of flowers shows plainly enough that they are happy and at home in the water. On one clump I counted twenty-five open flowers, and should think in all there must be close on 1000 flowers open now, although only a week since Mr. Sangwin cut 300. He pointed out some plants that were lifted in the

autumn and did duty indoors during the winter. They are now again transferred to their original quarters, and are flowering quite freely, and look as if they were never disturbed. They are growing in a nook on the Truro River, on the edge of the estate, and only divided from the sea by a bank, and quite open to the south.—R. G.

Iris Gatesi.—This is a magnificent new *Iris* of the *Oncyclus* group. It is altogether hardier and more robust than *I. susiana*. The enormous flower, which in some specimens is nearly twice as large as that of the peculiarly marked *I. susiana*, is slightly variable in colour, which is a silvery yellowish white, netted with tiny lines and minute spots of purplish grey. The netting and the spots are so thin, that the shining silvery colour is predominant. The outer segments or falls are thickly beset with minute hairs. This is, no doubt, the noblest *Iris* in cultivation; its hardiness and rich beauty will make it a very desirable plant.—MAX LEICHTLIN, *Baden-Baden*.

Rhododendron Aucklandi.—We have here a plant of the above, about 10 feet high and 12 feet through, with eighty-two trusses of flowers, which on an average have seven flowers each, while on one truss I counted nine (is this an unusual number?). The plant is growing in the open air, having withstood at least a dozen winters, and I have never yet found it to suffer from the frost. It is, I think, one of the grandest of the Himalayan *Rhododendrons*, and not half so tender as some others of this noble class. I also enclose two trusses of *Rhododendron Dalhousianum*, also grown in the open air. No. 1 is from a grafted plant, and is, as you will see, nearly white. No. 2 is of a greenish tint and is on its own roots. All our seedlings are of this type. Which is the original species?—R. GILL, *Tremough, Cornwall*.

American Hepaticas.—Referring to remarks in THE GARDEN, April 27 (p. 392), on these, I may say that in the neighbourhood of Montreal these pretty spring flowers thrive admirably on rocky northerly slopes, where shade is obtained from the hot sun in summer. The wiry roots penetrate amongst the cracks of the stone in rocks, which are well filled by leaf-mould. My experience in Canada is that white and light shades of pink and blue predominate, and that darker and decided pinks and blues are scarce. The close-petalled flowers are to my fancy much prettier than those with fewer petals. In the Montreal district the *Hepaticas* bloom, according to the season, from about April 12 to the beginning of May. The writer has frequently gathered the flowers in close proximity to beds of the unmelted winter's snow some 3 feet deep.—J. B. G., *Côte St. Antoine, near Montreal*.

Flowers from Ipswich.—I send you a specimen of a species of *Delphinium* which should, I think, be better known—the *D. trolliifolium* (A. Gray) from Oregon, growing about 4 feet high or more, and producing a long loose raceme of deep blue flowers with white centre. It is not only a very ornamental species, but has the additional merit of being an early bloomer, being usually in flower early in May in company with the *D. nudicaule elatius*, which is, however, often still earlier. The flowers of *D. trolliifolium* are as large as those of most of the perennial Larkspurs, and the branching habit of the plant gives them full effect. I raised this plant some years since from seeds sent me by the late Elihu Hall (by whom it was first discovered) prior to its being named by the lamented Dr. Gray. It seems to vary somewhat in colour, as tubers sent me from California, where it also occurs, gave flowers inferior to those of my original stock. With the foregoing I have included a few specimens of the beautiful *Lathyrus Sibthorpi*, assuredly one of the finest spring-blooming perennials. Unlike most hardy plants, this charming *Pea* improves with age, becoming more free flowering with each returning season, and nothing among hardy plants can exceed the beauty of, say, a ten-year-old specimen when covered with its rosy carmine flowers. Its scarcity in gardens is no doubt in part due to its being a shy seeder. A large bed rarely yields me more than 200 or 300 seeds. *Cassia glauca*,

of which I add specimen, is not unworthy of the attention of the possessors of large gardens. Its pretty blue flowers are sure to attract the visitor's eye, and its broad, fleshy, strigose foliage is very distinct. The *Aquilegias* I have added will serve to show that very interesting hybrids can be grown in Suffolk as well as in the neighbourhood of London, but it is no easy task to pack such delicately constructed flowers as the long-spurred *Columbines*.—W. THOMPSON, *Ipswich*.

The Symphianthras bear too much resemblance almost to *Campanulas* for special mention, but *S. Wanneri* is just now in full flower, and, with the exception of *Campanula alpina*, is the only plant of this class in flower as yet. *S. Wanneri* is properly only a biennial, but it produces such an abundance of seed that no difficulty is experienced in keeping it. The flowers are almost as large as those of a *Canterbury Bell*, bluish-purple, drooping, and produced in abundance, even from tiny plants. *S. Hoffmanni* and *S. armena*, both white-flowered species, are also very fine, but as they bloom when we have an abundance of *Bellflowers*, they can more easily be dispensed with than the above.

Dianthus Fischeri.—This belongs to the *gelidus* group, including *alpinus* and *neglectus* or *glacialis*, and although often considered a variety of *alpinus*, I think it has a much nearer affinity with *neglectus*. *D. alpinus* is readily recognised from the other members of this group by its dark green, broad and blunt leaves. *D. Fischeri* has narrow pointed leaves somewhat like those of *D. neglectus*, but with larger flowers. All these plants when doing well are charming, but with me they generally first grow into fine healthy tufts and then suddenly go off. This I believed was due to some maggot, the efforts of which I have partially frustrated by growing the plants in pure peat. How long this may check them I know not, but think it worth trying by anyone in a like difficulty.—D.

The pyramidal Saxifrage is at once one of the loveliest and most graceful of plants. Nothing in our opinion could be more elegant than the arching, handsome flower-stem, always most beautiful when allowed to hang over and not tied to stiff stakes, as one usually sees it grown for market. It is quite hardy in the open, but never ought to be allowed to grow in tufts, as the crowns rarely develop and more rarely flower. Grown as single specimens, the rosettes attain large dimensions, the more so if the central one is denuded of the numerous offsets whenever they appear. On almost perpendicular walls, with just sufficient soil to cover the roots, we find this plant indispensable, and are year after year rewarded with abundance of bloom. It is useful also as a pot plant for the conservatory or corridor.

The Royal Gardens, Kew, should be visited at the present season by all who are interested in flowering trees and hardy rock plants. The graceful bushes of *Guelder Roses* and the waving masses of the *White Broom* (*Cytisus albus*) give striking contrast to the golden forms of *Broom*, as *Spartium scoparium*, which adorns the higher parts of the rockery. The pink Thorns, Horse Chestnuts, *Laburnums*, *Rhododendrons* and *Wistarias* are in full beauty, besides a variety of interesting wall trees and shrubs. The rockery is full of choice plants in flower, and a bank of *Helianthemums* in the "Wilderness" should not be missed by those who care for the many kinds of Rock Rose. They are scrambling over brick ends in a slightly sloping aspect fully exposed. The first days of June and the first of October are the seasons to see Kew Gardens. They are beautiful at all periods of the year, but then we can enjoy the richest feast of colour. The trees have then their summer and autumn dress, the one of shades of green, the other vivid scarlet-yellow tints. A new gate has been recently opened in the Richmond Road. This is close to the Kew Gardens Station, and will afford visitors additional convenience.

The Rosette Mullein (*Ramondia pyrenaica*).—Though an old garden plant it is one of the most beautiful objects on the rockery at the present

time. It seems to do best in a cool shady spot planted in an almost perpendicular wall, which, however, must have a good depth of peaty or leafy soil. The despised *R. serbica* promises to surpass the above species. It has larger flowers, a greater number of them, and I am told that the flowers last longer. *R. Natalis* I have not yet seen in bloom. The white *R. pyrenaica* seems scarce notwithstanding its having been found fairly plentiful along with the type. The form with the black stamens is, however, the best one.—D.

***Alyssum serpyllifolium*.**—This little gem we saw at the Temple show in a large pan, in which position it does not make nearly so pretty a plant as when grown on the rockery. It is of trailing habit, and the leaves are so close together as to form a mass, thickly studded with balls of golden yellow flowers. It is perhaps the smallest of the family, and has not lost the hoariness of its leaves, as so many of the mountain plants do when transferred to our gardens. It is readily struck from cuttings put in in autumn.

***Rubus nutkanus*.**—As a pretty shrub for the rockery we know of nothing more suitable for the present time than the above. It has an abundance of fine large vine-like leaves, which in themselves are very pretty. The large white flowers are produced in bunches, and last a long time in full beauty. It blooms through June and July and is a native of America. It seems to be variable, as the form found on the Oregon coast is from 4 feet to 10 feet high, while that found in the vicinity of the Rocky Mountains grows only from 1 foot to 1½ feet high. *R. odoratus*, red-flowered, and *R. deliciosus* both make nice shrubs, but require more room than the above. *R. arcticus*, a dwarf creeping species, is a useful bog plant, producing numerous reddish purple flowers.

***Cistuses*.**—The hot weather seems to be suiting these handsome plants admirably. They are just now a perfect sheet of white, and with the *Helianthemums* make a grand show. *C. corbariensis* is one of the best and hardiest; not a leaf has been injured during the last three years, and it is now a large bush covered with white pink-tipped flowers. *C. monspeliensis* is also handsome; the leaves are narrow, hairy, the flowers white and smaller than those of the above. It is also perfectly hardy. *C. florentinus* is a charming dwarf plant suitable in every way for the rockery, and though not so hardy it stands an average winter fairly well; the flowers are white, larger than any of the above. The nearly allied *Helianthemum formosum*, *lasianthum*, *Libanotis*, &c., are also very fine, and well worth having in a collection; the first especially with its yellow brown-blotched flowers is quite a picture.

A note from Worcester.—I have now given the German Moss Litter a fair trial as a manure, and can pronounce most favourably upon its effect here, where we have a poor thin soil. We bedded the pigs on it all last summer, and in winter spread the fertilising mixture all over the borders some 6 inches thick. The result has been marvellous. The herbaceous plants were never so strong in growth, rich in foliage, or in blossom or bud. Our large trees, too, are planted on raised banks of poor soil and needed assistance, and this Moss litter saturated with ammonia is evidently just what they liked. What a strange season it is! Tropical heat in the middle of May; then rains and blustering gales and ruined blossoms. At 6 o'clock this morning there was a heavy thunderstorm, with abundance of rain. Then again after breakfast a soft, innocent sky of forget-me-not blue, and a stroll round the steaming walks. Yet one more change. Black night at 3 p.m., with the dread hail foe wielding his merciless flail upon flower and foliage. We have just measured three hailstones picked up from the lawn some time after they had fallen. The largest measured 3½ inches, and the other two 3 inches in circumference, each measuring 2½ inches at their narrowest girth. Yet I fancy no glass has been broken. They seemed to fall less fiercely than usual and not so thickly. One sad result of the vagaries of May I observe, and that is, no

Pears and very few Apples, though our trees were a sheet of blossom.—H. M., *Bromsgrove*.

The herbaceous *Pæonies* are hardly proof against this spell of unusually hot weather. The best of them except the double forms are only lasting a few days at most. *P. officinalis*, which seems the most variable next to *P. albiflora*, yields a large number of good double forms, and these in their various colours or shades we have found most useful for the wild garden. Where a little shaded by overhanging branches they are later and last a considerable time longer than those in the full sunshine. A long succession may be kept up by planting the double forms of *albiflora*, which do not begin to flower for at least a fortnight later. *P. corallina*, if it could be had in quantity, would be a first-rate subject for the wild garden, but one can only get such small scraps that it takes years before they begin to flower.—K.

The *Streptocarpuses* at Kew are worth special attention by those visiting the gardens, as there is not the slightest doubt that we have in them the beginning of a popular and useful class of plants. They are used as an edging in the succulent house, and there will be found such kinds as *S. Watsoni*, a hybrid between *parviflorus* and *Dunni*, the flowers freely produced and deep rose; *Saundersi*, leaves very large, tall spikes of small white flowers; and the small blue-flowered *Polyanthus*. A peaty soil is used, and the plants thrive remarkably well, and are in bloom for a considerable period, showing soft and brilliant tints and pencillings found in few other flowers. A group in the Cape house shows what a variety of shades can be obtained by crossing. One variety which seemed like a cross between *Kewensis* and *Rexi* has richly coloured flowers pencilled thickly within with maroon; others are of a rose tint, some paler, and a few almost white, all more or less striped in the throat—a delightful series of rich and attractive colours. The profuseness of bloom is astonishing, even small pieces sending up a mass of flowers. This is the kind of plant that is sure to make its way, as from first to last there is no special difficulty to overcome in culture. Mr. Watson has already gained much by taking the *Streptocarpus* in hand, but as he is still crossing, other treasures will doubtless be revealed as time goes on.

Flowers from a Dutch garden.—Bulbs of every kind are now very gay, *Ixias* greatly enjoying the exceptionally warm and sunny weather, and promising to be more beautiful than perhaps ever before. Irids of the hispanica and germanica section present a magnificent sight. The early-flowering Lilies are showing colour. *Anemones*, *Ranunculuses*, and many other flower-roots make the garden bright, and by their charming blossoms amply repay the grower for any attention he has been bestowing on them. I made a selection among the choicer occupants and have much pleasure in forwarding you by this post a small box containing cut flowers from the following: *Brodiaea coccinea* and *volubilis*, the first-named, known under the name of Vegetable Fire Cracker of California or Crimson Satin Flower, is certainly one of the prettiest Californian bulbs; the tubular, deep crimson flowers are set off to great advantage by a bright green edge; this is a perfectly hardy and easily managed bulb. The second species, better called *Stropholirion californicum*, is a very curious plant, as the flower-stems attain a length of some 6 feet or 8 feet, bearing at the summit a dense umbel of pretty rose-coloured flowers. Alliums are beautiful; I have sent you flowers of *A. azureum* and *A. oreophyllum*. I have grown this last for three or four years and every season it proves to be a very desirable hardy bulb, being of dwarf habit, distinct colour, and the flowers remarkably durable; even cut spikes when placed in water will last some three weeks in full perfection. The outdoor *Gladioli* commence with the flowering of the semi-hardy *G. vinulus*, a new species, blooming for the first time, and certainly one of the very prettiest known to me. In habit and colour it resembles that general favourite *Gladiolus Colvillei* The Bride, only dwarfier, the flowers broader and with three bright violet spots on the lowest divisions of the flowers. That

brilliantly flowered new Dock, *Polygonum sphærostachyanum*, has just sent up its first flower-spikes; considering their rich crimson colour, the regular growth of the plants, and the great length of its flowering period, this plant will surely very soon be met with in every collection of choice hardy alpine. The rare Portuguese *Iris Boissieri*, with its indigo-blue lip and red-violet standards, is also especially fine; this will do best when kept during winter under glass and placed outdoors in April. Of Lilies, the foremost to bloom are the lovely *L. tenuifolium*, the yellow *L. columbianum*, and the erect-flowered *L. pulchellum*, whilst the new *L. Bolanderi*, a species from North America, with bell-shaped, bright red flowers, will be in flower shortly, blooming for the first time, I believe, in this part of the world.—C. G. VAN TUBERGEN, JUN., *Haarlem*.

Wild Spaniard (*Aciphylla squarrosa*).—This interesting plant is now in flower in the rockery at Kew. It is perfectly hardy, and makes a handsome rockery subject. It seems to want a rocky surrounding to show it at its best. It is very easily managed, and as it is plentiful now in the trade we hope to see it in more collections than hitherto. The other species are *Colensoi*, *Lyalli*, &c., the former especially being a handsome plant. They are natives of New Zealand, and may be raised from seed. They are known to the settlers as Spear Grass, a more appropriate name than the above.

Early-flowering Gladioli.—Many varieties of the early-flowering *Gladioli* make capital plants for the greenhouse, and are well worth more extended cultivation for this purpose. If three or four corms of some of the larger flowering kinds, such as *Prince Albert*, *delicatissima*, or *Blushing Bride*, be placed in a 6-inch pot, while of *Colvillei* and its variety *C. alba* six or eight corms should be used, a grand display at this season will be the result. The bulbs should be kept in a cold frame during winter and allowed to come on naturally, as *Gladioli* do not stand forcing well. A grand lot of these are now flowering at Kew in No. 4 house.

A double Primrose.—I have sent for your inspection a few flowers of a double wild Primrose found in a wood of large extent on the estate of Sir H. A. H. Cholmeley, Bart. The flowers sent are gathered from the plant that was found by the granddaughter of Mr. Smith, the keeper, in 1888, and removed from its native abode to more secure quarters. I counted on the same plant 65 flowers in various stages of development. I visited the spot this spring—in fact, on the 5th of May—and found two more plants, evidently seedlings, as they had but a single crown, with fully developed double flowers. It is undoubtedly a true and permanent double wild Primrose. There have not been any garden Primroses or *Polyanthuses* grown in the vicinity. There are four plants at present with distinct double flowers.—GEORGE NIXON, *Easton Hall Gardens, Grantham*.

A curious growth on *Dendrobium nobile*.—A small plant of this Orchid which had made strong growth during last summer flowered freely about midwinter, and in due course the flowers disappeared. When the spring growth commenced, some of the lateral buds near the top of the bulbs commenced to form offsets, as so commonly happens. One of these, however, after growing for some 6 inches, has produced two flowers, one quite normal, the other destitute of lateral petals and the lip somewhat deformed. Several other more or less normal flowers have been produced as a second crop, in one case emitting roots at the base of the peduncles as if with a view to vegetative growth. My gardener tells me that early in the winter, as soon as the first indications of flower-buds were visible, he made short incisions, in a longitudinal direction, at the base of the bulbs. If this has been the cause of the unusual freedom of flowering, it is another phase of the pruning question which caused considerable controversy a few years ago in your columns. The plant flowered exceedingly well, producing about seventy good blossoms, and is only in an 8-inch pot. I would be glad to know if this peculiar abnormality is of common occurrence.—GREENWOOD PIM.

BERKELEY CASTLE, GLOUCESTER.

THIS grand old castle, the Gloucestershire seat of Lord Fitzhardinge, apart from the historical interest attaching to its lifetime of more than eight centuries, is full of imposing beauty of a massive and rugged character that is picturesque in the highest degree. Berkeley stands in the valley of the Severn, about midway between Gloucester and Bristol. The castle stands on rising ground, overlooking wide stretches of water-meadow to the south. From this aspect the venerable pile has almost the appearance of a mass of natural rock, so much are its stones worn and weathered by centuries of exposure, and its crevices clothed with Ferns and numbers of wild plants. The huge buttresses, which form an important part of

plant houses. The park is at some distance, and abounds in noble Oaks that luxuriate in the rich red loam of the district.

G. J.

STOVE AND GREENHOUSE.

CALADIUMS AT FOREST HILL.

THIS genus is one of Mr. Laing's specialities, but, grand as they have been, they are certainly this season finer than ever, and one may wonder what has brought about the change. I believe it is through a conviction in Mr. Laing's mind that my expressions last season on the way in which our brother gardeners in France treat their Caladiums were true and just, and I am glad that so celebrated a firm has been found open to conviction, and has cast on one side our

the length of the foot-stalks and the size of the blade of the leaf, but the texture is thin, and the slightest wind that blows upon them reduces the leaves to the semblance of dirty wet rags, from which they never recover until new growth is made. Now what is the condition of these plants with our brethren in France? Why, quite the reverse. In France the tubers are started cool, the plants are grown in cool houses, with the result that they are dwarf and the leaves hard and able to withstand to a great extent changes in the atmosphere, and for the decoration of living rooms, halls and corridors they are used with much effect. Mr. Laing's change in treatment is a step in the right direction, but he needs to go further yet with the practice. The great number of shades of colour and forms in Caladiums now to be obtained is wonderful; indeed, there appears to be no end to the varieties, and therefore I will simply enumerate a few



Berkeley Castle, Gloucester. Engraved for THE GARDEN from a photograph sent by Rev. H. H. D'Ombraim.

the fabric on this side, make snug bays where Fig trees luxuriate and fruit well, and advantage has been taken of them for the planting of many good shrubs and plants that enjoy warm and sheltered places.

The engraving shows the western side of the castle from the bowling green, with its old hedge of clipped Yews. A sloping glacis between the base of the castle wall and the meadows forms a continuous lawn a few hundred feet wide, with, at the bowling-green end, a large group of fine old Scotch Firs.

Good hardy plants are well grown in large beds and in the sheltered borders that abound. In the rear of the castle is a large walled kitchen garden and well-kept vineries and

too exclusive system. I myself have been a grower of these plants for upwards of thirty years, and have hailed with delight all the new varieties, commencing with Chantini, and every year increasing in numbers. In England we start Caladiums in great heat, and so continue them all the season. Where these plants are to remain in the same position and are required to occupy a great space, no better plan can be practised, for in this manner they increase in size most rapidly. Upwards of thirty years ago, however, English people did not decorate their houses with plants to the extent they do now. Our taste has undergone a great change since then, but yet we have not arrived at the knowledge of growing these bright and beautiful leaved plants in a fit state to decorate our dwelling-houses in the summer months. As before remarked, we start the tubers in too great a heat, and this heat increases

which came under my notice during a hurried run through the establishment a short time since, these being amongst the best according to my own particular fancy.

Anna de Condeixa, rich rose, veined with carmine and bordered bright green. Auguste Carpentier, brilliant carmine - scarlet with golden border. Baronne James de Rothschild, soft rose with deep red nerves. Candidum, pure white, beautifully veined and ribbed with green and with a marginal border of green. Cardinale, bright red, more or less dotted with gold and yellowish green. Charlemagne, rosy red, with deep red nerves. Clio, rich rose colour, flushed with white, green veins. Comte de Germiny, rich red on the upper side, spotted with white, golden beneath. This is a superb variety, and these plants are exceptionally well grown by the Comte's gardener, Mr. Vincent. Ferdinand de Lesseps, rich carmine, veined with rosy violet and bordered with green. L'Automne, creamy white, with light blue spots. Mme. Lemonier, soft rose,

ribs deep rose, the centre and smaller veins creamy white; a great beauty. Mithridate, deep crimson-lake, with bronzy green border. Mrs. Laing, white, veined with rose. Souvenir de Dr. Bleu, brilliant scarlet, with marginal border of light green. Max Kolb, light, with red spots. Meyerbeer, white ground, with red midrib.

The above appear to be the cream of the collection, but tastes differ, and lovers of these plants cannot do better than see them whilst they are in prime perfection, which will be for a considerable time. W. H. G.

The Rockwood Lily (*Ranunculus Lyalli*).—This plant grew freely and flowered well with us in the cool Orchid house last year. It produced a strong spike with many flowers, but I did not think of trying to save seeds from it. I wish now that I had done so, as the plant died in the winter. I find it is very liable to be attacked by green-fly and requires constant watching, or this pest would soon shorten the lives of the best plants. If the plant is liable to die off, as ours did after flowering, it would be well to try whether seeds could not be saved from it. Green-fly often spreads unobserved over the under surface of the leaves.—J. DOUGLAS.

Zonal Pelargonium Gloire Lyonnaise.—There are so many excellent varieties of zonal Pelargoniums now in cultivation, that the difficulty is to single out one for especial mention. The above mentioned, however, stands out so prominently from its fellows as to deserve a word or two in its favour. It is not noteworthy on account of the good form of the blooms, which is rather faulty, but the trusses are enormous, and the colour brilliant, characteristics which weigh more in the estimation of flower lovers generally than mere perfection of outline. It is a most vigorous grower and is apparently more suitable for pot than for outdoor culture.—J. C. B.

Phyllocactus crenatus.—A good specimen of this Cactus bearing several of its large cream-coloured blossoms is a most beautiful object, and with the very bright variety J. T. Peacock (recently noted in THE GARDEN) forms a couple of the most desirable plants that the owner of a greenhouse can well possess. These flowering Cacti possess such gorgeous blossoms that it is surprising they are so much neglected. One reason is, perhaps, that the individual blooms do not last long; still, in the case of a good sized healthy specimen a succession is usually kept up for some little time. A selection of these beautiful plants would form a source of great attraction for a lengthened period.—H. P.

Dianella cærulea.—This Australian plant forms a tuft of dark green, Sedge-like leaves, while the flowers are borne in a large branching panicle that stands well above the foliage. The individual blooms are of a pleasing shade of blue, against which the yellow anthers stand out very conspicuously. From their numbers the flowers make a goodly show, and later in the season when they are succeeded by bright blue berries, the plant is then even more ornamental. This Dianella does well if planted out in the greenhouse or conservatory, or it may be grown in pots. It is one of those subjects that when in a small state is not particularly striking, but when in the form of a good-sized clump overtopped by several panicles of blossoms or berries, it is then highly ornamental. It is readily increased by division, and will succeed in any ordinary potting compost.—H. P.

Old Cyclamen bulbs.—One of the greatest mistakes that can be made in Cyclamen culture is that of withholding water as soon as the flowers fade. Rather than do this I would give the plants liquid manure, for the longer the foliage is kept in condition the better will the plants break again in autumn. Not only will they make stronger growth, but they will start much earlier if the foliage is allowed to die away naturally. On no account should the plants be turned out into the open air, for the change is apt to be too great, and if cold rains come the greater portion of the roots perish. Many people seem to think that the Cyclamen is like bulbous flowers generally, and that it is natural to it to

lose the roots that have been made the preceding season; but this is entirely wrong, for the Cyclamen in its natural condition never becomes rootless, but keeps the greater portion of them, even when gone to rest. When Cyclamens are managed well they prepare themselves for another start when going to repose in a way unsuspected by many. They swell up the eyes on the corm much in the way that a Vine plumps up its eyes or a Strawberry its crown in autumn. At the present time these little buds are plainly visible, and unless a Cyclamen forms these eyes now it will neither start so freely nor so early as it should do. I always keep my plants in a frame until it is time to repot them, giving plenty of water with a little liquid manure, shade from hot sun, and every now and then they are well syringed, not merely overhead, but in a way that well washes the undersides of the leaves. This I do to keep off red spider, which otherwise is sure to fasten on them. Plenty of moisture at the roots and food will, however, help to keep this off. I am sure that anyone who may treat their old corms in this way will not fail to recognise the advantages of it. I believe that nine-tenths of the failures that attend the culture of old bulbs are attributable to neglect after blooming. I have known Cyclamens do remarkably well in a window year after year simply because the owner kept them indoors and watered. Every grower knows how difficult it is to get a plant into full growth when once it has become too dry, and it is just the same with a Cyclamen corm.—J. C. B.

COMBRETUM PURPUREUM AND IPOMÆA HORSFALLIÆ.

THE first of these plants can certainly be struck from cuttings, and a stock can be obtained by this method of propagation. Some years ago I used this means of increase, and later, merely for the purpose of doing it, I put in a few cuttings and got two or three plants from the one trial. The important point in this case, and in the case of most plants that do not root like weeds, is to put in suitable cuttings. It is useless in many cases to put in the cuttings that any plant chances to produce, though in this case the cuttings were not taken from a plant that could be expected to afford good ones. If "H. P." will take the smaller cuttings that would grow but little if left on the plant, and of sufficient firmness, but not too hard, I think he may, as a propagator, be left to perform the rest. I should advise him, when he has struck some cuttings, to keep a plant or two for stock in a small restricted state, from which he may be able to get suitable cuttings when he wants them. This is an important thing to do in many cases, and it is so, I believe, because it prevents the exhaustive process of running to flower and that of making strong growth, which must use up the resources of the plant. We do not try to strike the flowering wood of a Dahlia, for instance, and the reasons why we should not succeed that apply so obviously in this case are, I believe, of extended application and of more or less importance, as the case may be. There are few plants, I believe, capable of giving cuttings that cannot by some resource be increased by this method.

About the Ipomæa I do not know, but I should be surprised if it really cannot be struck from cuttings. I do not think I have ever seen a cutting which could not be rooted, but I believe that such cuttings might be obtained by heading back, from time to time, a plant set apart for the purpose. What the physiological difference is between cuttings that can be struck and cuttings that cannot be struck I have never yet had time fully to study, but I suspect that it has much to do with the presence or absence of stored material, which in the case of a plant running to flower or making strong growth is exhausted or used up as fast as formed. In the case of this Ipomæa, if I remember rightly, the stems are comparatively poor in starch—at any rate there are plants with plenty of starch that strike freely, and others nearly allied with little starch that strike with difficulty. But I am aware, or rather believe, that this is not the whole of the matter. Bearing upon it, however, is this—that if

cuttings will not strike in more heat they may strike in less, the reason being, I suppose, that they are quieted rather than excited to demand supplies that are not forthcoming all at once. Heat is not always the great panacea that some suppose.

R. IRWIN LYNCH.

WORK IN PLANT HOUSES.

GREENHOUSE.—ERICAS.—Where these plants are grown for greenhouse and conservatory decoration, there is no reason why they should not be treated in a way that is calculated to have them in the most attractive condition. To do this, it is necessary that the flowers of the different varieties grown should have the colours natural to them well brought out. This can only be done by exposing the plants in the open air during the time the flowers are opening. Those who have had an opportunity of comparing the difference there is between the bright vivid colour in the flowers that open out of doors and the pale washy shades of those which are kept under glass, need not be told how much better the former look than the latter. This holds good of most of the varieties; even the yellow sorts, such as E. Cavendishi, E. affinis, and E. depressa, lose that objectionable green tint which the flowers usually have when under glass; whilst the kinds that have more or less red in their flowers are much deeper in colour when the plants are exposed for a few days before the bloom begins to open. The texture of the flowers is likewise improved by exposure, so that they keep fresh considerably longer. As the different varieties go out of bloom, the flowers should be picked off immediately before there has been time for the seeds to form. This process taxes the energies of the plants to a greater extent than the development of the flowers. Varieties that are shy in setting their flowers, such as E. depressa, should be turned out of doors, where they will be fully exposed to the sun early in the summer. The kind in question should be stood out by midsummer, and remain there until the time for housing the plants in autumn; without this it rarely sets a full crop of bloom.

KALOSANTHES.—The different varieties of Kalosantes are alike improved in the colour of their flowers by being in the open air whilst they are maturing. The difference is such that plants of the same variety would not be recognisable under the better appearance which the flowers have when they open out of doors as compared with others that are kept under glass during the time. Plants that are intended to bloom next summer, in either a small or a large state, should shortly be stood in the open air. Without this there is no certainty of their flowering evenly when not exposed long enough in this way; however strong the shoots may be, only a portion will bloom. Plants that require more pot-room and that have not yet been attended to should at once have a shift. If this is delayed longer, it will be too late for this season's growth to reap the full benefit of the additional room given.

ROCHEA FALCATA.—This brilliantly flowered plant has been of late so much neglected, that it is rarely met with. Yet from the little trouble it gives and the length of time the flowers last, coupled with their coming in during the latter part of summer, when blooming subjects are not plentiful, it deserves a better fate. Plants that are large enough to flower will now be growing apace, and should be encouraged with weak manure water, given once a fortnight. This will strengthen them so as to increase the size of the flowers. Small stock struck from leaf cuttings last summer, and now in little pots, should be moved into others 4 inches or 5 inches in diameter, according to the strength they have attained. The plants will succeed in either peat or loam; where the latter can be had of good quality it should have the preference. Keep them for the summer close to the glass and fully exposed to the sun, as, in common with most things of a succulent nature, the more light and direct sun they get the better they thrive and bloom. The plant is usually increased from leaf cuttings; the present is a good time to put them in, as by propagating early in summer the young stock have time to make progress before

autumn. Full-sized old leaves taken from the lower part of the stems of strong established examples should be used. They should be severed with a clean cut; if at all bruised, their succulent nature is such that they are liable to decay. Let them lie on the potting bench for a day, so that the base may dry up a little, then put them in three or four together in 4-inch or 5-inch pots filled with sand. The leaves should not be put in too deep; if they are inserted to about one-fourth their length or so that they will not fall over, it is sufficient. The sand must not be kept nearly so wet as in the case of ordinary shoot cuttings, or it will rot them. They should be stood in a house or pit where an ordinary stove temperature is kept up, but must not be confined under propagating glasses or in a striking frame. Let them have plenty of light, with no more shade than the plants grown in the house require.

STOVE.—GARDENIAS.—Cuttings that were put in during the spring will now be well rooted, and should be potted and grown on in a brisk heat so as to get the plants as large and strong as possible before autumn. With Gardenias, more than most things, the amount of bloom they are capable of yielding much depends on the size they attain. Where large cuttings, consisting of branches with several shoots each, such as advised, were used, 10-inch or 12-inch pots will not be too large for *G. intermedia*, which is the best variety to use for general purposes, as it is a free rooter and rapid grower when liberally treated. Brown fibrous peat is the best soil for Gardenias, but where this is not available loam may be employed. Some rotten manure should be added, with enough sand to keep the whole sweet and porous. Pot moderately firm. The plants should not be too much crowded as they increase in size, and they ought to be stood well up to the glass. Whatever stopping seems necessary to well furnish the plants should be attended to in good time; without this some of the shoots will be apt to take the lead so far as to make the growth unequal. Old plants that have been flowering during the winter and spring and that are getting into a straggling condition may now have their branches shortened so far as to keep them close and bushy. Where this is not attended to the shoots extend in a way that causes the specimens to take up more room than is desirable without any increase in the amount of bloom they will give, as when they are compact and bushy they will produce as many flowers as when the branches are loose and uneven. After a little new growth has been made any that require larger pots should have a shift. It is requisite to attend to this, for though a good deal may be done to help the plants by a regular use of manure water, still free-rooting things like Gardenias must have a fair amount of root room or they suffer to an extent that interferes with their blooming. Where there is any deficiency of stock, cuttings may still be struck. As has before been said when treating on these plants, they root freely from the fully matured wood; this being so large, pieces of the branches with several shoots attached may be readily struck. Each of these branch cuttings should be put singly in 5-inch or 6-inch pots half filled with a mixture consisting of equal parts sifted peat and sand or loam and sand, filling up with sand alone. Confined in an ordinary striking frame with stove heat, they will strike in a few weeks. Gardenias are more subject to insects than most plants, and when affected with scale or mealy bug require frequent attention to keep the pests under, especially during summer, when they increase fast. This should be regularly seen to, or the foliage soon gets so dirty as to be injured. Give manure water regularly to established plants that are now in full growth. Whatever is used as a fertiliser will be improved by having a little soot added to it.

NEPENTHES.—Amongst those who now undertake the cultivation of these most singular and interesting plants, there are many more that succeed than formerly, though there are still some who fail, or at best are only partially successful. Where *Nepenthes* do not thrive, it is simply through the essentials to their existence not being present or

sufficiently understood. Wherever there is a house or pit in which enough heat is kept up all the year round to grow the warmest section of stove plants well, there is no occasion to doubt on the score of heat that *Nepenthes* will not do well. Without sufficient heat it is no use attempting their cultivation. They delight in a continuously moist atmosphere; consequently, air must never be given in such quantities as to dry up the atmosphere within the house to the extent that is often, though erroneously, supposed to be necessary for stove plants generally. In houses that are constructed and placed so that they admit sufficient light, and the plants are not stood too far from the glass, nor too heavily or continuously shaded, there is no necessity for giving an amount of air, even in the hottest weather, that will unduly rob the atmosphere of the moisture requisite for stove plants. Where the atmosphere is too dry, *Nepenthes*, though they may grow fairly, do not produce their pitchers to the extent they otherwise would do, either as regards size or numbers. When the plants are in good condition every leaf forms a pitcher. They should be hung so that their tops will be not more than 18 inches from the roof at one end of the house. The roof ventilators that are right opposite to where they are should not be opened, and they should have a little thicker shading over them than the other plants with which they are grown require. At this time, and during the next two months they are in the height of their growth, and should be well watered at the roots every day, and also syringed overhead freely, so that the water will reach both sides of the leaves each afternoon at the time the air is taken off. Pots are better than baskets to grow them in; in the latter the points of the roots extend to the outside of the material in which they are grown, and then stop, whereas in pots the roots do not suffer in this way. All plants that require more root-room should not have the potting longer delayed. In shifting them do not touch the roots, or interfere with them in any way, not even in removing the drainage crocks from the bottom of the ball if the roots are much interlaced in these. The potting material should consist of the fibrous matter out of the best Orchid peat, with the whole of the earthy portion shaken out of it. To this should be added some chopped Sphagnum, with broken crocks or charcoal and a little sand. In potting do not press the soil much about the ball, or the roots will be more or less broken, as they break with the slightest pressure. Soak the whole well with water as soon as the potting is completed. Even when material of this open nature is used, it becomes close and pasty in the course of time, say at the end of three years. And when it is reduced to this state the roots must be got out of it, or they will perish, after which the plants are useless. The present is a good time to repot any plants where the soil is approaching the condition described. Turn them out of the pots, take the ball in both hands and plunge it in a pail of tepid water; move the fingers gently so as to get the soil away from the roots, and when it is all got rid of repot in new. Or, the plants may be laid down on the potting bench and the old material washed away by syringing with chilled water. After potting keep the plants closer than ordinary for three or four weeks. Cuttings that were put in during the autumn will now be well rooted, and should be potted; 3-inch or 4-inch pots will in most cases be large enough to carry them on until next spring. T. B.

Washing the roots of plants.—This operation, alluded to on page 447, is of great use for a variety of purposes, but to no one is it of more assistance than to the propagator, who, by means of soaking in a tub of water or by holding under a tap and gently disentangling the roots, is thereby enabled to clear them of soil, and thus determine to what extent and in what manner a plant may be divided without injury. As noted by your correspondent, many plants for which division can be employed possess a quantity of old roots whose only use seems to be to keep the plant alive till it has formed fresh roots for itself. Such being the case, the removal of all old and exhausted soil

will allow the young roots to start at once into the new compost, and, if the soil was removed entirely by the hand, it is probable that some of the young growing roots would be broken; whereas every particle of soil can be washed away by means of water without injuring the most delicate fibre. Some years ago, when *Asparagus plumosus nanus* was a much rarer plant than it is at the present day, I was very successful in increasing it by means of division, and, in carrying this out, derived the greatest assistance from the washing process, as without removing every particle of soil, it is impossible to trace all the shoots to their origin. Clearing away the soil in this way prevents any risk of injury to the young shoots that may be still below the surface. When divided and repotted, the new roots take very kindly to the fresh compost. In many cases where the soil is often torn ruthlessly from the roots of plants the same end could be obtained in a much better manner by the use of a liberal supply of water.—H. P.

Japanese Maples.—These are not often met with in private places, but in all probability they would be much more generally grown if it were fully realised how very beautiful they are. Although quite hardy and effective when planted in shrubberies and sheltered nooks in the pleasure grounds, I hold they are of greater value for pot culture. Anyone doubting this should pay a visit to the nearest nursery where they are well and extensively grown, and those who frequent the spring and summer shows must have noticed and admired some of these Maples interspersed among various other more choice flowering and fine-foliaged plants. Messrs. R. Veitch and Son have long appreciated their value, and they use them extensively both for home decoration and in groups of plants arranged at the leading exhibitions in the south-western counties. The majority of their plants in pots have neat heads from 18 inches to 3 feet in height. During the winter they are kept plunged in a bed of ashes and not otherwise protected, and they are introduced into the cool house directly the buds commence to burst in the spring. Under this treatment they break strongly and grow quickly, being most ornamental in April and May and in a less degree till the autumn, when they are again singularly beautiful till the foliage falls. They are catalogued, or more properly known, as *Acers*, the polymorphum section being principally cultivated. Some of the best of these are dissectum, this having very elegant foliage of a rich bronzy hue; *ampelopsifolium*, foliage variously tinted now, changing to a deep crimson in the autumn; *latifolium atropurpureum*, bold foliage, blood-red in colour; *palmatifidum*, handsome foliage of pretty green colour; *sanguineum*, reddish crimson foliage and showy; *septemlobum elegans*, finely serrated foliage, of a pleasing green shade, this becoming margined with rose; and *flavescens*, pretty foliage, green and marbled with yellow.—W. I. M.

Elæocarpus cyaneus.—This is a very uncommon, but at the same time most beautiful greenhouse shrub, and when its extreme freedom of flowering, even in a young state, is taken into consideration it is indeed surprising that such a desirable subject should be so rare. *E. cyaneus* may be grown either in a pot or tub, or planted out in a greenhouse border, but in any case continual disturbance at the roots is not necessary, as the plant will keep in perfect health for years without being shifted. It forms a free-growing shrub, usually of rather a tree-like habit, that is to say, with a clear stem for a little distance at the base, which then divides out into a number of branches and forms quite a compact head. In this way the flowers are seen to the greatest advantage as they depend from the undersides of the branches, and consequently they are more conspicuous when the specimen has a clear stem for a certain portion of its height. The flowers are pure white, bell-shaped, and deeply fringed in an extremely delicate manner, it being, in fact, this fringing which forms such an attractive feature. A succession of bloom is kept up for a considerable time, and the flowers are frequently succeeded by a crop of bluish berries, which render the plant, even in that stage

very ornamental. It is of easy propagation and culture, for cuttings formed of the young growing shoots strike root readily enough during the spring and early summer months, or the seed may be sown and, as a rule, germinates readily enough. Plants raised from cuttings are preferable when needed for flowering in a small state, as they will frequently bloom when but a few inches high. A soil composed principally of good fibrous loam and sand, lightened if necessary with a little peat or leaf mould, will suit this plant perfectly, and in potting thorough drainage is more necessary than in the case of those that are reported frequently. It is a native of a considerable district in Australia.—H. P.

FLOWER GARDEN.

HYBRID NARCISSI.

SEVERAL notes have appeared of late in THE GARDEN and elsewhere concerning N. Bernardi. This variable plant has interested me more than usual this spring, especially in connection with some hybrid seedlings of my own raising. In 1884 I applied pollen of N. poeticus ornatus to flowers of N. bicolor, and obtained several pods of seed. Of the resulting batch of seedling plants, three flowered in the last week of April this year, and, curiously enough, these three flowers exemplified the three chief types of form and colour which are noticeable in N. Bernardi. The finest flower of the three has a creamy white, well-imbriated perianth of good substance, and a wide-mouthed crown with much red colouring in it. To my eye, it is a good deal like the late Mr. Kendall's Lulworth, but Mr. Barr, to whose opinion I always defer, thinks it comes nearer to the Queen Sophia of his collection. The second flower has a weaker, narrow-petalled perianth, and its crown of a form not unusual among N. Bernardi, and described by Mr. Wolley Dod as "spheroid or ovoid, and somewhat contracted at the base and mouth," the mouth contraction being unusually marked in this seedling. It has little merit of form, but the crown is of a uniform bright orange-red, very brilliant. The third flower has a short, straight, cylindrical crown, with no red at all in its yellow, and is a Nelsoni pure and simple, and may be matched almost exactly among imported Bernardi.

Here then, I think, we have evidence (1) that the N. bicolor of our gardens comes very near to N. muticus, and is probably a geographical form of it which will yet be found, or, may be, a garden seedling from some flower of wild N. muticus. Mr. Wolley Dod, who has seen large quantities of N. muticus from different localities, has always assigned N. bicolor to it, and I think the great likeness between these hybrids of bicolor \times poeticus and the hybrids of muticus \times poeticus, or Bernardi, is an additional proof. These seedlings also afford evidence (2) of the considerable variation in both form and colour which may appear among the progeny of only two flowers of Narcissus, and, as Herbert and others showed long ago, even among the seedlings from one seed-pod. Many plants from this same cross remain in my garden to flower next year, and their flowering will be full of interest to me.

Another consideration which has occurred to me in examining my seedlings and flowers of N. Bernardi is this: Of the various kinds of N. poeticus none has so red and showy a crown as N. p. poetarum, the entire crown, and not the rim only, being coloured. Accordingly we are often recommended by hybridists to employ N. p. poetarum in our crosses, in order to secure its fine red in hybrid forms. But among the variable N. poeticus of the Pyrenees I have

seen none with the wholly red crown of N. p. poetarum; all have a mere thread or rim of crimson-purple; nevertheless, among their hybrids are flowers with crowns entirely suffused with very brilliant red. So, also, N. p. ornatus has only the narrow line of purple round its crown, yet has given me a seedling in which the whole cup is of bright red. It would seem, therefore, that there is probably no more red pigment in the wholly red crown of N. p. poetarum than in the narrow purple thread surrounding the crown of other varieties of poeticus. The colour is merely concentrated and darkened in the latter, just as a grain of aniline colour, sufficient to dye a hog'shead of water crimson, appears jet black.

Can any scientific person tell me whether in hybrid flowers we have an infinite potentiality of increase of the colouring of the parents, or merely the reappearance, in a suffused or concentrated form, of a certain limited quantity of pigment contained in the parents? The occasional entire disappearance in the offspring of a bright colour present in one of the parents, e.g., of the poeticus-red in hybrid Narcissi, is a remarkable thing. G. H. ENGLEHEART.

CARNATIONS.

ALTHOUGH there can be no doubt but that fungus has been destructive to Carnations during the past winter, yet I think some of the mischief done is due to slugs, which, having been so plentiful, have been also exceptionally destructive. There can be no doubt but that much of the excoriation found in Carnation foliage has been caused by the slugs eating the green flesh and leaving the cuticle to wither away. But it is certain that, however produced, the most affected plants are either young ones from last year's runners or cuttings, or any newly planted. I have found that old or well-established plants have not been injured at all, whilst young ones even in frames suffered severely. That those in frames must have been injured by the fungus chiefly there can be no doubt, but slugs, I am sure, must bear a portion of the discredit for the mischief wrought outdoors. I do not know whether Carnations will bloom early this year, but the recent wet has helped to send up the blooming stems very rapidly. That will be the more beneficial, so far as the prospect of getting seed is concerned, should the blooming season be a fine one. Of course, the only aim of Carnation culture is not seed production; neither, indeed, is it exhibiting the flowers. The chief aim is to make a beautiful show in gardens, of course; but still, it is very important that we should occasionally get good seed seasons, as in 1887, or else strains would soon become weak and plants scarce. I am absolutely dependent this year upon seedlings for the production of a big show of Carnations, as propagated plants have done so badly, and as all the seedlings are now big and throwing up myriads of flower-stems, there will be a brave show in due course. That Carnations like a stiff soil is evident, for my ground between the plants has, owing to its tenacious nature and the heavy rains of the winter, been run together so hard that a pickaxe is almost needed to break it up. How layering is to be accomplished I cannot tell. And yet the plants are so healthy and robust, that it is evident they like the situation. We have recently heard of a method of propagation by cuttings put in early in the winter and kept in cold frames until the spring, when they are found to be very well rooted, thus showing that we are not absolutely dependent upon layers for the propagation of special varieties, but it is very doubtful whether cutting-produced plants will carry flowers the first year. In any case, if any flower-stems produced be pinched out, very robust plants will result the second year, and that would be a great gain for borders. Watching the blooming of many hundreds of seedlings will, of course, be productive of exceeding pleasure and interest. That scores of the flowers will be first-rate I am certain, and should plenty of fine hardy

self result, it will help to scotch the idea that we have few self varieties suited for hardy border culture. Nothing can be more erroneous now, and every year does but serve to show that thousands of fine self forms are being produced, but not one tithe of them find their way into plant lists. I hope the time is not far distant when border Carnations will be sold per dozen in various colours, without names being appended to give them a fictitious value. A. D.

WILD FLOWERS IN KENT.

MANY a Kentish woodland is now rendered bright and pretty by big irregular patches of the Lily of the Valley. In thickly planted woods it does not flower freely, but where glints of sunshine and a stirring blast can now and then reach the plants this pretty wilding blooms with unusual freedom. Not as a terrestrial plant do we always find the Lily of the Valley, for not at all uncommon is it to find it imitating in choice of situation some of the epiphytal Orchids that delight to send their roots amongst decaying Moss-covered bark, and at a considerable height from the ground. In some of the old coppice woods here the Lily of the Valley grows with unabated vigour on the decaying Oak stools, and there blooms quite as freely as when found amongst its natural element—a light sandy peat. Big patches of the Herb Paris (*P. quadrifolia*) put one much in mind of the North American Wood Lily (*Lilium grandiflorum*) when seen under similar conditions, so far, at least, as appearance of foliage goes, but for beauty of bloom our native plant is far in the background. The Herb Paris is, however, an interesting and rare native plant, and delights to send out its long *Convolvulus*-like roots into damp rich loam. In *Pyrola media* (the Winter-green) I have to add a new plant to the flora of Kent, for I cannot find out that it has before been recorded from this particular part of England, or indeed so far south. How pretty and desirable a plant it is everyone knows. I found it in some quantity beneath the Pines and Hazels in one of the Holwood wilds, but I have no doubt that when time permits I can extend the range of its now single habitat. The giant *Helleborine* (*Cephalanthera grandiflora*) is now appearing in all its beauty, and it does one good to see how stout and strong it grows beneath the wide-spreading Beeches in the park, particularly a person who, like myself, has striven hard for years, by coddling and nursing, to get a badly-rooted nurseryman's specimen to start into growth, let alone think of flowering. Then, seen at its best, the Bee Orchis (*Ophrys apifera*) is a plant of great beauty, and one of the most curious and well-defined, so far as colouring is concerned, of any plant we possess. The Toothwort (*Lathræa squamaria*) is past its best, but two weeks ago it quite enlivened with its pretty purplish flowers many of the unoccupied spaces beneath our Elms and Hazels. Then, compared with the Continental *L. clandestina*, our native plant is a king, it being of free erect growth and quite wanting in the dull dirty colours that were so conspicuous in the specimens exhibited at a late meeting of the Royal Horticultural Society. For using as a cut flower *L. squamaria* is of great value.

Readers of THE GARDEN would admire greatly a coloured plate of our native *Lathræa*. I sent white-flowered specimens to Mr. Lynch at Cambridge. *Monotropa Hypopitys* (the Yellow Bird's Nest) is appearing plentifully. It looks a solitary plant, and one that feels inclined to keep well out of sight.

When found growing wild the common *Columbine* (*Aquilegia vulgaris*) usually takes one with surprise, for it is a rare and pretty plant and one that might well be naturalised in many an open woodland. *Orchis Morio*, in varying shades from deep purple to the lightest of pink, is wonderfully abundant in some of the meadows and fields hereabout. The early purple Orchid (*Orchis masculia*) is almost past, but it looked lovely about a fortnight ago. *Habenaria bifolia* (the Butterfly Orchid) grows unusually strong in the rich dampish loam of some of our older coppice woods. It is worthy of a conspicuous corner in any garden, both for its

pretty flowers and delicious fragrance exhaled after a shower. The Deadly Nightshade (*Atropa Belladonna*) is not yet extinct in our Kentish woodlands, though London apothecaries hunt it out by fair means or foul. *Solanum Dulcamara* (the Bittersweet) is a pretty clambering native plant and one that I have before recommended for garden planting. The blue, yellow-anthered flowers and wealth of shining red berries in autumn render it a plant worth looking after. *Cardamine pratensis* fl.-pl. grows abundantly, and in company with thousands of *Saxifraga granulata* quite enlivens acres of the park and field. A. D. WEBSTER.

PRIMULA DENTICULATA.

AMONGST the many beautiful Primroses found in the neighbourhood of Sikkim, the Himalayan Mountains, &c., we find few adapting themselves to ordinary cultivation so well as the one here represented. It may be taken as the type of a small group comprising *P. capitata*, *P. erosa*, and the plant known in gardens as *P. Fortunei* the origin of which is very obscure.



Primula denticulata.

The first and second species are what gardeners term miffy, and, apparently, at most are only biennial, while the subject of our note and *Fortunei*, are truly perennial and capable of division of the roots to almost any extent. Botanists seem to have much more difficulty with this group than gardeners have, the latter readily separating them into four, while the botanist with dried material has a difficulty in making more than two. Of course, as in all varying species, there are many intermediate forms, but these readily fall under the respective names given above.

P. Fortunei is perfectly distinct from any of the above species, though almost any botanist will tell you it is *P. denticulata*; its origin as well as its native country are unknown, but its value as a handsome flowering plant is undoubted. Its introduction probably dates from about Fortune's time, and it may possibly have been growing in the Chinese gardens at the time of his travelling there. However this may be, we have the plant, and for sheltered nooks in the rockery, warm peaty beds, and

pots for a cool conservatory it is hardly surpassed by any of this family. With a little heat it may easily be had in flower about the end of February, from which time it continues until May. Its loose heads of pale purple mealy flowers are very attractive, and useful in all kinds of flower work. It is easily increased by division of the roots, breaking or cutting the rhizome in small pieces, potting, and then placing them in a close pit. *P. erosa* and *P. capitata* can only be increased from seed, but we have found them, on the whole, so hard to manage satisfactorily that we have ceased to trouble with them, notwithstanding their beautiful and almost unique flowers. *P. denticulata*, on the other hand, is very easily managed. The accompanying illustration is no exaggeration of the wonderful freedom of flowering of this handsome Primrose. It requires plenty of light and grows all the more robust for the kindly protection of brushwood or other covering. Indeed, this species seems to us essentially a woodland plant, where if a nice

position be chosen under the tall deciduous trees it will develop to something like the clump shown in the annexed engraving. When the masses become too large they can be lifted, broken up, and replanted, and the individual crown will be all the better for it. The best time to do this is after the flowering season, as the plants are able to recover before summer sets in. It ripens seed well, but the seedlings vary only slightly in the shade of purple. The variety *alba* is pure white, and certainly not a great acquisition. *Pulcherrima*, *Henryi*, *cashmeriana*, &c., are selected varieties with larger heads and deeper coloured flowers. K.

Sarracenias in the open air in England.—These singular hardy plants succeed admirably in the open air in England in some districts. I fancy Mr. George F. Wilson was one of the first to prove the adaptability of the American species for culture in the bog garden. *S. purpurea* is the best of them for hardy bog culture. I saw them growing very freely in Mr. Wilson's bog garden at Wisley during the spring of the present year. They were doing

quite as well in the nursery of Messrs. Paul and Son at High Beach, where they were more freely exposed to the weather. There were several other species besides *S. purpurea* in Messrs. Paul's nursery, amongst them *S. Drummondii* and *S. flava*, but none of them do so well as *S. purpurea*.—J. DOUGLAS.

PLANTS FOR ROCKWORK.

IN gardens there are generally some unsightly objects to hide, or places or parts that may be improved by raising banks or mounds of irregular shape, working in any large pieces of stone that may be lying about or to be obtained, so as to give a rugged surface and help to support the soil. When this is done there are many interesting and very beautiful plants that may be grown that do not look so much at home anywhere else. One of the most striking of these is *Lithospermum prostratum*, which, to be seen at its best requires an elevated position where it can run and trail over. Although the flowers of this *Lithospermum* are small, they are borne by the plant with great freedom and the colour of the blooms is a deep rich blue, almost rivaling that of the Gentian. The soil that seems to suit the plant best is a mixture of peat and loam or leaf-mould, and loam with plenty of sharp sand to keep the whole porous. In this mixture the roots seem to revel, and they like to be under pieces of rock or stone, which keep them uniformly moist and are a great help to their growth. The way to increase the plant is by layers or cuttings, the first-named of which root in a year and the cuttings strike quickly under a bell-glass if made of the half-ripened shoots.

DAPHNE CNEORUM is a superb plant for the same kind of work, and bears a profusion of trusses of lovely, pink, sweet-scented flowers. In habit the plant is procumbent and spreading, and where it does well it grows quickly and covers the ground. The soil I find it does best in is that which is sharp and gritty, and in this it roots freely, and so do any branches that happen to be layered, as in a year or so after being buried they may be taken off the plant and replanted.

VITTADENIA TRILOBA is also a capital rock plant and one that will grow almost anywhere, as it comes up freely from seed and establishes itself where there is little soil, and flowers in the most profuse way nearly the whole of the season. The habit of the plant is spare and thin, with small wiry stems, and the blooms are small and Daisy-like in shape and appearance.

THE PROCUMBENT PHLOXES all make capital rock plants. *P. Nelsoni* is a perfect gem, as at this season it forms dense masses or tufts of bloom, the flowers being pure white and about the size of a shilling. On the flat or level ground this Phlox often dies away in winter from damp, but on an elevated position it thrives and forms a beautiful object in the spring when seen in contrast with other varieties, such as *P. setacea*, which has pretty pink flowers.

AUBRIETIAS are well adapted for planting on rockwork, as they require but little soil and will live in loose walls or positions of that kind and clothe them with beauty. There are several kinds of Aubrietias, the oldest and perhaps best known being *A. purpurea*, but there are now many much finer forms, one of the best being *A. grandiflora*, which has flowers quite double the size of those of *purpurea*. There is also a variety called *græca* and a variegated form of *purpurea*, the contrast between the foliage and flowers of this being quite charming.

ALYSSUM SAXATILE is a most valuable plant for rockwork, and when grown in a sunny fully exposed position it flowers in dense masses and makes a fine show. In heavy lands or wet places it is difficult to keep this Alyssum during the winter, but planted high and dry it flourishes and soon spreads over the ground. The perennial Candytufts, such as *Iberis gibraltarica*, are of great value, and form a most telling and pleasing contrast with such plants as the *Daphne* and *Lithospermum* already referred to.

ONOSMA TAURICA (the Golden Drop) is seldom seen, but it is quite a gem among rock plants, the flowers being long and tube-shaped, and of a lovely citron-yellow colour. To grow the plant well, special preparations must be made by giving it plenty of depth of good loamy soil mixed with grit or pieces of sandstone, among which it will root and keep healthy and strong. For bold prominent places on rockwork where there is room, nothing produces a more striking effect than *Berberis stenophylla*, which is persistently drooping in its habit, the long pendulous branches bending over in the most graceful manner and becoming clothed with racemes of rich yellow flowers.

JASMINUM NUDIFLORUM also looks well grown in the same way, as it trails about and adapts itself to such positions, and makes a fine show. For shady places Ferns come in very useful, and there are many of these that are very telling on rockwork, one of the best being *Woodwardia radicans*, which makes fronds from 4 feet to 6 feet long. This *Woodwardia* is not quite hardy, but it is sufficiently so to stand if the crown is protected by some light covering during the winter. *Lomaria chilensis* will also do well if taken care of in the same way, whilst the Oak and the Beech Ferns are exceedingly telling and quite hardy. S. D.

Lilium Harrisii.—This Lily, of American origin, is very beautiful, and deserves far more attention at the hands of gardeners than it receives. It somewhat resembles the old and well-known *L. longiflorum*, but its flowers are larger and of the purest white. This plant is largely grown in pots by Mr. Luff at Oakfield, Wimbledon, where it is found specially useful. It appears to stand forcing well, thus rendering it a still more valuable acquisition where white flowers are always in demand.—W. H. G.

The Wild Spaniard (*Aciphylla squarrosa*).—This plant was exhibited by the Messrs. Veitch, of Chelsea, at the show held in the Temple Gardens, and I do not think a botanical certificate which was awarded it sufficient testimony to its worth. It is a most distinct and curious plant belonging to the Natural Order Umbelliferae. It is perfectly hardy, and if planted on the lawn as a single specimen it would form an exceedingly interesting object. The plant is a native of New Zealand, where it is found in the Northern and Middle Islands, growing at an altitude of nearly 2000 feet. There are several other kinds in the same country, but they grow at greater elevations, and would doubtless also prove hardy in this country, and are deservedly worthy of introduction. The plant in question is said to attain to some 6 feet or 8 feet in height, and is clothed with long, spiny, narrow leaflets, each leaf being from 1 foot to 18 inches long, each leaflet spiny at the end, the general colour being of a glaucous grey hue. Such distinct and strange plants should be always welcome to plant growers in this country.—W. H. G.

Lilium pyrenaicum.—From the fact of this Lily being the earliest of all to expand its blossoms in the open ground, it may certainly be regarded as the harbinger of the Lily season, but it is far less showy than most members of that extensive genus, and consequently is but little grown. It belongs to the Turk's-cap section, its nearest ally being *L. pomponium*, of which *L. pyrenaicum* is by some considered a variety, though there is a considerable amount of difference between them. *L. pyrenaicum* is the most robust of its class, and forms a stout stem very thickly clothed with leaves, while the comparatively small greenish yellow blossoms are about the same size, and much the same shape as those of the common Turk's-cap (*L. Martagon*). The whole of this section of Lilies are very impatient of removal, so that when they are planted little return in the shape of bloom can be expected the first season, though occasionally out of a number one or two will flower well. The second year, however, they may reasonably be expected to have recovered from their check and bloom as if nothing had happened. To be seen at its best, this Lily requires to become established in the open ground, but on no account must it be taken indoors, as the

flowers possess such a heavy, disagreeable smell, which though not particularly noticeable in the open air, is quite unbearable in the confined atmosphere of the dwelling-house.—H. P.

THE VICTORIA LILY OF THE VALLEY.

We are indebted to Messrs. Hawkins and Bennett, of the Lily Nursery, Twickenham, for this very fine form of Lily of the Valley. How it originated is not stated; perhaps it came as a natural sport as one of the results of high cultivation. Suffice it to say that Messrs. Hawkins and Bennett have worked up a large stock of it, and they send during the season very large numbers of flowers to Covent Garden Market. Now, some persons are under the impression that the Lily of the Valley will grow anywhere, but that is a great mistake, and it is equally a mistake to suppose that the Lily of the Valley does not require cultivation. If beds of Lily of the Valley are to be made, the position should not be near trees, because the roots absorb all the moisture both top and bottom when the Lily most needs it. Neither should the roots be planted in bog or clay. Beds should be in various aspects if a succession of flowers is necessary; thus the earliest should be on a south aspect, the second on an east aspect, and the third near a north wall, not exactly close under it, but say 2 feet from it. If there is a fruit tree or two near to shade the bed from the afternoon sun, it will be helpful towards attaining a late bloom. In regard to soil, Messrs. Hawkins and Bennett recommend a rich and porous one, and the Lily of the Valley is a plant that requires plenty of feeding both on the surface and at the roots, and so good manure is essential. Messrs. Hawkins and Bennett recommend putting together six wheelbarrow loads of stable manure and six of cow manure, turning them together in a heap and adding one bushel of soot and the same quantity of fresh-ground lime, mixing these well together and turning them well over. In addition they recommend placing together in another heap six barrowloads of stable manure and the same quantity of decayed leaves, but they except Walnut, Ivy, Fir or Yew leaves, but sweet leaves well decayed, these also to be well mixed together and turned several times. So much, then, for soil and manure.

In forming their beds they adopt a scale of dimensions most convenient for covering when in bloom. They take out a trench 18 inches wide and 8 inches in depth, laying the soil on one side, then by means of a fork the subsoil is broken up to a further depth of 8 inches, and with this they mix a good dressing of the first compost, then the soil taken from the trench is well mixed with the second mixture and put back again. This goes on until the bed is prepared.

The next process is to thoroughly sort and clean the crowns, removing all the decayed leaves, but cutting away any roots that are no longer useful to the plant. The roots thus prepared, a trench is dug out of the bed 7 inches wide and 1 inch deep, then the roots are placed in this 4 inches apart, the points upward, and the long roots pressed firmly into the soil, but keeping the tops or points of the sheath level with the surface of the bed. Then 6 inches from this a similar row is planted, but some of the soil is placed on the previously planted roots until they are covered to the depth of 1 inch, pressing it firmly about the lines of plants, and so on until the bed is finished. The bed is then left for two or three weeks to settle down, then a coating of short stable manure is laid over the surface to the depth of $1\frac{1}{2}$ inches; this keeps the newly-planted roots moist and prevents weeds from growing. In May, June and July good waterings are given if the surface is dry. A great result cannot be expected from the beds the first spring after planting, but the second and third ones and onwards, fine heads of flower reward the labour of the cultivator.

The lime and soot which form parts of the first mixture operate to prevent insects from attacking the roots. The manure in the bottom trench acts as drainage as well as food for the roots. The reason why the bulbs or sheaths are placed so near

the surface is that the roots may go downwards, and they will penetrate a distance of 18 inches in search of food. Cow manure is objected to for surface dressing on the ground that it sometimes produces white grub, which injures the roots and affects their flowering as well as the size of the blooms. A well-prepared and managed bed will last from six to seven years.

Planting is done at any time from November to March. If planted before Christmas, severe frosts will considerably loosen the plants and thrust them up to the surface. Messrs. Hawkins and Bennett plant at all seasons of the year, and always with success. The top-dressing is repeated every autumn as soon as the decayed leaves can be easily drawn off by means of a wooden rake. R. D.

PANSIES.

WHAT becomes of all the Pansies carried into our metropolitan market alone presents an inscrutable problem. Daisies first by hundreds of thousands, almost always of the dark red and giant white kinds, are followed by Pansies almost by millions, for tens of thousands are carried into London daily. Here we have a hardy flower, which has no fugitive character naturally. It is very hardy and enduring if properly treated, but the fact that such enormous quantities are annually sold shows that the vast body of town purchasers of Pansies keep them but a short time. The plants are kept after coming into their possession perhaps for a month, and then are thrown away. It must be remembered that these Pansy plants are sold under conditions hardly favourable to permanent existence. They are lifted when in full bloom, have very little soil attached to the roots, when so got up are crowded thickly into open boxes, get a heavy watering, which perhaps washes off more of the soil, are sent in carts and vans some ten to twenty miles to the markets, and being moved once or twice later have very little indeed of soil left on the roots when finally planted or potted. If in such case the plants finally live for a few weeks only, it is not to be wondered at. It may be assumed that because the Pansy is so hardy a plant and so readily propagated, that in time the wants of the community would be supplied and that the demand would practically cease. But the demand seems really to grow, at least growers increase, as also do plant purchasers and hawkers. When planted up thickly in the autumn a rod of good ground is often made to produce 500 plants, which gives the immense number of 80,000 to the acre, but deducting paths, &c., such a number is not reached, yet the bulk produced on an acre of ground seems to be immense. Pansies can only be produced in this way in fairly good soil and by using ample manure. There is considerable depletion of the soil going on in the lifting every spring of so many thousands of plants with some soil attached to the roots, and that depletion can only be remedied by the addition of ample manure. A soil which is too light and loose is hardly desirable, as in that case none will stick to the roots; then there must be ample space to enable the plants to have a change from year to year. When any one class of roots is grown in the same area of ground two or three years in succession the soil is apt to become sour, although Pansies seem to suffer in that way less than other plants; still all plants however hardy suffer more or less in time when grown so thickly. Where Potatoes or other vegetables can be grown for change it is an excellent plan, but even other flowers, such as Wallflowers, Polyanthuses, &c., constitute some change, although vegetables are of course best. Now that the Pansy trade is getting over, for it rarely runs into June, as the weather then becomes too hot and parching for hardy plants, growers are lifting up all their stray roots and getting them divided and replanted to make stock. Of course, when the lifting for sale is proceeding some plants are found better than others, and those are taken, whilst late or small ones are left. Thus a Pansy breadth from which thousands of plants have been taken shows a few hundreds left dotted here and there. These when lifted have the flowers cut off, and each plant is divided into three or four pieces. If the weather be dry, they

are well watered in and so attended to until rooted. Then in the autumn, probably early in September, all the spring-planted stock are relifted, cut over, divided, and replanted, so that hundreds in the spring are now converted into thousands. As there are several diverse kinds of each colour grown, some early and some late, of course the stocks of the earliest are cleared out first and the work of dividing and replanting goes on, whilst the late Pansies are being dispersed. Then if the later kinds be of more striking hue or form than are the earlier ones, the sale of the latter practically ceases when the later are in. Thus Archie Grant, blue, is so fine and effective, that Blue King, which is so early, is knocked out of time by the former grand variety. Selfs are found in blues, whites, purples, yellows and cream-coloured forms. These latter are very hardy and free, but rather late. So also are the whites, and a fine hardy early white is very needful. Then there are some fine belted varieties which are preserved by propagation, whilst all the Pansies and the miscellaneous mongrels which are sold to the poorer hawkers at about 2d. or 3d. per dozen are raised from seed sown about this time and dibbled out thinly early in the autumn. The introduction of the fine blotched or fancy forms has raised the hawkers' standard of quality appreciably, and in a few years we may expect to see all the small-flowered mongrel element eliminated from market Pansies.

A. D.

THE FLORISTS' TULIP.

THE florists' Tulip, represented by its two main classes of breeder or unbroken, and rectified or broken flowers, was, last week, once more exhibited in its best form in London, and this fact serves to recall the time when a Tulip show was annually held in the London district; when Sanders at Staines, Turner at Slough, Hunt at Wycombe, Lawrence at Hampton, Edwards at Holloway, Williams at Tottenham, Groom at Walworth, and others grew and exhibited this flower. My latest recollection of a Tulip show in the London district is one held at the Crystal Palace in 1856. I think that was the last held in or near London. In 1859 one was held at the Royal Nursery, Slough, but at that time the cultivation of the Tulip in the south had commenced materially to decline, until not a collection scarcely was left in the county of Middlesex.

An old French writer states that "many persons have quitted the Anemone and the Carnation to cultivate the Tulip, but no person in the fancy has ever quitted that to cultivate any other flower." That might have been perfectly true when it was written. In our time some of us have seen the Tulip given up, and some other flower grown in its place; but not a few of the older fanciers of this flower in the north have held to it, even when it seemed to be at its lowest ebb of popularity.

M. Menages tells us that the Tulip originally came from Turkey. M. Gambier, of Lisle, brought the first Tulip to Paris, now many years ago, and he probably obtained it from Vienna. It is supposed to have been first introduced to England about the time of Queen Elizabeth. When it began to be cultivated as a florists' flower is, perhaps, not known. It would appear that the Tulip mania never reached England, though the growers of that day, no doubt, looked on with amazement at the course and results of the mania in Holland. One of the earliest and most celebrated of English raisers was the Rev. Mr. Wood, of the City Gardens, City Road, who died about the year 1805, and left behind him a very fine collection of Tulips. They were sold in the first instance to Mr. William Gabel, and by him returned in a very disordered state, and sold to Mr. Drinkwater and Mr. Davis, who had gardens in the same vicinity. Other raisers soon sprang up, and Clapton, Walworth, Camberwell, Hammersmith, Hackney Wick, and other suburbs of London became active centres of Tulip cultivation.

The best collections of Tulips at the present day are in the hands of Mr. Samuel Barlow, J.P., Stakehill, Manchester; the Rev. F. D. Horner, Burton-in-Lonsdale; Mr. James Thurston, of Cardiff, who has raised a few very fine and promising seedlings;

and a few growers about Stockport. Mr. Barlow has been a Tulip cultivator for the space of forty-one years, and his unique collection, represented at the Temple Show by thirty-six rectified or broken and eighteen breeder or unbroken flowers of the finest varieties, is the outcome of all these years of perseverance, industry, and enthusiasm devoted to the acquisition of the very best types attainable, and in discarding inferior ones.

The breeder or self-coloured stage is the seedling form of the Tulip. This is an extraordinary characteristic which, as a physiological fact, is scarcely known in any other flower. Whether seed be taken from feathered or from flamed flowers, they produce seedlings which, after five or six years' probation before they reach the blooming stage, will when they bloom, with very rare exceptions indeed, be simply self-coloured flowers. Many of them are very beautiful, especially among the rose-coloured breeders, that it seems a pity they should ever pass out of the self-coloured into the broken character, and probably some never do. But the breeder stage is not the final one, though they may keep to it for three and four, up to nine or ten years. The raiser and cultivator of seedlings finds that, season after season, now one and now another, in no order of rank or age, will break or rectify either into feathered or flamed flowers, or some mixed attempt at either. One singular characteristic is that when the stage of breaking is reached the plants nearly always assume a less robust habit and a shorter stature, but they are not necessarily weakened in constitution, as Berckmann, who wrote of the Tulip many years ago, thought. The Rev. F. D. Horner, in one of his pleasant papers on the Tulip, points out that—

When the bulb is about to produce a rectified flower the foliage is less vigorous, and shows long before the bud colours a mottling and streaking with lighter green, which is observed in rectified Tulips, and these indications can be accepted as a certain sign that such a bulb, whether it flowers that year or not, has passed from the transient to the permanent stage of its existence. It is additionally strange that the breeder or mother colour is not simply driven or collected into beautiful markings on the rectified petals, but that it disappears from the flower altogether as a mist or veil lifted off. The base or ground colour floods the whole flower with its pure white or yellow, and a new and marvellous colour strikes in to feather or flame the petals. Each bulb, when it rectifies, transmits its own character to its very offset.

It must not be supposed that the most beautiful breeders—those possessing fine hues of colour—produced the finest rectified flowers. The converse most often holds good, and the ugliest and least attractive flowers will produce the most valuable feathered or flamed varieties.

The broken Tulips are divided into three divisions—bizarres, bybloemens, and roses. The bizarrealways has a yellow ground, and can thus be very readily distinguished; the two latter have white grounds, but they are readily distinguishable from each other by the practised eye. Roses break from white bases with pink, rose, red, or scarlet self-coloured petals; bybloemens from a white base, with pale or deep or greyish lilac, mauve, slate-coloured or purple petals. The broken flowers, whether bizarres, bybloemens, or roses, each form two distinct classes—one is termed feathered flowers, and the other flamed flowers. In the case of the former the colouring on the petal is laid on in beautiful styles of pencilling round the edge only, or this pencilling is joined by bold beams of colour that rise like fire flashes up the petal centre and strike into the pencilling of the edge with their sharp tongues.

Of the number of persons who looked upon the florists' Tulips at the Temple show, how many were aware of these singular physiological characteristics of the flower? Probably but few. The history of the Tulip is both eventful and strange, and for those who love and grow it, it has a remarkable fascination.

R. D.

Fraxinella emitting inflammable gas.

My challenge about this has produced a very satisfactory response. But it would appear that the

phenomena of the Burning Bush are two-fold: 1. That explained by Mr. Boys in his note, and privately by letters from Mr. Woodall, of Scarborough, and Mr. Burbidge, of Dublin. Mr. Woodall tells me that in 1881 on a very hot summer's night he once went round and fired several *Fraxinellas* in the hotel garden at Aix-les-Bains; that they burnt out with a sudden flash, leaving the stalks charred and singed, and that he has tried in vain to repeat the experiment in England. Mr. Burbidge says that he has succeeded with the experiment in Dublin, and explains the phenomenon. A very inflammable resin is secreted by the glands at the base of the hairs on the flower-stalks. Hot weather increases the secretion and causes the resin to exude and collect in globules at the tips of the hairs. The application of a light under favourable conditions causes this resin to ignite and burn out in one flame, the flame running up and down the stalks as rapidly as if it was a train of gunpowder, but the experiment cannot be repeated on the same plant, as the hairs and probably the secreting glands are destroyed. 2. The phenomenon of self-luminousness mentioned by Canon Ellacombe must be different. I see no more difficulty in believing it than in believing in a will-o'-the-wisp or a luminous insect, but I should like to have it explained. It cannot be due to spontaneous ignition, or it would not be continuous as described; besides cornfields would be liable to be burnt by it, and we do not hear that this is the case. In Maunder's "Botanical Treasury" it is stated under "*Tropaeolum*" that *Fraxinella* emits electrical sparks at night, a statement I should like to see confirmed.—C. WOLLEY DOD, *Edge Hall*.

ORCHIDS.

W. H. GOWER.

ACANTHOPHIPPIUMS.

THIS would appear to be a genus established by Blume, who, however, left no explanation of its origin, and although the plants belonging to it were grown and cared for some forty years ago and for some years afterwards, they ultimately fell into disfavour and were lost sight of in this country. I think the collection at Kew was the last place (until recently) where I observed them, and where some years ago all the species here enumerated existed in large masses. Orchids have had an undisputed reign for upwards of fifty years, and at the present time they are in greater favour with the horticultural public than they have ever been. The Orchid men of the present day study their plants and their peculiarities more than they ever did before, and although the advent of the *Odontoglossums* led to a certain amount of enthusiasm for this genus, I find the very largest growers eagerly searching for many of the curious plants which were formerly grown and hastily cast on one side for newer and more popular species, and finding time to admire a small-flowered kind with as much love and care as they bestow on the gems of the Orchid world. To my surprise, the other day I noted a plant of *Acanthophippium sylhetense* flowering in Mr. Tautz's collection at Shepherd's Bush. I myself have always admired this genus, and although *Acanthophippiums* cannot claim any degree of elegance, the quaint form of the flowers, which resemble a child's woollen shoe, and the peculiar and bright markings should render them favourites. They are terrestrial plants, with erect, elongated pseudo-bulbs, bearing large, strongly ribbed leaves. When young the leaves are enveloped in numerous large sheathing scales, which ultimately die and fall away; the scape is stout and rises with the young growths, and seldom exceeds the height of the pseudo-bulb, which is about 6 inches or 8 inches high, and bears several flowers of the peculiar shape noted above; in some cases seven or eight flowers are produced on a scape, and

frequently two scapes come up with the young growth.

These plants require ample pot room and good drainage. The soil in which I have found them grow well is a mixture of about equal parts of peat, light turfy loam, and leaf-mould. The soil should be pressed down well and made firm. *Acanthophippiums* enjoy a liberal supply of water during the growing season, but after growth is finished the supply should be reduced; when the plants are quite at rest water must be entirely withheld. During the winter the plants are much benefited by being kept quite dry. Should the bulbs, however, show the least sign of shrivelling, a little water should be given to plump them up. *Acanthophippiums* like abundance of heat and moisture when growing, and should therefore be kept in the hottest or East India house.

A. BICOLOR.—This species is a native of Ceylon. Its pseudo-bulbs are somewhat small and ovate, bearing leaves 1 foot or 18 inches high, which are strongly ribbed, taper at both ends, and light green. The flowers are campanulate, yellow, streaked and spotted with reddish purple. It blooms in May and June.

A. JAVANICUM.—A plant which may be distinguished by its bluntly quadrangular pseudo-bulbs. The flowers are really very beautiful, the colours being similar to those of the preceding, but richer. It comes from Java, and blooms in this country during the spring months.

A. STRIATUM.—A slender-growing plant producing white flowers, which are somewhat sparingly streaked, and flushed with red. It blooms in spring and comes from Nepaul.

A. SYLHETENSE.—The flowers of this plant are creamy white, streaked and spotted with purple. They are produced in spring. It is wild in Sylhet and Khasia.

The above are all the species which have come under my observation, but we have another plant of more recent introduction from the Malay Islands which I have not seen, named *A. Curtisii*, which has yellowish flowers, more or less dotted with purple and rose, and I have no doubt there are other kinds yet to be found if they are searched for.

Epidendrum Randi.—This is a beautiful and distinct variety, now flowering in Mr. Tautz's collection at Shepherd's Bush. It is distinct in its habit of growth as well as in its flowers. It is, I believe, one of Mr. Sander's introductions, and it appears to vary considerably. Judging from the size of its flowers, I should imagine that it will produce a finer spike of bloom when fully established, and then it may claim a place amongst the very finest in the genus. The sepals and petals are deep olive-green; in some forms they are brown; lip large; side lobes very large, white, streaked at the base with deep magenta; middle lobe large, slightly notched in front, white; the disc and centre streaked with rich purplish magenta. The pseudo-bulbs and leaves are also of a very deep blackish green.—W.

Cattleya Mossiæ.—When in the gardens of Mrs. Hurst Wright, Sunningside, recently, I was particularly struck with two very fine plants of *Cattleya Mossiæ*. I send you two flowers for your inspection, the pink-coloured one, I think, being the best. The plant of it had forty blooms, the specimen of the lighter-coloured form carrying between sixty and seventy. Both are flowering in baskets 14 inches square. Mrs. Wright informed me that they were sent her from Caracas. There are several other plants as well grown and full flowered, but the two varieties sent are the best.—GEO. JUPP.

* Two beautiful forms of *C. Mossiæ*. One had both the sepals and petals very richly coloured; the lip finely fringed and showy.—ED.

Odontoglossum Schillerianum.—A very elegant form of this, one of the least seen and known

of *Odontoglossums*, I lately noted in flower. It was not introduced in a living state until thirty years after its discovery. It is a pretty species, and for this it deserves attention, but to myself, who knew personally the party whom it commemorates, it has a deeper hold upon my veneration. The flowers are each some 2 inches across, roundish, and yellow, profusely blotched and speckled with bright chestnut-brown. It comes from considerable elevations in Venezuela.—G.

Anætochilus Lowi.—This is a robust species, and on this account it survives the wretched treatment this genus has received from most plant growers. I have recently noted it thriving in several places, and hope more attention will be paid to the genus, and that it may again become popular, for in it are to be found without exception the most exquisite and beautiful plants in the vegetable kingdom. It is nonsense to imagine, as a writer recently stated, that *Anætochilus* must become cheap before they can be largely grown; neither is it fair to the trade to expect it, for as they are not easily imported in a living state, and the cost of collecting and importing them is just as much for plants which arrive dead, those living must help to recoup the loss. It is when we again get them into a thriving condition and are able to propagate them at home that the price will come down, and not before. This species is now growing well in Mr. Partington's collection at Cheshunt, in Mr. Williams' nursery at Holloway, and Mr. Laing's at Forest Hill.—W. H. G.

White Orchids at the Temple Show.—Amongst the Orchids at the Temple show there were enough to establish the fact that notwithstanding the long run of popularity which Orchids have had, the numbers and the numerous varieties staged showed well how varied the Orchid genus is. I believe the society have never had such an Orchid exhibition. Amongst the different ways of looking at the exhibition which I thought of, one was to see what white flowers were represented, and I think the following comprised about the whole of these. *Dendrobium Devonianum* album was exhibited by Sir Trevor Lawrence; the flowers were large, of the same general contour as those of the typical plant, but pure white, saving the yellow blotch in the lip; it was a most enchanting flower. *Dendrobium Bensoniæ* album, shown by Mr. Sander, is also a very chaste flower of the purest white, saving the rich orange-yellow blotch in the lip. Baron Schroeder staged the white form of *Cattleya Skinneri*, which is truly beautiful, the purity of its white being set off by the peculiar mauve-coloured eye-like spot at the base of the tube of the lip. It is one of the most beautiful of all our white-flowered species. The same collection also contained the exceedingly rare *Aerides Williamsi*, which is simply a pure white-flowered *A. Fieldingi*; the plant is not strong, but when it becomes so I should imagine it will be one of the most superb white kinds. The same exhibitor also included two other white *Cattleyas*, *i.e.*, *C. Wageri*, which is a fine flower of the purest white, saving a blotch of orange in the lip, and *C. Mossiæ* alba, having pure white sepals and the white lip more or less streaked and splashed with yellow. I think these comprised the whole of the albino varieties, and very beautiful they are, only requiring to be stronger in growth to make their beauties more discernible.—W. H. G.

SHORT NOTES.—ORCHIDS.

Odontoglossum Londinense is a natural hybrid which has flowered from amongst Mr. Sander's importations. It is at once handsome and distinct, having large flowers, which are spreading; the ground colour canary-yellow, profusely blotched with chestnut.

Pleurothallis gelida.—It is not often one gets a species of this genus, that is a desirable garden plant, as there are in its ranks so many inferior varieties. The present kind, however, which I recently noted flowering in the national collection at Kew is very pretty. It is a somewhat bold-growing plant, and one that flowers freely, the spikes being long, and the flowers creamy white or greenish

white, much resembling spikes of the Lily of the Valley. It is very pretty, and deserves cultivation, even in the best collections, amongst the curious plants.—H.

Saccolabium Pechei.—This is a pretty, small-flowered species, belonging to the same set as *S. bellinum*, illustrated by a coloured plate in THE GARDEN of May 11. The leaves are very broad and short; the flowers are much smaller than those of *bellinum*, the colour yellow dotted with red, the point of the lip white. It is an elegant and interesting plant, now flowering in the national collection at Kew.—W.

Disa racemosa.—This pretty species, which was figured in the "Orchid Album" recently, is now flowering again at Kew. This appears to differ somewhat from the form exhibited at the Temple in the last days of May by Sir Trevor Lawrence. The flowers of Sir Trevor Lawrence's plant were somewhat larger, and the colour of a decided pinkish rose. Both forms should certainly stimulate Orchid growers to cultivate these beautiful terrestrial South African Orchids. Many species exist, most of them possessing charming and novel colours.

Bolbophyllum Lobbi.—This species, introduced nearly thirty years ago by the celebrated collector whose name it bears, is now but rarely seen. I, however, noted it recently in great beauty with Mr. Luff at Oakfield, Wimbledon, and its large flowers are really very attractive. The blooms are each more than 3 inches across, thick and fleshy in texture; sepals and petals tawny yellow or buff, more or less dotted and streaked with purple on the outside; the lip is also buff-yellow, and bears a few spots. It has a creeping rhizome, bearing somewhat small pseudo-bulbs, and it may be easily managed by those who have the convenience of an ordinary plant stove. It comes from Java.—G.

GARDEN FLORA.

PLATE 704.

CATTLEYA PERCIVALIANA.*

THE form of this beautiful *Cattleya* here represented may be accepted as a good variety of this variable plant. It was introduced to cultivation some seven years ago in great numbers by Mr. Sander, of St. Albans, from South-west Venezuela, where it is said to grow in the vicinity of rivers upon the bare rocks and fully exposed to the sun's influence at some 4000 feet elevation. By some authorities it is considered a variety only of the typical plant *C. labiata*. At all events, it belongs to that section of the genus, although the flower is smaller, and it does not possess the development in the lip which is such a peculiar feature in that species. It is a very beautiful kind, and flowers at a peculiar time, thus rendering it very valuable. In its native country it is said to flower in the month of October, but with us, under cultivation, it appears to be later, as it commences to bloom about the end of November and continues until the end of January or the beginning of February, and thus fills up a gap between the last flowers of *C. labiata* and the first to open of the *Trianae* section. This plant was named in honour of Mr. Percival, of Southport, who at that time had a famous collection of Orchids. Its merits have been variously discussed, but I think that as the plant becomes fully established and gains strength it will be extensively grown. To me there appears to be something so attractive in the rich, warm orange-yellow of the lip, which, through being streaked with maroon-purple, gives it quite a tawny appearance, that its want of size is entirely overruled. Compared with some of the flowers of the *Cattleyas*

* Drawn for THE GARDEN by H. G. Moon in Mr. Wilson's garden at Sheffield, January, 1887. Lithographed and printed by Guillaume Severeys.



CATTLEYA PERCIVALIANA

which we now possess, those of *C. Percivaliana* are somewhat diminutive, the largest flowers which I have yet seen measuring about 5 inches across, and in these days size appears to be one of the greatest desiderata in a *Cattleya*; but yet the largest flowers do not always carry the palm. As a matter of course, this plant varies considerably in the depth and intensity of its markings; all seedling Orchids do; and the earlier lots of these plants included many inferior forms to that which first opened in this country, and earned for this plant a somewhat bad reputation. By a careful selection of the best forms a very brilliant display may be obtained, and that, too, in the very dullest time in the year, when even the poorest form which I have yet seen should be considered valuable. The finest varieties which I have yet observed are in the grand collection of Baron Schroeder, at The Dell, Egham, where these plants are specially well done by Mr. Ballantyne.

Our plate may be said to represent a good form of the plant, whilst the variations consist for the most part in the development of the anterior lobe of the lip, and in the intensity of its markings and depth of colouring. The sepals and petals are rosy-purple of a higher or less degree of depth, the petals being more than double the size of the sepals. They are spreading and seldom exceed some 5 inches across; the side lobes of the lip are tawny-yellow on the exterior; within they are rich orange-yellow, variously streaked and veined with crimson or maroon-purple, which when well developed gives a peculiar rich, warm effect to the flower which is not to be found in any other kind, and which is specially pleasing. The anterior lobe is more or less deeply blotched with purplish crimson and bordered with a margin of pale rose. At present there are but few recorded varieties of this plant, but one bearing the garden name of alba must not be omitted here. The flowers of this form are pure white saving a stain of yellow in the throat, which stain, in my estimation, greatly enlivens the flower, and thus saves it from that somewhat dead appearance which to me a pure white Orchid flower has. This variety originated with Mr. Percival from an importation of Mr. Sander, but it still remains very rare, and as white flowers are such universal favourites, it is long likely to maintain a high figure in the market. W. H. G.

FRUIT GARDEN.

W. COLEMAN.

PEAR DUCHESSE D'ANGOULEME.

ALTHOUGH well known to fruit growers and generally represented in all parts of Britain, this noble French Pear has not become a universal favourite. If the quality of the fruit, independently of its fine handsome appearance, was bad, or even indifferent, it might be exterminated from our lists, but this we know is not the case, as anyone who has tasted good samples grown in France, the Channel Islands, and upon favourable soils in this country will bear out the statement that the flavour is superb. Some fruits, we know, are quite incapable of being good, as they have no quality in them; but here we have one of the hardiest of trees, capable of giving us quantity as well as quality provided we cultivate properly. Pears, no doubt, are capricious, like our seasons, but given a good average year, soils and stocks which suit them, a light, warm, airy aspect, and good culture, a great number of varieties formerly only good enough for stewing are now elevated, and most deservedly so, to the dessert table. But, assuming that some sorts known to be good do not reach

their highest standard of excellence every year, they are infinitely superior to many of the old stewers, as they carry their own sugar, a quality which fits them for consumption by the most delicate invalids. Indeed, so prominently have choice dessert Pears, and Apples too for that matter, come to the front for cooking purposes, that a new demand is now established, and although Duchesse d'Angoulême, always juicy and sweet from bad situations, does not always come up to the fine quality met with in Covent Garden in November, it is worthy of our skill, as we know it has all the good points of a first-rate Pear when properly ripened.

The original tree of this Pear was observed by M. Anne Pierre Andusson, a nurseryman at Angers, growing in a farm garden near Champigne, in Anjou, and having procured grafts of it, he sold the trees, in 1812, under the name of Poire des Eparannais. In 1820, he sent a basket of the fruit to the Duchesse d'Angoulême, with a request to be permitted to name the Pear in honour of her. The request was granted, and the Pear has since borne its present name.

That such a fine Pear, which does so well in France, would soon find its way to England there exists little doubt, as we find that within a few years it became established and well known throughout the United Kingdom. All the earliest trees would be worked upon the Pear or free stock, and as root-pruning until recently was but little practised, we may reasonably suppose that the majority of them are deeply anchored in clay, marl, and other sub-soils calculated to force a crude gross growth from which high-flavoured fruit could not be expected. These defects under modern culture upon the Quince and double grafting are giving way, as we find, on reference to the Report of the Committee of the Pear Conference, held at Chiswick in 1885, that twenty counties in England, also Scotland, Ireland, and Wales, contributed no less than 121 dishes to the tables, and thirty-eight growers voted in favour of the Duchesse being recognised as one of our standard dessert varieties. This step looks like progress, as it is a record of facts which cannot be gainsaid, and it now remains to be seen whether the English grower, whose indomitable will has brought him to the front in the subjugation of other fruits, will be successful with the fine Duchesse d'Angoulême. Although this remarkable Pear cannot easily be mistaken, for the benefit of those who do not know it, the following description may not be out of place. Fruit large, often very large, $3\frac{1}{2}$ inches wide and 3 inches to 4 inches high, roundish obovate, uneven, and bossed in its outline. Skin greenish yellow, changing to pale dull yellow, covered with veins and freckles of pale brown russet, and when grown against a south wall it acquires a brown cheek. Eye open, with erect dry segments, set in a deep irregular basin. Stalk 1 inch long, inserted in a deep irregular cavity. Flesh white, buttery, and melting, with a rich flavour when well ripened; otherwise rather coarse grained and gritty.

As to culture, experienced fruitists say the tree grows vigorously and well. It bears abundantly, and succeeds either on the Pear or Quince stock, forming handsome pyramids, but is better on the Quince. Here, then, we have the key to the secret of success: The cordon on the Quince; roots near the surface; loam, sound sandy and good; and good feeding. Aspect, a good wall facing south or west—the latter, perhaps, the best. Those who have not already done so, should try trees on the Quince as pyramids and bushes, as this, like some other capricious Pears,

although the fruit be smaller, may put in better flavour than is met with in fruit from not walls.

KELSEY'S JAPAN PLUM IN CALIFORNIA.

IN my wanderings up and down through and across this, the Golden State, I lately was so fortunate as to stumble into the Kelsey orchard, where this most remarkable and most valuable fruit—where it well withstands the winter's cold—was first fruited on this continent.

This orchard is located on the great plateau on which are situated the cities of Oakland and Berkeley, on the east coast of the bay of San Francisco, about one and a half miles south-east of the buildings of the University of California, two miles from the bay, back to and partly on the foothills 300 feet above the bay. There I found 200 to 300 of Kelsey's Japan Plum trees, six to eight years in orchard, loaded with fruit, ripening and being gathered for market. I spent hours carefully studying the fruit and trees. It so happens that they are a perfect object-lesson of the variety—low heads, high heads, pruned and unpruned, on stocks (roots) of nearly every species of the Almond family, all doing nicely. I could not see but what it was thriving on one root as well as the other. It seemed best both in tree and fruit on the lighter, drier soil. It seems to withstand light, rather poor, dry soil better than any other stone fruit. The tree is a slender twiggy straggling grower, in looks half way between the Peach and the Chickasaw Plum.

The fruit is about the size of good eastern Crawford Peaches, broad at the nose and narrowing to the eye, or reversed Pear shape, the point always curving to one side. Skin thin, uneven, covered with a thin bluish white bloom, colour green, nearly entirely covered with a dull mauve-purple when fully ripe. Flesh somewhat coarse, greenish yellow, very juicy, sweet, subacid, with an acceptable flavour peculiar to itself. It is considered a very good fruit by people generally to eat from hand. Personally I should prefer a good Peach, but would accept the Kelsey, I think, before any other Plum. Stewed or canned, it is said to be excellent.

It has proved one of the very best shipping fruits for the eastern market of this State. Prof. Hilgard says: "It is the only Plum I am acquainted with that may be gathered before it is quite fully grown and that will ripen up to perfection in the house. It is the best shipping stone fruit we have, and I think it has a great and most profitable future in this State. So far as I can learn, it does finely everywhere in the State where the soil is not too heavy and moist."

The fruit realises three times the price of the best Plums at wholesale, but this, I think, is owing to its being somewhat of a novelty as yet. This Plum will not do where it is too cold for budded Peaches to be a success. It possibly might do top worked on hardy Chickasaw Plum a little farther north.

This Kelsey Plum was imported from Japan; the native name was lost. I understand Mr. Kelsey procured the whole stock, propagated and disseminated it. So soon as he had it in fruit it created widespread attention; since it has been recognised as Botankio of the Japanese. There are about five other Japanese Plums, varying widely in character, that it is hoped will prove of value. But I can learn where none of them are in fruit.

This Kelsey orchard of 14 acres, all in bearing, is, as it stands to-day, a splendid object-lesson in which to study Californian horticulture. Being a nurseryman, Mr. Kelsey gathered here a large collection of fruits of all species that would grow here except Peaches. The collection of Cherries is very large, also Plums. Here one can learn how he should prune and how he should not prune for the best results and many other lessons. The orchard of 14 acres was sold a year ago to be cut up into villa tracts for £6000. It was fairly well cultivated last spring, but the trees were not pruned, as they call cutting back the exuberant growth here made in eight months of fine growing weather in very rich soil. From not having been properly cut back

nearly all the branches in the orchard had to be propped up to prevent them breaking down with their load of fruit.

Young orchards here on the rich valley soils, having eight months of splendid growing weather, will make shoots 6 feet to 8 feet, and often 10 feet to 12 feet in length in a season. The climate exactly suits a great development of fruit-buds and fruiting; then if these shoots are not cut back in winter, leaving only 16 inches to 30 inches, they set fruit their entire length, like a string of Onions, and as the fruit develops down go the branches. They put props under them and they break across the props. Therefore a thorough cutting back of these branches each and every year, so long as such growths make it necessary, is the first great lesson for the fruit grower to learn in California.

It is just beginning to dawn on the minds of a few in this State that this rich, high mountain soil, in the finest and healthiest climate in the world, where mountain springs, brooks, trout, game, squirrels, and flowers abound, is the best for fruits. There are millions of acres of it everywhere that can be had very cheap.—D. B. WIER, in *American Florist*.

FRUITS UNDER GLASS.

PINES.

ALTHOUGH we had several cloudy and a few soaking wet days, the month of May, on the whole, was highly favourable to the swelling of early fruit. Bright cloudless days at this early season sometimes necessitate shading or very liberal ventilation, but so far the maximum temperature has been maintained with a minimum of air, and the plants have had a long period of close sun heat and confined moisture soon after the turn of the day. Under this favourable influence the early Queens have made good progress, and if it be desirable to hasten maturity the house may now be run up to any figure, ranging from 90° to 100°, entirely from sun heat for a short time after closing with an abundance of moisture. When the fruit begins to change colour it will be necessary to increase the circulation of air and to reduce the supply of moisture by withholding the syringe. Indeed so soon as the ripening process is visible, root-watering must cease and air moisture gradually decrease. But, assuming that it is found necessary to retard any of the Pines, they should be lifted out bodily and transferred to a dry airy situation before the pips show signs of suffering from the effect of confined moisture. If the weather is quite up to the June standard the fruit will ripen perfectly, but slowly in a dry warm Grape room, or equally well in an earlyinery containing ripe Grapes or from which the latter have been cut. Where a whole house is rushed in at once this transfer is unnecessary, but in gardens where a continuous supply is the object this removal is a decided advantage, as the heat and moisture can then be maintained, and plants whose fruit is less forward can be introduced as vacancies are made. By adopting this plan the swelling house can always be kept at high pressure both as regards heat and moisture, but in order to prevent the foliage and crowns from becoming drawn it will be necessary to ventilate very early on bright days, to damp the walls and other surfaces with diluted liquid two or three times in the course of the twenty-four hours, raising the lights overhead during bright afternoons. As Pines in this stage and at this time of year require more water than at any other period of their growth, they should be liberally supplied with stimulants, weak rather than strong, at every watering. How often, no one can say, but those in charge can tell if not by the soil, certainly by the feel of the leaves.

Early successions potted in February having to make their growth and undergo slight rest ready for starting next January, should now be well advanced with plenty of roots coiling round the insides of the pots. Fire heat to some extent may be necessary, but, provided the house is light and compact and the fermenting bed satisfactory, a brisk heat should be maintained almost without its aid. Much, however, depends upon the nature of the sum-

mer, which may be intensely hot and dry, as in 1887, or wet and cold, as in 1888, when firing was incessant. As no one wishes to meet trouble half way, we will assume that the summer before us is to be a good one, and that shading may be necessary; if so it must be of the lightest character, as Pines with plenty of roots rarely scald, whilst of two evils it is better to have them a little brown than drawn and soft in texture. When summer firing is imperative and bright hot days are few, Pines generally get more or less brown and wiry, but given a thoroughly good season we ventilate early and freely, and the pipes being cold we reduce and shut up early with plenty of atmospheric moisture. The watering of these plants is a very important matter, which must be regulated by the nature of the compost, the size of the pots, and the bottom-heat in which they are plunged. If the latter is brisk and the pots of medium size, they will require looking over once a week, but then even all must not be treated alike, neither must that baneful method of keeping want away by dribbling be practised. The water from this time forward should be of a stimulating quality, and when absolutely necessary it should permeate and moisten every particle of the compost. Plants, on the other hand, which have not reached this stage may be allowed to stand over, as it is better to have them rather too dry than the contrary, particularly where the plunging bed is moist and the bottom-heat does not range much above 80°. Syringing in like manner should be conducted upon the same principle; overhead dewing on fine afternoons may be beneficial, but the best growth is made in a moist atmosphere, and this can always be produced by keeping the pans well charged, syringing the walls and other available surfaces. If the bottom-heat declines, disturbance of the plants if possible should be avoided, first by giving a plentiful supply of hot water to the tan or leaves, and second by the introduction of a good surfacing layer of one or other in a high state of fermentation.

Late successions and suckers.—Plants that were reduced or potted into intermediate sizes, also suckers, should be regularly examined and drawn out for a shift before they become root-bound. As these plants derive most of their bottom-heat from moist fermenting beds sustained by manure linings, they make broad succulent leaves, root quickly, and not unfrequently require a shift before we are aware of it. As this loss of time also produces a check, crocks, pots and compost, dry and warm, should always be on hand for use as small batches become ready. A compact manufacturing pit of this kind is the mainspring of success in the smallest Pine-growing gardens, as suckers, few and often, can be potted and plunged before they become dry and hard whenever withdrawals make room for them.

MELONS.

A constant relay of fresh young plants must still be kept on hand for use as vacancies in the hot-water pits and frame ground occur. Seeds cost little, germinate as freely as Marrows, and lead to best results when the plants are put out very early. We plant out in the ordinary way when the first rough leaf is the size of a crown-piece, but for succeeding early crops upon the same trellis, not unfrequently they are established in the fruiting pots and 2 feet to 4 feet high by the time the last fruit is cut from their predecessors. As many of these early crops will soon be over, and taking a second in time for winter Cucumbers is rather close work, good plants should be pushed forward to overlap time. Melon culture after May is easy enough, the main points being a good bottom-heat, sound, solid calcareous loam, and old lime rubble as compost, and common-sense attention to airing and watering. Plants will then go on from the seed to the finish without a check, the foliage will not ripen before the fruit, and the latter taken at the right time will not carry vapid flesh under a handsome exterior. For frame culture in the autumn the compost should always be on the poor side, as it is much easier to feed than repress strong growth. The bottom-heat, moreover, should be brisk and steady, especially near the finish, as it is the falling away of bottom-heat and flooding with water when

the fruit is ripening which ruin the flavour. A good bottom-heat also is necessary when the fruit is setting, as a mishap at this time is not only a loss of time, but it throws the plants into a gross habit and frequently increases the fertiliser's difficulties. The latter part of May was all that could be desired for Melons, but now, as in former years, the weather may change; hence the importance of keeping the manure linings in good working order and matting the glass every night.

ORCHARD HOUSES.

Early.—Where a good selection of extra early varieties of Peaches and Nectarines is grown, the fruit upon some of the trees will be quite ripe, if it has not been gathered, and generally later sorts will be forward enough to necessitate more fresh air, lighter syringing, and a discontinuance of fire-heat. Very early fruit of the varieties usually forced is not of much account for eating, but Peaches in May are Peaches; consequently flavour, the test of merit, is often sacrificed to hard forcing. This flavourless condition readily enough might continue through June, but by opening the ventilators and closing the stokehole the quality of the fruit may be improved and its season greatly prolonged. As these early trees are cleared of fruit, they must be well syringed to make them clean, and, considering that they have made their growth and yet have a summer before them, the coolest and most airy part of the house for the present will suit them best. By-and-by they may be plunged in the open air where they can have plenty of sunlight, fresh air, and water. On a level with ventilation stand watering and syringing, and these of a most substantial nature. Dribbling amongst pot trees is of no use, but the quantity, twice at least each day, must be copious and the quality good. The best times to water are just before the trees are syringed and again first thing the following morning; the roots then have the full benefit of moisture through the night, and the trees meet the rising sun with every cell filled to repletion. Syringing about 6 to 6.30 is none too early on bright mornings, and 4 in the afternoon is not too late, as trees upon which fruit is not ripening should retain moisture upon their leaves for some hours. Mulching or top-dressing, of course, is as necessary as ever, and must be supplied little and often as the old is washed away. Bone-dust mixed with rich stiff loam is an excellent stimulant; good liquid, clear, bright, and not too strong from the soil or manure ground cannot be surpassed, not only for watering, but for damping purposes, and short, but fresh, stable manure stands well for absorbing and giving off moisture, also for preventing rapid evaporation when the weather is hot and dry.

Late house.—Those who have not had the advantage of a hot-water apparatus, unless the situation is very good, will not be overburdened with fruit. But the winter, it may be advanced, has been mild and the spring free from frost; quite true, but a lenient winter and flowering time do not compensate for one of the coldest, darkest, and most unfavourable summers, that of 1888, on record. It was last autumn that a gentle fire was wanted to ripen the wood and perfect the flowers, and those who could not command that aid will most likely find their fruit deformed in doubles and triples, or falling when the size of small Peas. Ripe wood is the mainspring of success, and this, despite the glowing accounts of hardy fruits, I greatly fear is very scarce in all save the most favoured parts of the kingdom. But, assuming that the last late orchard house now has a hot-water pipe running round it, and the fruit is plentiful, the daily routine must not be neglected. Thinning to the number each tree is to carry to maturity may be performed once for all, as there is very little danger of dropping in June. Pinching and disbudding also may be on the free side, and water to the roots, as well as the foliage, must be liberally supplied. The main point in this house being a good crop of fruit during the autumn, no particular object will be served by hard forcing even with solar heat, but, on the contrary, much may be gained by giving plenty of time, with a constant circulation of air, until the Peaches and Nectarines are stored

and again swelling freely. Then, if it be thought desirable, the house may be closed for two or three hours with sun-heat and moisture on fine evenings. If the weather which prevailed through the latter part of May keeps improving with the advancing season, the simplest and most satisfactory mode of ventilation lies in throwing the house quite open by day and partially closing at night. All the fruit-bearing trees should be well top-dressed with a mixture of stiff loam, bone dust, and rotten manure, and, unless objectionable, a little fresh stable litter may be cast amongst, if not actually over the pots. If this plan is adopted and aerated water can be supplied through the hose, this may be very freely plied twice a day, not only to the foliage, but to the walls, and especially the fresh litter. Watering, as in the early house, must be a separate business, otherwise a constantly moist surface will lead to serious mischief, especially where the pots are small and crowded with roots. As the trees grow the strongest young shoots must be pinched at the fifth or sixth leaf or longer, according to their size and the space at command, but the weak ones, especially those near the base of the tree, may not require pinching at all; indeed, it often happens that these weak shoots have but two wood buds—one near the bottom, the other at the point, the removal of which would ruin them for another year. Plums and Cherries should be well thinned with a pair of Grape scissors, and these being full-sized trees, all young growths must be kept closely pinched to three or four leaves. Grub and fly by this means, coupled with copious washing, will be kept down, but the latter proving persistent, the best, if not the only, remedy will be found in fumigation. If choice Pears are grown and space is limited, all early varieties about midsummer may be removed and plunged to the rims on a warm border in the open air. If the trees are well mulched with good rotten manure and regularly watered the fruit will attain its fullest size and be of better quality than if kept under glass to ripen. All high-class late sorts, as a matter of course, should be kept in the house, and fortunate will those be who have a large selection of trees, as I do not anticipate heavy crops even from walls.

Composts and potting.—If a good supply of loam has not been secured, no time should be lost in getting it cut and stacked, and provided it is intended solely for use in the orchard house, proper correctives and fertilisers may be added in layers. If wireworm is suspected, or even if it is not, a liberal dusting of soot should not be omitted. Old lime rubble and burnt earth too may be added to heavy loams, whilst marl and old cow manure will prove potent factors as correctives of light sandy soils. Upon the latter good liquid from the drainage tanks, soapsuds, and house slops may be liberally poured with excellent effect; indeed, where almost any loam, heavy or light, is carted in a dry state during the spring and summer, these liquids should be very freely plied before the sods are stacked. When the trees requiring a shift have been cleared of their fruit, the sooner the transfer to clean, dry pots is made the better. The compost, chopped down as wanted, should lie exposed to the sun and air until it is dry and warm. Crocks, including a few small bones or pounded oyster shells, should be pretty liberal, and pot trees of all kinds requiring a very firm compost, the new should be rammed home until it is as solid as the old balls. As potting is finished, return the trees to the house, keep them rather close and moist for a few days, but the balls being thoroughly soaked, defer watering until new roots begin to work.

WORK AMONGST HARDY FRUITS.

The work in this department, turn where we will, is plentiful enough, and whether crops be abundant or thin, no one must overlook the fact that next year's success depends upon careful attention to the daily routine. Trees carrying full crops naturally claim our first attention, as perfect maturity of the fruit hangs upon timely thinning, cleansing and training. Others equally good, but through force of circumstances quite barren, although less pleasant

to look upon, must, nevertheless, receive the same care. The irregular or thin crops now upon the trees having proved that the effect of one bad season may be felt for several years, it behoves us to steal a march upon time, not only by most liberal disbudding and pinching, but also by close training, with the view to early maturity of the young wood and perfect formation of the flowers. If anyone doubts this theory, he has only to examine a Peach or Nectarine whose flowers were plentiful, but weak, and if he finds an unusual number of double, triple, and a few quadruple fruits, whilst others apparently perfect have come to a dead stand when the size of small Peas, he may rest assured that it has been a case of touch and go, entirely due to the low sunless temperature of the past year. We cannot command sun-heat, it is true, but we can leave two shoots where in other years we left three, and by this means secure the full benefit of solar heat as it is reflected from the walls. It is quite natural for cultivators to lay in an abundance of young shoots for choice at pruning time, and in seasons like that of 1887 the whole of them may ripen, but following this course in unfavourable years completely upsets the balance, as weak elongated growths shade each other and shut out every ray of sunshine. To this crowding and allowing the trees to get overrun with aphids and mildew many failures may be traced, and yet the reflection of one moment will show the absurdity of the practice, as one good Peach to each square foot of foliage will form a crop which any grower may feel proud of. The first duty, then, this year is extra attention to thinning and training, and the trees now showing a tendency to extra strong growth in October next must be brought to by careful root-lifting and relaying in sound, but not over rich compost.

Work amongst Pears, Plums and Cherries will include the shortening of breast-wood, and nailing or tying in all shoots required to furnish the trees, copious washing with the hose or engine and incessant warfare with grub and aphids. These pests often make rapid headway so long as the trees are allowed to grow wild, but once all superfluous shoots are removed or nailed in and water is plied they disappear or become too weak to work serious mischief. The heavy rains so far have kept the roots in a growing condition, but upon the principle that the stitch in time saves labour, moderate mulching, although water may be plentiful, should now receive attention. The materials which may be used for keeping in moisture are very numerous, but for acting as feeders or stimulants there is nothing to surpass good spit or stable manure. Bushes and pyramids also may be pinched and thinned to a reasonable extent, and, provided the outside shoots are not extra strong, they may be allowed to extend, as Victoria and other Plums often fruit profusely upon these growths the following season. No one thinks of restricting a standard on a tall stem, and soon it becomes a marvel of fertility; but when they start with bushes or pyramids they think more of form than fruit, and yet the only difference is a natural head on a tall stem and a restricted head on a short one.

GOOSEBERRIES and CURRANTS having made a profusion of rather strong wood, the quality of the fruit may be greatly improved by shortening back a portion of the shoots which crowd the centres. All the outside shoots, especially upon young trees, should be allowed to extend, as cropping these will soon confound confusion. Caterpillar in the Worcester district, I learn, has been very troublesome, and a great number of women have been employed handpicking. As this mode of procedure only scotches the enemy, quicklime should be freely and frequently dusted beneath the bushes in winter, or, better still, a portion of the surface soil containing the larvæ may be removed and burned and replaced with fresh compost. Caterpillar at one time was very troublesome here, but since we adopted this plan and gave an occasional soaking with soapsuds, it has entirely disappeared from Gooseberries and Currants. W. C.

Strawberries.—What a wealth of bloom there has been on Strawberries, and, fortunately, most of it appears set and the fruit swelling, which is

more than can be said for Apples, Pears, Cherries, and Plums, as the greater part of the flowers of these have fallen, and the crop will not be over abundant. What causes failure in Strawberries more frequently than anything else is letting the plants stand too long, by which they become weak and go blind; whereas by planting fresh beds every two years, and not keeping any beyond that period, very fine fruit is obtained. To get as good plants as it is possible to have, runners should be layered in pots as soon as they are formed, and be kept well watered, so as to afford every encouragement for them to root. As soon as they have done this, they should be taken off and at once planted, the proper distance being a yard from row to row and a foot or so from plant to plant. Those who happen to have plants that have been forced will not need to layer, as forced plants are preferable, and will bear a heavy crop the first year after being turned out of their pots. In planting these it is very important that they be placed with their crowns low in the ground, and a hollow or basin-like depression left around that they may be properly watered, otherwise the balls will get dry and the plants suffer severely before they get fresh hold of the soil. The kind of ground most suitable for Strawberries is that which is deep and loamy, and before they are planted it should be trenched and have a good dressing of manure worked in below. The next thing is to make it firm, as the ground for Strawberries cannot well be too solid, the firmness preventing the plants running to leaf, and causing them to form better crowns and produce more fruit on a plant.—S. D.

BOOKS.

OBSERVATIONS ON INJURIOUS INSECTS.*

MISS ORMEROD's twelfth annual report on "Injurious Insects and Common Farm Pests" has just been published; it is of much the same size as those of previous years. No less than twenty-three different pests are reported on, four of which have not hitherto been noticed in these reports, namely, the figure of 8 moth (*Diloba ceruleocephala*), whose caterpillars were, with many others, doing much mischief in orchards both in Surrey and Gloucestershire, feeding on various kinds of fruit trees, particularly favouring Apple and Plum trees. The caterpillars appear to be easily shaken off the branches, and by shaking the trees well many may be caught on sheets, &c., spread under the trees. The green leaf weevil (*Phyllobius maculicornis*).—This weevil was found to be very injurious to the leaves of most trees, and did considerable damage to Cherry, Plum, and Apple trees in East Kent. Several other species belonging to this genus are also injurious to the foliage of trees, one of which was found doing considerable damage to a Copper Beech. At present the only remedy for attacks of the weevil appears to be shaking them off the leaves. This should be done in dull cold weather, when the beetles are less active than in warm sunshine. The flour moth (*Ephestia kühniella*).—Miss Ormerod says in regard to this insect "The caterpillar of a flour moth can, perhaps, scarcely be included amongst those of crop insects, but as in this case the very injurious moth (scientifically, the *Ephestia kühniella* of Zeller) has but recently established itself in this country, and its first observation on the Continent of Europe took place no further ago than 1877, it may be of service to give a few notes of some of the successive trustworthy reports of its appearance, as well as a figure from life and some observations of its history and habits. This insect, when in the caterpillar state, feeds on flour, and in large warehouses in London has done a great amount of damage. A miller in the north of England writes 'I have got quite a plague of moths in the mill, some of which, and worms, I send you; they get into the spouts and machinery and do no end of

* "Report of Observations on Injurious Insects and common Farm Pests during the Year 1888." Twelfth Report. By Miss E. A. Ormerod. London: Simpkin, Marshall and Co.

mischievous both by destroying the silks and stopping the flow of flour, &c., in the spouts by spinning thin webs and hanging there. The mill is in constant work, and I should have thought this would have prevented them from lodging, but it does not seem to affect them at all. You will perceive the difficulty there is in putting anything in the spouts that would affect the flour. The flour sent showed the great difficulty of the case, for it gradually became spun together, and also to the sides of the box in which it was placed by the caterpillars' webs so tenaciously that it could be lifted in lumps, and only a little flour let fall, whilst some still clung to the sides of the box almost as if in sticky lumps. The grubs of the Beet carrion beetle (*Silpha opaca*) have been recorded as injuring the leaves of Mangolds for the first time in England. They had some years previously been detected feeding on Mangold leaves in Ireland. The damage done in some places was very considerable. They appear to confine their attention exclusively to Mangolds. Turnips, Carrots, Parsnips, Potatoes, Peas and Cabbages are recorded as doing well on land where Mangolds had been destroyed. The beetles are useful insects, feeding on the carcasses of small animals, birds, &c. Another beetle, the corn ground beetle, is injurious both in the beetle and grub state to wheat, and its attacks last year were much more severe than usual and in more localities. The grubs injure the plants much in the same way as the wireworm does. The beetle crawls up the stems and eats the grains in the ear. The best remedy at present known is to plough up the crop if the attack be very severe and so starve the grubs and expose them to the birds.

As regards old and well-known pests, the frit fly (*Oscinis frit*) and Wheat bulb maggot (*Hylemia coarctata*) were more than usually injurious. The much-dreaded Hessian fly, which caused such a scare in 1887, was conspicuous by its absence last year. Only six reports were received in 1888. Nearly 100 were sent in from various localities in England and Scotland. This is very satisfactory and particularly so, as no doubt there were many more persons on the look-out for this insect last year than there were the previous one, and where the grubs of this fly were found they do not seem to have caused any appreciable injury. The Bean seed weevil (*Bruchus rufimanus*) was most unusually abundant in some places last year, and the consequent loss to the grower very considerable. One correspondent estimates his loss in weight alone of his crop at 2s. per quarter, and another that his Beans weigh four pounds and a half per bushel less than usual. The winter moth (*Cheimabotia brumata*) and the mottled umber moth (*Hybernia defolatoria*) were, as most fruit growers know to their cost, most unusually abundant last year, and the damage they did to our orchard crops was enormous. The well-known and very efficacious plan of girdling the trees with bands of some sticky material, so as to prevent the wingless female moths from crawling up the trees to lay their eggs, is mentioned as having "been brought forward last season as really practicable and useful," but as a matter of fact this plan has been known and tried for years. Why these two moths, which are nearly related to one another, and whose life history is almost identical, and which may be combated by the same means, should not follow one another in this report instead of being separated by the descriptions, &c., of those moths which have nothing in common with them, except that they feed on the leaves of orchard trees, is not explained. With the exception of the insects already mentioned, our crops have not suffered so much from the attacks of insects as usual. No mention is made of the leaf roller moth (*Tortrix viridana*), whose caterpillars in various counties stripped the Oak trees of their leaves over districts many miles in extent. This insect has been mentioned in previous reports; therefore its omission in the present one is all the more surprising. In an appendix attention is drawn to Strawson's air power distributor, a machine which seems to have a great future before it, as it will distribute with regularity and great evenness seeds, soot, lime manure (either

powder or liquid), paraffin, or any other insecticide. The machine is very simple, and is drawn by one horse; the rotation of the wheels works the mechanism, which causes a strong continuous blast of air, which blows the substance to be distributed with great force through certain nozzles. Last year with the help of this machine a correspondent dressed part of a field of Turnips attacked by the Turnip flea beetle with lime and part with paraffin. Both remedies seemed to be equally efficacious. The amount of liquid, &c., distributed per acre can be easily regulated, and as little as one gallon of paraffin has been used per acre. A small machine of this kind, which could be worked by hand, would be most useful in gardens and glasshouses. The matter contained in these reports of Miss Ormerod is most valuable, but it is not put together as concisely as it might be. The letters from correspondents are given verbatim apparently, and many of them contain matter that might be omitted with benefit to the reader. In several cases, but by no means in all, a summary is given, which enables the reader to obtain the grain without the chaff, but the winnowing process unfortunately has not always been employed. We can, however, heartily commend these reports to all agriculturists. G. S. S.

KITCHEN GARDEN.

EXHIBITION CUCUMBERS.

DURING June and the two following months a considerable number of flower shows are held in various parts of the country, at most of which Cucumbers are extensively shown, both in the classes provided for them and also in collections of vegetables staged by amateurs as well as professional gardeners. As a rule, the classes for a brace are very well filled as far as numbers are concerned, but when the quality of the exhibits is taken into consideration there is a great falling off. Many of the competitors seem to either have no conception of what constitutes a good Cucumber, or else are unable to produce them at the right time. Year after year the same overgrown, rough, ugly and badly-coloured specimens are to be seen, in many instances staged by the same growers, no rebuffs in the shape of abuse or neglect by the judges apparently convincing the would-be prize-winners that they must reform if they wish to be more successful.

Want of judgment would appear to be the prevailing weakness among exhibitors. The most successful are those who are capable of timing, as well as selecting exhibits, that is to say, of having them just ready and fit for exhibition or use on the day they are wanted. If Cucumbers have to be cut several days before they are wanted they invariably lose their freshness, and, it may be, colour as well; while if left on the plants too long, they soon become coarse, mis-shapen, and of a yellowish-green colour. During the summer months a Cucumber should attain a good exhibition size in nine days or even less, and if it takes longer than that to grow, no matter what the variety may be, or if left longer on the plant, there is but a poor prospect of a first prize being won. Many err in imagining that very long fruits are the best, whether these are proportionate or not, and cultivate one of the reputedly fine varieties accordingly. As it happens, only a very few growers are capable of producing a handsome brace of Tender and True—the best of the extra long varieties—and amateurs and the inexperienced generally ought rather to be content with a good form of Telegraph, such as that here shown, or those which can without much difficulty be grown to a length of from 15 inches to 18 inches. In any case, or whether a

long or comparatively short variety, such, for instance, as Cardiff Castle, is grown, these when put on the exhibition table should be of a uniform length and diameter or a good match, the shoulder, or that portion nearest the neck, being only slightly, if any, thicker than the point. Instead of being nearly 9 inches in circumference, as exhibition (but non-prize winning) Cucumbers very often are, they ought to be nearer 5 inches, another half an inch not much signifying. On no account should the fruit have a long "handle" or neck, as the shorter this is the better, while the colour ought to be a deep green and the bloom intact. Many growers apparently confuse the flowers with the bloom proper, and if they can keep the former on the point of the fruit are happy. I hold that the loss of the bloom or dew-like covering of the whole of the fruit is quite as disfiguring to the Cucumber as to a bunch of Grapes, and attach



Cucumber Rollison's Telegraph.

but little importance to the preservation of the old flowers on the points. The latter can be added at any time, but if the bloom is once washed or rubbed off it cannot be restored.

According to my experience, by far the handsomest fruit can be cut from comparatively young plants, and it may be this is the reason why so many poor specimens are to be seen at the shows. The majority of the latter are held in August, and by that month the greater portion of Cucumber plants cultivated in one season are incapable of producing good show fruit. For the August shows especially I would strongly advise those who are in a position to adopt the plan of raising plants say from eight weeks to nine weeks prior to the date of the show, and to grow these on rapidly either in a house or frame—the former from choice. While the plants are in full vigour, both at the roots and above ground, the haulm also being clean and thinly trained, very little

difficulty is experienced in obtaining perfect fruit, always supposing a good variety is grown. Seedlings are the most robust, but, unfortunately, they cannot always be relied upon to come true to name. This season we have two distinct forms of both Telegraph and Purley Park Hero, one being worthless in each instance. There cannot be any mistake, as all had the same treatment and were grown side by side. What I believe to be the true Purley Park is most productive, the fruit being of medium size and handsome—it is a model exhibition variety, in fact. The spurious form was useless for any purpose. Rather than risk cultivating a second unprofitable plant, we are propagating by cuttings from the superior form, and the plants thus easily and quickly obtained will soon attain a serviceable size. All the varieties I have named succeed well under frame and pit culture, and the remarks as to the superiority of young plants hold good in this case also. A moderate amount of bottom-heat is of great assistance, and it is usually necessary to lay the fruit in proper Cucumber glasses, or otherwise no dependence can be placed upon their being sufficiently straight.

In many instances it is not possible nor convenient to prepare fresh plants specially for the production of exhibition fruit, and the only alternative is to keep the old plants in good health, and as clear of red spider as possible. Over-cropping is a very frequent cause of an early break-down and a bad attack of red spider, and this ought, therefore, to be avoided whether exhibition fruit are required or not. No free-bearing plants should be allowed to make the attempt to perfect all the fruit that may form on them. If early and judicious thinning out is resorted to, the plants will, other conditions being favourable, remain in a healthy and constantly productive state, and ultimately yield a much greater number of fruit than would be the case if unthinned. Crowding of the haulm is also prejudicial, and where planted thickly, or say not more than 2 feet apart, every other plant may well be cut out early. Close stopping appears to check root action, and an early removal of some of the plants, in addition to giving more room for the haulm of the reserved plants, also greatly encourages root action. Cucumbers ought always to be shaded from bright sunshine, and blinds on rollers are much preferable to any kind of permanent shading. With the aid of blinds and abundance of moisture the temperature may safely range from 80° to 95° with a little air on, early closing, but not early removal of the blinds, running up the heat to 100°. Under such conditions growth is rapid, and all the good qualities of show varieties are well developed. If red spider has effected a lodgment on the leaves, no amount of syringing or atmospheric moisture will much disturb them; they seem rather to increase in size and revel in it. The only safe remedy is to freely mix sulphur with the syringing water, and to apply this frequently or until both the upper and undersides of the leaves are well coated with it. Then supposing the haulm is freely thinned out and allowed to ramble somewhat, a healthier state of affairs quickly results.

Very often the failure of old Cucumber plants to produce handsome fruit may be traced to the roots. Cucumbers will not thrive in a mass of saturated soil and manure, but delight in a sweet, porous, and not excessively rich root-run. Lumps of turfy loam without any admixture best suit Cucumbers, and occasional top-dressings of similar material, with a surfacing of partially decayed leaf soil, if a mulching, owing

to exposure to much sunshine, is needed. If turfy loam is not available, use the best loam that can be obtained, and add plenty of charcoal or burnt garden refuse. Nor should any kind of thick liquid manure be used, this eventually clogging the soil and effectually excluding warmth and air. Any kind of special manures are preferable, these being used in moderation and frequently after the new soil has become well occupied by roots. When turfy or very porous soil is used either for young plants or renovating the old ones, water will be needed once, sometimes twice, daily, but the closer, heavier composts must not be watered so often. It should be repeated, as being a most important detail, that the plants must be lightly cropped at all times, and especially just prior to and at the time exhibition fruits are required.

W. IGGULDEN.

CULTURE OF CHICORY.

THIS salading plant is not cultivated so extensively in gardens as it deserves to be. When cut quite young the leaves, though bitter, make a very wholesome small salad, and when blanched they constitute an excellent winter salad, which is known to the French by the name of *Barbe de Capucin*. When the heads are stewed and served with melted butter they are little, if anything, inferior to Sea Kale, which they resemble in flavour. All the garden varieties have been obtained from the wild plant, and some of the selections show a tendency to degenerate. Hence the necessity for sowing only a carefully selected strain. If not, the roots would probably be worthless for producing heads during the winter and spring months. A deep, light, and ordinarily rich soil is suitable to the growth of Chicory. This having been previously dressed with well-decomposed manure, and deeply dug into it, should be trodden over and raked level. Drills running north and south, and from 12 inches to 16 inches apart, and between 1 inch and 2 inches deep, should then be drawn. Into these sow the seed thinly any time between the middle of April and the first week in June. When the young plants are large enough to handle they should be thinned out—first at 4 inches in the row, subsequently drawing every other plant should none “go off” in the meantime. Showery weather should be chosen for this operation. The plants should be kept free from weeds, and the Dutch hoe should be run deeply between the rows a few times during the growing season, as much with a view to accelerating growth in the plants as destroying young weeds. Thus treated I have known roots of Chicory attain to the size of moderately large Carrots.

TAKING UP, STORING, AND FORCING THE ROOTS.—When the leaves of the plants have decayed in November, the plants should be carefully lifted with a fork, so as to injure the roots as little as possible in the operation. They should then be laid in a north border in the same depth of soil as they were before to prevent the plants starting into growth. Ten or fifteen days before blanched leaves of Chicory are required, the desired number of roots should be taken up and packed closely together—say, 3 inches apart—in an old box, or specially constructed troughs, about 12 inches wide and the same depth, working any kind of light mould amongst the roots up to within half an inch of the crown of the individual roots. Then place the boxes in a Mushroom house, shed or cellar, or any other convenient place where daylight and frost can be completely kept from the plants, otherwise the process of blanching will not be effectually completed. Successional batches of roots should be put into force every ten days or a fortnight, according to the demand. When the leaves have attained to a length of from 9 inches to 12 inches they will be fit for use. The same roots, if allowed to remain in the boxes, will produce a second, though naturally not so fine a crop of blanched leaves. As everyone desirous of having blanched leaves of Chicory during the

winter and spring months may not possess the necessary Mushroom house, cellar or shed to produce them in, I will give a very simple and at the same time effectual way of obtaining the object in view. Place one or more boxes in a warm situation out of doors, filling them with roots as recommended above, and giving a little water to settle the soil among the roots. Then place an inverted box of similar measurements over the boxes so filled, and cover them with a good thickness of clean and slightly fermenting leaves. Enough boxes should be filled with roots at intervals of ten or fifteen days to maintain a regular supply, if necessary, of blanched leaves. If a constant supply of Chicory should be required for small salading, the seed should be sown in the open every three weeks from the middle of April to the middle of October, the supply during the interval from the end of October to the following May being obtained from the blanched leaves. The early and later sowings should be made in a warm situation, the midsummer or July sowings being made in a rather cool and moist position. In growing Chicory for this purpose the seed should be thickly sown broadcast. Watering at the roots in dry weather is all that is necessary till the plants are fit for cutting over. This should be done as soon as they have made the first three or four leaves. Crimson-flaked Chicory and common Chicory are the varieties generally cultivated for salading.

TO SAVE SEED.—Plant a few roots in a warm situation about the middle or end of February. These will flower towards the end of July or the middle of August, and ripen their seed a month or six weeks later. The flower-stems, which should be supported by small stakes or strings twisted round two or three sticks stuck firmly in the ground, should then be cut and hung up in a dry airy shed for a week or two. The seed should then be rubbed out and put away for future use.

H. W. WARD.

Salt for Asparagus beds.—Those who use salt for the first time for dressing Asparagus beds do not always realise, until it is too late, the dangerous character of the material they are handling. Whether salt is of any benefit to Asparagus beds, that otherwise get as much manure as they require, is, perhaps, an open question. My opinion is, that if the beds are well cared for in other respects, quite as good Asparagus can be grown without salt as with it, especially where the soil is of a retentive character. Of the injurious effects of an overdose of salt upon Asparagus beds I had abundant evidence furnished me when visiting a garden last summer. I happened to call upon a friend when he was clearing out the old plants that had been killed by an application of salt given in the winter previous. To say that all the plants were dead would not be quite correct, but at least two-thirds of them were. What were previously very satisfactory beds had been ruined by the injudicious use of salt. In the temporary absence of the head gardener a man had given the beds three times the quantity they ought to have had. Although not setting a very high value on this material in growing Asparagus, I have no objection to moderate applications if they are applied about the beginning of April. Whenever I have used salt for this purpose I have never given more than half a pound to a square yard, which, in a general way, is quite enough. I am aware that some people use a greater quantity, but it should be remembered that it makes all the difference how deep the crowns of the plants are. For crowns that are within 3 inches of the surface the quantity I have stated is quite sufficient.—J. C. C.

Onions.—Recently I made a note concerning the odd action of a white-skinned variety of Onion of the Queen type, and probably that variety under another name, which, sown in April of last year, generally refrained from bulbing, and remained green all the summer and winter. To show that the result was due to season and not to sort, I mention that those of the plants which have not run off to seed are bulbing early and, for the kind, finely. I shall exhibit a sample to the fruit committee at

the Westminster Drill Hall shortly, as I regard the bulbs as novel, having been some fourteen months growing. I should think that were seed of the Queen Onion, as a rule, sown the last week in August, that very early bulbs of fair size would always result, and would render spring-sowing of this precocious variety needless. That Onions in a green state are very hardy I have had ample proof, as frequently old green plants which from some cause or other have not bulbed have stood the severest winter well. Could we obtain a vegetable possessing the hardness of the Onion without its pungent flavour and heat, but which would cook well, a valuable addition would be made to our list of vegetables. I have never tasted stout young Onions cooked and served up as Asparagus is, but think that they would form a succulent and tender dish, but the obnoxious flavour would doubtless remain. Has anyone experience of green Onions in a cooked state? Large bulbs, it is true, keep badly as a rule, being far less solid than are smaller ones, but they are invariably milder eating, and sliced with Cucumber are not to be despised; still, it would doubtless greatly tend to the popularity of Onions as a salad were they less strongly flavoured.

—A. D.

KITCHEN GARDEN NOTES.

TOMATOES IN PITS AND FRAMES.

IF all the plants put out in the open could be relied upon to perfect even a light crop of fruit, there would be little need to utilise pits and frames for Tomato culture during the summer. Owing, however, to the great uncertainty attaching to the open-air crops, it is advisable to regard them more as supplementary than regular supplies, the prudent cultivator devoting as much space under glass as can be spared for the production of Tomatoes. Our plants grown in pits were remarkably serviceable last season, that, too, in spite of the unfavourable weather, and there is no reason why the Tomato should not be more generally and quite as successfully grown in such or somewhat similar positions. Heated pits are, as a matter of course, the best for the purpose, but several instances have come under my notice where good crops have been taken from plants grown in unheated pits and frames. The long, heated pit at our disposal is first occupied with early Potatoes, these being closely followed by kidney Beans, and as the latter are exhausted or can be dispensed with Tomatoes are introduced. It sometimes happens that the crops obtained from plants put out early in May are the most profitable, the fruit ripening in advance of any on the open walls; but in such a summer as that of 1888 both the mid-season and late supplies are equally appreciated. There is no reason why Tomatoes should not be planted in a heated pit any time in June or July and profitable late crops be grown.

After various experiments I have arrived at the conclusion that the Tomatoes succeed best when the greater portion of the stems is kept well clear of soil. Wherever the stems come into contact with the soil, roots are emitted, this causing too much sappy growth. We are enabled to purchase wattled or plaited hurdles and which fit neatly into 6 feet wide pits, the hot-water pipe all round acting as a bearing. If this plan cannot generally be adopted some modification should be tried, the aim being to provide a temporary trellising, clear of the soil and not more than 12 inches from the glass. The quickest way to cover a trellis, and this is most desirable in the case of unheated pits and frames, is to put out the plants 12 inches apart across the end of the first light and a double row at every second light, finishing off with a single row at the end. Each row would thus have the width of one light to cover, and, if properly treated, ought soon to be furnished with from three to five strong clusters of fruit. Grown on the extension system, one or two plants would in a short time cover the space under two lights and produce heavy crops of fruit. If the plants are to be grown on a bed of old heating material, it is advisable to shift them into 12-inch pots, setting these on the bed and allowing the plants to root through. When there is a hard

bottom the simplest plan is to form narrow square ridges of loam and to plant out in these. The pits or frames ought to be kept rather close at first, but after the trellis is reached air should be freely given during the hottest part of the day in order to induce the formation of hard fruitful growth, and a good set will be effected if plenty of air is admitted. The single stems or main branches should be kept clear of all side shoots and for a time must be very carefully trained, or otherwise they will snap off short. No overhead syringing is necessary or advisable, and air should be given rather sparingly in dull wet weather, or when disease germs are prevalent. The ribbed varieties, notably Large Red, Oranfield, Laxton's Open Air, and Sutton's Earliest of All, set the most freely, but we have succeeded equally as well with Hackwood Park, Perfection, and Dedham Favourite. The only failures last season were Mikado and Trophy, both being of too rank growth for confined positions.

RUNNER BEANS.

Not nearly enough seed of these was forthcoming to meet the demand, but it does not follow there will, in consequence, be any marked falling off in the crops grown. On the contrary, there is every probability of heavier supplies being obtained than usual, owing to the seed being sown or the plants put out more thinly than is often the case. Crowding the plants thickly in the rows is a very common mistake, cultivators either being unaware of or overlooking the fact that the most thinly grown plants are by far the most productive. Thinning out ought, therefore, to be resorted to early, and if there are any blanks and the seedlings have not made much progress, some of these may be transplanted with a trowel to where needed. Whole rows are sometimes made up in this way, especially by cottagers who help one another. All ours are grown in single rows 6 feet apart, the intervening spaces being cropped with two rows of Ashleaf Potatoes. The plants are thinned out to a distance of 12 inches apart. A tall stake 7 feet and upwards out of the ground is early placed to each plant, or before they coil round each other, and these are braced together near the top with other stakes and tar twine. We have several long rows, but where only one or two good rows are grown the plan of sowing in double drills answers well. In this case the plants may well be thinned out to about 15 inches apart, and the stakes should be fixed with an inward slope, so that they cross each other near the top, where they require to be connected or strengthened with a single stake, or otherwise strong winds may twist them about badly. For a time the running growths should be frequently trained, and when the tops of the stakes are reached the points of the Beans may be taken out. When comparatively short stakes, or say any about 4 feet out of the ground are used, there is much greater need for this early stopping, and many of the side shoots might also be similarly stopped with advantage. When not smothered in any way, extra fine spikes of flowers and large clusters of pods result; whereas plants unduly crowded produce very thin crops. Any grown without stakes must be kept closely stopped, as when left to ramble on the ground a confused mass of haulm and but poor crops are obtained.

LATE RUNNER BEANS.

In hot positions and on poor light soils Runner Beans are liable to fail early, and in order to maintain a constant supply of this popular esculent till frost intervenes, a late sowing has to be made. Well-manured trenches answer best, as these can be the most readily flooded with water in hot dry weather, and without which they rarely prove profitable. Although a somewhat cool position suits them in hot weather, it often happens that the plants growing there are the first to suffer from an early frost, those on higher ground remaining untouched and very serviceable for several days or it may be weeks longer. The preference ought, therefore, to be given to a rather high position in all cases where the kitchen garden is situated in or near a valley, and the seed should be sown now.

BRUSSELS SPROUTS.

These rank among the most serviceable crops cultivated, and to be successful with them they ought to be finally planted out early, and before they become drawn and weakly. At least a portion of the crop should have been raised under glass and pricked out, the remainder being raised early on an open border. In the southern counties the market gardeners raise the whole of their plants in the open, but their subsequent culture ensures a heavy crop, and this is quite as early as needed. What best suits Brussels Sprouts are a fairly rich, yet firm soil and plenty of room, these causing a strong, yet sturdy and productive growth. A loose, deep and rich root-run causes a rank leafy growth, and the sprouts are correspondingly large and loose. But few private gardeners can devote a large breadth of ground wholly to this crop for one season, as if they wait till the ground is cleared of an early crop of any kind they are too late in planting. The best practice, therefore, is, to crop the ground intended for Brussels Sprouts with Ashleaf or some other short-topped Potatoes, the rows of these being arranged from 30 inches to 3 feet apart. By this date the Potatoes are fit for final moulding up, and after this is completed the Brussels Sprouts should at once be put out between them. Those that have been pricked out ought to be carefully transplanted with a trowel, but any not previously pricked out may be carefully drawn from the bed and put out with a dibber. The stronger growers, including Aigburth, Perfection and Exhibition, should be put out 30 inches apart, and the less vigorous Ne Plus Ultra and Paragon may be disposed 2 feet apart in the rows. The Potatoes may be either dug early or else left in the ground till the spring. We preserved a considerable quantity of Myatt's and Veitch's Ashleaf between the rows of Brussels Sprouts, and this spring they were in admirable condition either for use or planting.

CABBAGES AND COLEWORTS.

Directly frosts destroy Peas, Beans, and other somewhat tender vegetables, there is a demand for Cabbages. Where the autumn-raised plants are left on the ground to produce successional supplies of smaller hearts, these, if there is plenty of manure under them or if they have been liberally fed from the surface, will usually yield a sufficiency. Many, however, prefer to clear them off after the first formed hearts are cut, as they greatly exhaust the ground and do not on all soils remain in a profitable state. In all such instances it is advisable to sow seed now of the London Rosette Colewort, or one of the neat-growing, quick-heating Cabbages, such as Improved Nonpareil, Shilling's Queen, Hill's Incomparable, Little Pixie, and Little Gem. These being sown rather thinly on an open piece of ground, the plants will be ready for putting out as the ground is cleared of other early maturing crops. Planted 12 inches apart each way, the plants soon cover the ground, and abundance of tender hearts will be available from October to mid-winter or later according to the weather. Amateurs especially ought to make a note of this, as their establishments are not often well supplied with green vegetables in the winter.

LUMPY GROUND.

Some soils work freely in nearly all sorts of weather. The heavier clayey soils if well managed are frequently the most fertile, and it is these that are most liable to become hard and lumpy. Supposing Celery trenches have been dug or any ground broken up for other crops since March, the lumps will have since been well baked by the May sunshine, and become still more difficult to cultivate. The recent heavy rains will have well soaked these, and if broken down, as they ought to be, before dry weather again sets in, the ground may be cropped at leisure. If of a very clayey nature, the clods require to be broken down with the back of heavy hoes, but in many instances a strong rake will do the work well. It is advisable to do this not only where the ground has yet to be cropped, but also among advancing crops, a finely divided, yet loose surface being best calculated to preserve the moisture already in the ground. When all is reduced

to a comparatively fine state, seeds may be sown or plants put out in almost any weather, and less difficulty will be experienced in keeping down both weeds and slugs.

W. I.

TREES AND SHRUBS.

THE HORNBEAM.

(CARPINUS BETULUS.)

THIS may well be described as a neglected British tree, and for what reason other than that it is almost valueless in a commercial sense it would certainly be difficult to state. Braving as it does the severest storms of some of our wild mountain-sides, and there affording a great amount of shelter to other desirable, but less hardy kinds that would eke out but a miserable existence without its friendly aid, I cannot but think that the Hornbeam does not receive that amount of attention at the hands of planters that its merits justly entitle it to. To say that the Hornbeam is valueless, or almost so commercially is, perhaps, wrong, for it is an invaluable hedge plant, while the timber produced is of extra value for certain purposes; but what I mean to convey is that in this country at least the quantity and quality produced are not such as to have earned for the tree any great reputation amongst our forest occupants. In the manufacture of lasts, Hornbeam timber is much prized, while for cogs in machinery its unusually tough nature renders it of great value. Whoever has had the chance of using Hornbeam firewood wishes to do so again, for it is easily ignited and burns very clearly, emitting at the same time a pleasant odour and great heat.

During the topiary days Hornbeam hedges were much in use, the plants bearing trimming in with impunity, this improving considerably the dense and compact nature of the fence. Even to-day it is much used for mixing with the Quick and Privet in the formation of farm and other fences, its strong, rigid nature rendering it peculiarly well suited for such a purpose.

Few soils come amiss to this most accommodating of trees, for it will flourish on that of the most opposite qualities, nay, even where little or no soil overtops the chalk and lime formation.

No doubt the largest and most picturesque specimens of the Hornbeam are to be found growing on a deep and dampish loam; indeed, I could point out not a few trees that have attained to goodly proportions where the soil could not rightly be described as aught else but a stiff and cold clay.

Rarely indeed do we hear of the Hornbeam having been recommended as an ornamental tree, but that its quality in this particular way is of no mean order when the tree is suitably situated few would care to deny who have seen some of the singly planted specimens that grace a few at least of our old-fashioned English parks. The visitor to Richmond Park can hardly fail to have noticed the beautiful avenue of Hornbeams, the individual trees being large and well developed, and of great value during the summer months for the agreeable shade they afford. Throughout North Wales not a few fine specimens of this tree also exist, trees that have become fully developed through having been cared for in early life and plenty of room at all times afforded for the perfect development of root and branch.

Of the common Hornbeam there are several pretty and well-marked varieties, and these are of great interest to planters not only for the finely-cut foliage, but owing to the soft tint the

trees present particularly during the early part of the year. One of the most distinct and desirable is that popularly known as the Oak-leaved Hornbeam (*C. Betulus quercifolia*), the leaves of which are deeply and regularly cut, thus imitating in no small degree those of our English Oak. One of the most distinct and striking contrasts to be imagined is a well-grown specimen of this Hornbeam standing at a respectable distance from a clump or rather background of the black Austrian Pine (*Pinus austriaca*).

The variety named *incisa* is quite as interesting and desirable a form as the latter, but the whole tree, owing to the longer and narrower leaves, has a quite distinct appearance from that presented by the parent plant. In my opinion this is a choice and distinct form, and one that should be used more plentifully in our gardens and grounds than it is at present.

Little preparation of the soil is necessary for the Hornbeam, and just as little attention need be bestowed on its quality, for it is one of those trees that makes itself at home almost wherever planted. It roots with wonderful freedom, and for this reason, as also its strong hardy nature, few plants are lost in transplanting. Be the soil wet or dry, chalky or clayey, the altitude considerably above sea-level or the aspect exposed, it matters little, for this most accommodating of trees seems to flourish and grow apace. Where but a few inches of soil overlies the chalk formation, and it becomes a matter of concern what trees to plant, the Hornbeam may safely be used and with every chance of success, not that it will grow so rapidly as on that of better quality, but for all that the increase in size and girth is by no means small, while the general appearance of the tree is all that could be desired.

Few trees bear overcrowding with less risk of permanent damage than the Hornbeam, for the branches are stout and twiggy, and not at all apt to suffer from coming into close contact with each other. Owing to the leaves being retained on the tree well into the spring, it is of particular value for screen and shelter planting, and this, associated with its dense habit of growth, renders it peculiarly well suited for hedge formation.

Taking everything into consideration, the Hornbeam is a tree that should not be despised, and that sooner or later its economy in British forestry is sure to be more fully realised than at present is only a question of time.

A. D. WEBSTER.

Limonia trifoliata.—This is a remarkably singular and uncommon shrub, generally looked upon as a curiosity, but well worth consideration for the sake of its blossoms, which are large and showy. It forms a much-branched bush. Each flower is about 2 inches in diameter, pure white, and of a five-pointed star shape. The flowers are borne in a solitary manner, but, as a rule, in considerable numbers. From the sturdy character of its branches and the formidable spines with which they are armed, this *Limonia* would appear to be a good hedge plant where thoroughly hardy, which is not the case in some parts of England. It is a native of China, and can be propagated by means of cuttings of the half-ripened wood taken towards the end of the summer and put in a frame.—T.

Rhododendron ferrugineum.—This little alpine species is very different from the various forms of *Rhododendron ponticum*, as it assumes the character of a low-growing bush, sometimes spreading in habit and at others of a compact habit. It is just now in flower, and the clusters of little, bright, rosy-pink blossoms are sufficiently numerous to yield a goodly show. This *Rhododen-*

dron grows wild in considerable numbers throughout the Alps and Apennines, and is often known as the Alpine Rose. It succeeds well under much the same conditions as the other *Rhododendrons* and most *Ericaceae*, and while it may be used in front of the larger *Rhododendrons*, it is also very suitable for association with *Heaths*, *Kalmias*, &c. For the larger arrangements of rockwork it is a very desirable shrub, being at home in such a position if not in too dry a spot. The Alpine Rose is thoroughly hardy. It was introduced into this country nearly a century and a half ago, and is occasionally met with in old-fashioned gardens. There is a variety of this with white blossoms, but it is a much rarer plant than the coloured form.—T.

USEFUL WALL SHRUBS.

THESE include among their number a great many desirable kinds, and a wide choice is open to the planter. Two classes of plants alone, viz., *Roses* and *Clematis*, are embarrassing, by reason of the numerous varieties of each now in cultivation; but still, in making a selection of wall plants, it is absolutely necessary that these two genera be well represented. A prominent place must be given to the winter *Jasmine* (*Jasminum nudiflorum*). It is, indeed, the brightest of all outdoor plants during the dull days of winter, and often till the spring is well advanced. The common white *Jasmine* (*J. officinale*) is a first-rate wall plant, and a general favourite; while the large yellow summer-flowering *J. revolutum* will afford variety. The highly fragrant blossoms of the *Honeysuckles* render them very popular, while the reticulated foliage of *Lonicera brachypoda aurea* causes it to stand out very distinct from all its associates. *Forsythia suspensa* is a very desirable wall plant, and one that soon covers considerable space. To enjoy this to the fullest extent it should, when first planted, be trained to the wall till the required space is covered, and when that is done the plant should be allowed to grow away freely without restraint. In this way it will push forth shoots in great profusion, and as they are nearly pendulous they will completely hide the wall from view in the summer, and in winter the slender shoots, often as much as 6 feet or 8 feet long, are, from their light brown, cheerful-looking bark, very attractive, whilst the golden blossoms are abundantly produced during the early spring months.

Bignonia radicans is a strong, bold-growing plant, seen at its best when rambling over an old wall, in the interstices of which some of the rugged branches will take root. The crimson, trumpet-shaped blossoms of this *Bignonia* are very showy towards the end of the summer, but, unfortunately, it does not flower freely. The *Pomegranate* will stand the winter against a wall round London, and very pretty it is when in flower. There are several varieties, but the most free-flowering, with me at least, is the single red. It does best on a wall fully exposed to the south. *Rubus deliciosus* is a beautiful shrub. The flowers are pure white, a couple of inches in diameter, and borne in great profusion. For low walls the different varieties of *Pyrus* or *Cydonia japonica* do well, and flower during the early spring, or sometimes the winter months. A group of plants which, if not so showy as many others, are delicately fragrant and very free flowering, are *Chimonanthus fragrans* and its variety *grandiflorus*, with a couple of winter *Honeysuckles* (*Lonicera Standishi* and *L. fragrantissima*). All of these will expand their blooms beautifully indoors if the twigs are gathered and placed in water.

In early spring the double blossoms of *Prunus triloba* are when on a wall protected from the frosts which sometimes mar their beauty when in the open ground, and, so situated, the shoots are well ripened, and consequently a wealth of blossom ensured. *Fremontia californica* succeeds best on a wall with a southern aspect, and in not too light and sandy a soil; but, at the same time, it must be thoroughly drained. Although it does not, as a rule, flower very freely, the foliage is highly ornamental, and when blossoms are produced, from their large

size and bright yellow colour, they form very conspicuous objects. I have been often puzzled with the behaviour of this plant, which will sometimes die off without any apparent cause. Where large, bold foliage is desired, the Dutchman's Pipe (*Aristolochia Sipho*) is one of the best subjects that can be planted for the purpose, the large heart-shaped leaves being very imposing, and the flowers, though seldom produced and by no means showy, are extremely curious. The *Wistaria* must, of course, be included in any selection of wall plants, as its beautiful clusters of blossoms are there sheltered from frosts, which would often injure them if more exposed. Besides the ordinary form, the white-flowered variety (*alba*) well deserves a place; but the double *Wistaria*, as far as my experience of it extends, is useless. The double-flowered *Kerria japonica*, with its golden blossoms like little Roses, does well against a wall, and flowers for some time. The different vines and varieties of *Ampelopsis* are all rapid-growing climbers; but the pick of them all, as a wall plant, is *Ampelopsis Veitchii*, which attaches itself securely to any support, be it brick, stone, or woodwork. Like several of its relatives, the foliage of this dies off richly tinted. This *Ampelopsis* does not make very rapid progress during its earlier stages, and on that

of the Oak-leaf roller moth from attacking Roses, Cistuses, and other kindred plants, as my garden is suffering severely from this pest. Gishurst's compound, with tobacco powder, destroys them when they are on the Rose trees; but I should be grateful for any information as to the best means of destroying the eggs in the autumn, or of preventing the caterpillars from ascending the Oaks, whence they descend to the garden.—MARY A. EWART, *Coneyhurst, Erehurst, Guildford.*

DAPHNE BLAGAYANA.

It is not long since this beautiful little alpine shrub was new to English gardens, and as recently as ten years ago it was first received at the Royal Gardens, Kew, from the Continent. As soon as I saw the first flowers of it, in 1878, I thought it would prove to be a "good thing," and accordingly wrote to the editor of *THE GARDEN* to have it figured, and in due course a beautiful coloured figure of it, by Mr. Fitch, appeared in *THE GARDEN* (Vol. XIV., p. 200), in company with the charming *Anemone blanda*, also a European alpine plant. Since that date this little *Daphne* has become generally distri-

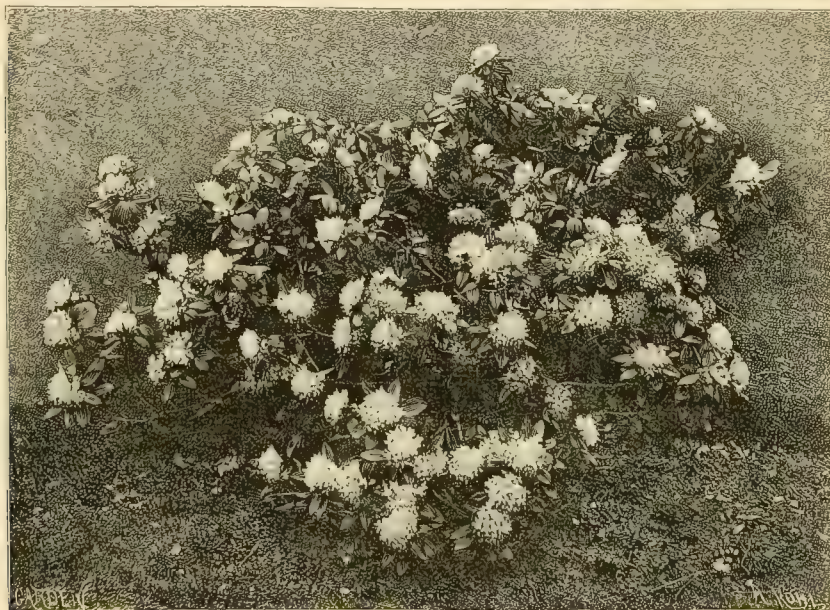
what a lovely plant to cut from in early spring! It rivals Orange blossom in sweetness and purity. It continues to bloom for several weeks, beginning in spring as soon as the days get warm enough for the buds to open freely. When first introduced, it was said to be difficult to propagate, but I never found any difficulty in increasing it from layers. Branches laid down in autumn were rooted and ready to take off the following autumn, and made good plants at once. Mr. Hemsley gave the early history of this shrub when he wrote a note to accompany the plate in *THE GARDEN* in 1878. It was first discovered, he says, in 1837, by Count Blagay, on his estate at Lorenzburg, not far from Laibach, in Carniola, and has also been found in Styria.—W. GOLDBRING.

—Mr. G. P. Dale, Hay Brow, Scarborough, in whose garden the plant here engraved was grown, has kindly sent us the following notes as to his treatment:—

"Seven years ago I purchased two small plants of *Daphne Blagayana* of Messrs. Van Houtte, and had them planted in an open border facing west, and protected from the east by a well-grown Holly hedge. They were planted in a compost of equal parts of leaf-mould, peat, and sea sand, with a good sprinkling of bone-meal. The plants had no protection, except in the most severe weather, when an old round basket was thrown over them. One winter they were exposed without any protection to a temperature of 23° of frost. As new branches were thrown out they were pegged down to the soil and quickly rooted. One of the plants now occupies a surface of 25 square feet, and this spring bore upwards of 120 blooms, each of a cream colour, about the size of a crown piece, and exhaled a perfume which scented the whole avenue—70 yards long. The plant, of which I send you a photograph, flourishes within 3 miles of the sea at an altitude of 240 feet.

"*Daphne Blagayana* forms its buds during the months of February and March, and is in full bloom in April. This photograph was taken on April 23. Much of the success was due, I think, to the pegging down of the young shoots, to the rich compost, and to the free exposure; possibly also in some degree to the mild and equable temperature of the situation.

"As a proof of the genial surroundings, I may mention that last year I had a plant of *Desfontainea spinosa* in full bloom in an open south border, with a background of *Cupressus macrocarpa* 60 feet high and 10 feet through, sheltering somewhat from the north and east."



A well-grown *Daphne Blagayana*. Engraved for *THE GARDEN* from a photograph of a plant grown in Mr. G. P. Dale's garden at Hay Brow, Scarborough.

account, when it is desired to cover a space as rapidly as possible, this may sometimes be done by transplanting an established specimen, if there is one available for the purpose. As a rule, it is difficult to move the plant with a ball of earth, as the fibrous roots are few; but I have shifted several successfully by taking care they have some good compost to root into and watering them when necessary till established. If the branches are secured to the wall, directly new shoots are produced they at once grasp the bricks and hold all securely in position.—T., in *Field*.

Cotoneaster integerrima.—I found last month and early this month *Cotoneaster integerrima* abundantly and in beautiful bloom on rocky places about the Lago di Garda and above Varenna, &c., on the Lago di Como. Can you tell me whether this shrub has any synonymous name, as I have applied for it to one famous nursery, where I am told they do not know it even by name? I hope that it might be grown in England under favourable conditions, and should be very glad to know where I could obtain a plant in the autumn. I should also be very glad to know what is considered the most efficacious means of preventing the caterpillar

butted in gardens, its good reputation having preceded it everywhere, but I had no idea that we should so soon see such a marvellous specimen of it as that represented by the annexed engraving. I always thought its habit of growth was too straggling to make a compact, bushy specimen such as is here shown. One can imagine what a lovely sight such a mass of ivory-white flower-clusters must be, and what fragrance! I think that this *Daphne* smells sweeter and stronger than the old Chinese kind, the *D. indica* common in greenhouses. This fine specimen must be growing under exceptionally favourable conditions, and I think that the grower of it should be invited to tell us all he knows about its culture. As far as my experience goes, this *Daphne* likes to grow on an elevated bank among rocks, and seems to thrive best in partial shade. I have seen it growing well in various kinds of soil, including chalk. But perhaps it is like its capricious relative, *D. Cneorum*, the Garland Flower, which does a good deal better in some places than in others. If one could grow enough of it,

Escallonia macrantha.—Amongst all the shrubs that cheer with their foliage and flowers the early spring months, there is none, I think, equal to *Escallonia macrantha*. The dark green and wonderfully lucid foliage, beautifully intermixed with the richest abundance of bright rose-coloured blossoms, renders this pretty plant one of the most cherished and handsome of the many occupants of our woods and shrubberies. Flowering plants are a rarity in the open air during winter and spring, a fact which renders the *Escallonia* of great and particular value, for, be the weather ever so cold and stormy, the pleasing flowers are freely unfolded, and seem of so hardy a texture as to defy in the most persistent manner even a few degrees of frost. But whether in flower or not, this *Escallonia* is peculiarly well fitted for ornamenting our gardens and grounds, as it is never shabby in appearance, the bright healthy-looking foliage being charming at all times. Then it is of the freest growth, thriving admirably in soils of very opposite qualities, quite hardy, and of rapid growth, shoots of nearly a yard in length being, not uncommonly, produced in one season. Some of the finest plants

that I have seen were growing on the north-east side of a somewhat shaded and partially sheltered shrubbery, and in soil that was largely composed of sandy loam, with shale rock for a bottom. Here giant specimens were fully a dozen feet in height, and about 50 feet in circumference—huge masses of shining green and rose. With any other shrub of my acquaintance, *Escallonia macrantha* can well hold its own for planting as a single specimen far away from any other tree or shrub, and on the greensward, for the dark glossy hue of the leaves contrasts most strikingly with Nature's carpet around.—A. D. WEBSTER.

Viburnum plicatum.—This very handsome Guelder Rose is now flowering most profusely in the grounds here, and forms a very striking object in front of sombre Conifers. The broad, flat-petalled ivory-white flowers of this species stand the weather, especially rain, much better than the older Snowball, which often gets dashed and spoiled by a single storm, and being produced in graceful racemes 2 feet or more in length, they are admirably adapted for house and church decoration. When planted singly on a lawn this beautiful Japanese species soon forms a rather flat-headed bush 5 feet or 6 feet through, and about 5 feet in height; but space being abundant, half-a-dozen or more some 6 feet apart may be planted together. It is perfectly hardy, is by no means fastidious as to soil, a good sound loam suiting it well, and strikes root very freely when the base shoots are layered. Cuttings require a little more time, but short spur-like pieces of fairly ripe wood taken off with a heel and inserted in sandy loam in August or September make nicely rooted plants by the following autumn. Cap glasses placed over the cuttings, as a matter of course, facilitate the rooting process, but producing, as it does, such a number of shoots quite close to the soil, the quickest and safest mode of propagation is layering. The plicated Snowball forms a handsome bush or low standard when placed in a pot or small tub, and when thoroughly established it forces quite as well as the *Syringa*, *Deutzia*, or *Rhododendron*.—W. COLEMAN.

The Weeping Hemlock Spruce (*Abies canadensis pendula*).—As usually seen in this country the typical Hemlock Spruce is a tree of great beauty, the semi-weeping branchlets and bright vivid foliage rendering it as distinct as it is interesting. I must confess, however, that this weeping variety is far more ornamental than even the best furnished and best grown specimen of the species that I have yet seen. The weeping form to which I refer is growing in the grounds at Holwood, and is a tree of some 30 feet in height with a well-rounded, massive head. In no way does it seem to me to differ from the commonly cultivated tree, save in the long weeping spray, the branch tips one and all hanging gracefully downwards for in most instances a couple of feet. For associating with such stiffly-habited trees as the Austrian Pine (*Pinus austriaca*) and *Araucaria*, this weeping Hemlock Spruce would be of great value; but the tree is as yet rare in the trade, and it will be some years before specimens will be procurable. Dampish peaty soil and a sheltered site suit the Hemlock Fir best; indeed, I have rarely seen the tree in better form or with brighter and more plentifully produced foliage than in the north of Ireland, and where the plants were growing on deep peat bog that had been deeply broken up and freely intermixed with road-scrappings. It is a tree of great beauty, but one that, unfortunately, is somewhat rare in our parks and grounds, but which, when its great value as an ornamental Conifer is better known, will no doubt be largely planted.—A. D. WEBSTER.

* * An engraving of a very fine specimen of this tree growing in an American garden was given in THE GARDEN, Oct. 22, 1887.—ED.

The Hop Plant (*Ptelea trifoliata*).—Few persons are aware how distinct and desirable a shrub this is, else it would be found far more plentifully in good collections than it is at present. I am not doubtful about its hardiness, for we have it here quite exposed and under no special care or treatment. Curiously enough, the shrub has an

odour exactly resembling that of the Hop; indeed, it has been found to act as a substitute for that valuable plant in the production of the best class of beer. To those who have not seen a specimen of *Ptelea trifoliata*, it may be of interest to know that it is of very dense growth, the branches and twigs being thickly produced, while the seeds resemble, more than anything else I can think of, those of the Elm, only much smaller. It is not a tender shrub by any means, for it grows stout and strong, and to sometimes as much as 15 feet in height, and then it bears seed with great freedom from year to year. Even when of small size, it bears fruit plentifully enough in this country. Certainly so distinct and interesting a hardy shrub as the *Ptelea trifoliata* is worthy of an odd corner in every garden or park.—A. D. WEBSTER, *Holwood, Kent*.

FLOWERING BARBERRIES.

SEVERAL of the Mahonia section of *Berberis* have been in blossom for some time, while Darwin's Barberry will occasionally bloom freely in the autumn and keep up a scattered succession of flowers during mild weather till spring, when the remaining blooms will open almost simultaneously. The earliest practically of this class of Barberries to flower is *B. dulcis* or *buxifolia*, for it is met with under both names. It is a free-growing bush, reaching a height of 6 feet or 8 feet, clothed with small deep green leaves, and bearing in great profusion its bright yellow blossoms. They are solitary, on rather long stalks, and hang gracefully. This species frequently loses a part of its leaves during the winter. Though seldom seen, it is indeed a very valuable flowering shrub, for even when Darwin's Barberry flowers at the same time, the bright yellow blossoms of *B. dulcis* are very different from the orange-coloured flowers of the other. No garden, however, can be without *B. Darwini*, which, in or out of flower, is a beautiful shrub, and a lasting monument to William Lobb, by whom it was first introduced into British gardens. Apart from the beauty of its blossoms and deep green glossy foliage, the purple berries in autumn are very conspicuous. A curious little Barberry is *B. empetrifolia*, which is not particularly showy, and frequently met with in far from a flourishing condition, but it is remarkable from being one of the reputed parents of *B. stenophylla*. I have written reputed, for though this is recognised as a hybrid between *B. Darwini* and *B. empetrifolia*, I cannot find out anything regarding its origin, and should be much obliged if anyone could enlighten me on that point. At all events, it is a beautiful Barberry, and the most graceful of its race, as the long, flexible branches dispose themselves in a very pleasing manner. If it is a hybrid between *B. Darwini* and *B. empetrifolia*, it is remarkable that the progeny should in size exceed both of its parents, as *B. stenophylla* is altogether a larger growing shrub than Darwin's *Berberis*, while *B. empetrifolia* is but a miniature kind. The flowers of *B. stenophylla* are of a rich yellow colour, thus affording a pleasing contrast to the orange tints of *B. Darwini*. I have seen both of these Barberries employed for flowering under glass during the spring months, and very pretty they were when brought on very gradually; but it was useless to subject them to hard forcing, as the blooms under that treatment would not open properly. Besides its usual habit of a graceful bush, this Barberry may also be used as a wall shrub, not because it is in any way tender. It will furnish a wall in a most pleasing manner. It should never be employed where a plant that lies closely to the wall is needed, as this Barberry is seen to the greatest advantage when the branches are trained to the wall till the allotted space is covered, and then allowed to dispose themselves at will. In this way there is a total absence of stiffness or formality, while it will flower very freely, which does not happen if the plant is trained in a hard and formal manner. The earliest to bloom of the deciduous Barberries is the pretty little Chinese *B. Thunbergi*, whose flowers make their appearance simultaneously with the young leaves, and though the individual blooms are not showy, they are seen

to the greatest advantage when associated with the tender green of the unfolding leaves. The habit is that of a dense, rather spreading bush, thickly clothed with small, roundish leaves; while the flowers, which depend in great profusion from the undersides of the shoots, are brownish crimson in the bud state, and, when fully expanded, the exterior of the flower is of that hue, while the inside is of a sulphur-yellow tint. Under favourable conditions the leaves retain their rich green colour throughout the summer months, and in the autumn they die off a bright red. The little oblong sealing-wax-like fruits are seldom borne in any great profusion in this country, while in America it is, I believe, especially valued as a berry-bearing shrub. The above include the earliest flowering of the Barberries, but others will soon unfold their blossoms, and, by means of the different species, a succession is maintained for a considerable time. Among the latest flowering is the little Himalayan *B. concinna* (remarkable for the beautiful silvery undersides of the leaves), and one sometimes met with under the name of *B. aristata*, though this last name seems to be occasionally applied to two or three distinct kinds. The most desirable is that which somewhat resembles an unusually vigorous form of the common Barberry, but is later in flowering, and in winter, when devoid of foliage, is rendered especially noteworthy by reason of the reddish-coloured bark.—T., in *Field*.

CHRYSANTHEMUMS.

E. MOLYNEUX.

DWARF CHRYSANTHEMUMS.

FROM the correspondence in the horticultural press and from private inquiries, there appears to be a growing disposition to favour the cultivation of dwarf Chrysanthemums. The chief reason is, I suppose, because the flowers produced by this method are so much more easily seen than when tall plants are cultivated. Dwarf plants are nearly always much better furnished with foliage—an important point in the grouping of Chrysanthemums for effect. I hope that those persons who commence now to cultivate their plants on the method called "cutting down" will not be disappointed when November comes round if they find their blooms of inferior quality as compared with the flowers produced upon plants grown on the tall system. Many good flowers are seen upon dwarf plants, but it is impossible to have them of the same quality in depth and solidity as otherwise cultivated. It would, indeed, be a boon if equally good flowers could be had from plants many feet less in height than is now the custom. The only way out of the difficulty is to wait for new kinds which possess a dwarf growth, and a capacity for developing equally as good blooms as the taller sorts. For effective grouping there is no method which can be compared with the cutting-down system. When a general assortment of varieties of all sections is required, it is impossible to have a dwarf group of plants otherwise than by growing them on the cutting-down principle, unless the cultivator limits himself to a few naturally dwarf-growing sorts. In making a selection of this kind the sorts are too few to make a really representative group of Chrysanthemums; therefore, it is much more satisfactory to be content with blooms a little less near perfection in point of quality than to grow only a limited number of sorts. Those persons who purpose growing dwarf plants for groups will have them as stout and dwarf as possible by keeping them thinly disposed on an open space. Up to this date no special preparation will have been required, as until they are cut down they will need just the same treatment as though the leading shoot was intended to be preserved.

Plants ranging from 2 feet 6 inches to 6 feet

in height, including the pots, may be had for grouping purposes upon the cut-down system, and will carry from three to six blooms each. Smaller pots can be used than is generally required by plants grown for the production of large exhibition blooms. Plants in smaller pots are also better adapted for using in mixed groups of foliage or other flowering plants. Most varieties will succeed under this method of treatment, and by having a variety of colours a more effective group is obtained.

Bright coloured varieties, such as Cullingfordi and King of Crimsons, are indispensable to a group, especially when associated with pure white varieties, such as Elaine, Fair Maid of Guernsey, Mrs. G. Rundle, and others of that type. Cutting down the plants should be performed at three distinct periods, regulating these according to the time each variety should be operated upon. Naturally, those varieties which flower late should be cut down first, as they require more time to develop their blooms after the buds are formed than do earlier sorts. With beginners the difficulty is to know which varieties come under this head, judging from the number of letters of inquiry I get from persons anxious to know. For their information I will give a list of suitable kinds, placing them under the proper head, so that no mistake need occur. The late-flowering sorts should be cut down about the 20th of May. They are Meg Merrilies, Ralph Brocklebank, Yellow Dragon, Boule d'Or, grandiflora, Duchess of Albany, Stanstead White, Pelican, and Ceres among the Japanese varieties. The late-flowering incurved sorts are Charles Gibson, Mrs. Norman Davis, Hero of Stoke Newington, Princess Teck, Barbara, Cherub, Lord Eversley, Lady Carey, and Nonpareil. What may be termed the medium-flowering kinds in the incurved section, and which require cutting down about the 1st of June, comprise a goodly number—Princess of Wales and its sport Violet Tomlin, Mrs. Heale and its sport; also Miss M. A. Haggas, Jeanne d'Arc, John Salter, Jardin des Plantes, Beverley, Mr. Bunn, Empress Eugénie, Refulgence, Mr. Brunlees, all The Queen family, and Lady Hardinge. The Japanese sorts coming under this head are numerous, the varieties increasing so fast. Reflexed varieties are not so well adapted for grouping owing to the weakness of their peduncles, which allow the flowers to droop too much to be seen, except where they are supported with stakes close under the flower. Mrs. Forsyth, Dr. Sharpe, Cloth of Gold, Chevalier Domage, and the two previously named will suffice of this section; these will need to be cut down at the same time (June 1). Anemone varieties of both the ordinary large-flowering show kinds, such as Lady Margaret, Fleur de Marie, Glück, Grand d'Alveole, Acquisition, Miss Annie Lowe, Empress, Georges Sand, and Mrs. Pethers; Fabian de Mediana, Mlle. Cabrol, Sœur Dorothee Souille, Margouline, Mme. Bertha Pigmy, Mme. Clos, and Jean Marty of the Japanese Anemone class, are well suited for grouping owing to their graceful character. When their guard florets are allowed to hang in a natural manner they give variety to the group by reason of their peculiar form of flower. These, as well as the large Anemone kinds, should be cut down at the same time as the second batch. The last lot to be taken in hand are naturally early-flowering sorts, which should not be cut down before the middle of June—Elaine, Mme. Bertie Rendatler, Lady Selborne, L'Africaine, Bouquet Fait, La Triomphante, Phœbus, Mr. William Holmes, Margot, Dr. Macary, and M. Tarin. It is well to consider whether the plants are required for large or small groups in determining the height at which they are to be cut.

The larger the group the taller the plants will of necessity be required. Always select for the front of the group those kinds (Avalanche, for example) which are naturally dwarf. As a rule they possess the best foliage. In a competition for a group the condition of the foliage has considerable weight; therefore, every means should be taken to secure this end. The next consideration is, how low shall the plants representing each section be cut down? Dwarf-growing varieties best suited for front rows of groups may be cut down to within about 4 inches of the soil; the others to 6 inches, 8 inches, and 12 inches, according to their respective natural heights of growth. Where the plants are intended to carry more flowers than the number stated they should not be cut down so low as those intended to carry fewer and larger blooms, as more new breaks will be required to furnish the additional branches.

Summer cuttings.—It often happens that there is a scarcity of cuttings when required of some varieties which are very shy in producing suckers of a sturdy nature, or of new varieties when the stock is limited. Now is a good time to set about the preparation of a stock for next December of the sorts most likely to be scarce at that time. When the plants are grown for large blooms many side shoots are produced in excess of what is required, and instead of destroying all these they may be utilised as cuttings. Sometimes suckers will at this time of the year spring from the base of the plants. These make the best cuttings, but are only chance growths. Insert them singly in small pots in sandy soil, plunge in a gentle bottom-heat, keeping them close and shaded till rooted, then remove to a cold frame. As soon as the plants are well rooted shift them into 4-inch or 5-inch pots, using moderately rich soil, pressing it down hard, and short stocky growths, so desirable for good cuttings, will be produced. Stand the plants out of doors in an open position, allowing one stem only to extend. This will attain a height of from 2 feet to 4 feet, according to the variety, and will produce one bloom. Such plants are useful for the decoration of side stages or elsewhere, it not being a question of obtaining a number of blooms so much as a good supply of stocky cuttings. I find such plants are more certain to produce cuttings than those which are grown in the orthodox way for affording exhibition blooms, as, no doubt, the constant removal of the suckers during the summer weakens the plant for the after growth of cuttings. This does not occur when grown as above indicated. As the primary object is not the production of large blooms, but sturdy shoots for propagation, this is a system I can well recommend.—E. M.

Seasonable notes on culture.—No matter for what purpose Chrysanthemums are cultivated, this is perhaps the busiest time amongst growers during the whole year. What with potting, tying, watering, and moving the plants from place to place, a Chrysanthemum grower's time is thoroughly occupied. As is well known, this busy season comes when other matters press very heavily in the garden, as there is the bedding to be done, Grape thinning, and many other duties to attend to, that I am afraid the non-success of many collections of plants can date from about this period. The plants do not get potted early enough, are not staked soon enough, or perhaps are allowed to become dry at the roots too often. Dryness at the root is the most likely cause of the frequent loss of the lower leaves, and not only disfigures the appearance of the plants, but also checks the free growth so desirable to ensure the best results. Pot on the plants as fast as needed. At least twice daily the plants should be examined thoroughly, soaking the soil of any that are found to be dry. Clean tepid water is the best. Syringe the foliage in the afternoon of fine days. Many of the plants are now making their first natural break, and the instructions given on p. 359 should be attended to in the manipulation of the shoots, taking care to secure those retained for future development from accident. Attend strictly to the

removal of surplus side shoots, which are often allowed to grow much too long before they are cut off. It only wastes the energy of the plants to allow them to sustain a number of useless side shoots; besides they are so much more easily removed if taken in time, being easily pinched off; thus the whole vigour of the plant is concentrated in the three selected growths. The growths are now soft, and as they gather strength are extra sappy and more liable to snap off if not securely fastened to the supports, one stake in each pot being sufficient to tie the three shoots to. Green-fly is rather troublesome to the points of the shoots, and if allowed to get a hold the leaves are sure to be crippled and disfigured. The most certain and safe way to get rid of green and black-fly which sometimes affect the plants is by dusting the parts with tobacco powder in the evening, and in the morning vigorously syringing the shoots. Plants for covering walls are now growing vigorously, and need frequent attention to keep the growths securely fastened to the wall, and at such a distance apart from each other that they will not become crowded and consequently weakly.—E. M.

MARKET GARDEN NOTES.

BLACK ALCANTE GRAPE.—To all intending to plant Grapes for profit I would say, let this form the main crop kind. Of late kinds it is the most manageable, and may be taken in hand with confidence by those who do not regard themselves as perfect masters of the art of Grape culture. It commands nearly double the price of the Hamburgh and requires but little more skill to bring it to good market condition. It sets freely, and has in this respect a great advantage over Gros Colman and Lady Downe's, two kinds that those who do not well understand their peculiarities should avoid planting largely. To get it in the best possible condition, the roots ought to be under cover, and it is in this way that it is principally grown by the large market gardeners around London. This form of culture cannot, however, be carried out successfully without an unlimited supply of water, and where this is not forthcoming the roots must, of course, be outside, or, at any rate, the principal portion of them. In all cases, however, the Vines should be planted inside with sufficient soil to give them a good start, for I am told that they often refuse to go away kindly if put at once in an outside border, very much probably depending on the season. The extraordinary crops of this Grape that are produced in some of the best managed market gardens would surprise those accustomed only to see it as commonly grown in private establishments. In a Bedfordshire market garden this Grape is grown to a high degree of perfection in large span-roofed houses, the whole of the roots being inside. Every ten days or so the borders are pointed over with a fork and a good soaking of water given with frequent top-dressings. The size of the bunches and the colour and perfect finish of the berries show how well the treatment suits this Grape.

CARROT IMPROVED INTERMEDIATE.—This comparatively new Carrot appears likely to become a favourite with market growers. For some years past the Long Surrey Carrot has steadily fallen in the estimation of consumers in the metropolis, they for once wisely going by quality, so that the old Intermediate Carrot is much more largely grown. A great defect of this variety is, that owing to its thrusting its crown rather above the ground it is apt to suffer severely in hard winters, whereas the Long Surrey keeps well under ground. Those who grow Carrots largely are, therefore, unwilling to trust entirely to a kind that is apt to go off just at the time when prices are at their best, which is generally during a period of hard weather. For this reason a breadth of the Long Surrey is usually grown to come in late in the season. The Improved Intermediate is said to have much of the hardness of the last-named, keeping well in the soil, and for this reason will probably supersede the old Intermediate. In private gardens there is a general practice of storing Carrots in

winter, but this is of course impracticable when it is a question of some acres.

CHRYSANTHEMUM CULLINGFORDI GROWN FOR LATE BLOOMS.—This, owing to its fine and distinct colour, is indispensable in any collection. It is, of course, much appreciated, but I do not think that it is generally classed with late-blooming kinds. I find that with suitable treatment it can be had in good condition up to the middle of January. It is a great favourite of mine for cutting for market, as owing to its not making a great mass of foliage and its free flowering nature, a great many blooms can be cut from a limited space. Put in bunches of six blooms it has a very taking appearance, and I find sells well. It is not wanted at Christmas in the London market, white Chrysanthemums only being then in good demand, but at the new year coloured kinds are again in request. So far as I am aware, there is no variety that can come up to Cullingfordi in this respect. When baskets are made up of half Princess Teck and half Cullingfordi the contrast is charming, and one shows up the other to wonderful advantage. My plan is to put in the cuttings about the last week in March singly in small pots, a plan I prefer to all others. They are shifted the last week in May or a little later, as time permits. The plants get a final shift in August into 8-inch pots and are kept in the open with protection until the end of October. They are stopped for the last time at the end of the last week in July, and are allowed to carry two or three flowers to the shoot, according to their strength. In this way each plant carries about two dozen good-sized blooms.—J. C. B.

—A favourite form of market Cabbage is the East Ham, or Enfield Market or Fulham. A neighbour of mine planted out in October and November several acres of this, and he has been cutting for a considerable time. Women go through the plantation and tie up the forwardest, much as gardeners do Lettuces, and they are cut and sent to market as soon as ready. Who does not appreciate a tender spring Cabbage?

There is just the same anxiety to be first in the market with vegetables as with fruit; the earliest supply commands the best prices, good quality being of course assumed. In order to be early with Vegetable Marrows, a neighbouring market gardener sowed seeds in February in manure frames, one in a pot, and raised plants in this way; as soon as possible these were planted out in little frames, two or three in each, the lights kept on, and well helped by manure beneath and plenty round the sides when frosty and biting weather threatened. The plants have now grown considerably beyond the frames and are yielding fruits, but the leaves were much cut up by frost on the mornings of Tuesday, May 28, and Wednesday, May 29. Succession plants similarly treated are coming on to succeed the foremost ones; meanwhile long rows of Marrow plants have been planted out in the open. These were also grown on in pots, and as soon as Coleworts were cleared from the ground it was heavily manured and ploughed and the Marrows planted, two and three plants forming a hill. Skips were inverted over them during the night, but removed by day. These plants are now making some headway, and in another week or two will make a prodigious growth. A space of 6 feet clear is left on either side of the plants; then come several lines of Cos and Cabbage Lettuces that will mature and be cleared away before the Marrows can reach them. At intervals, but at sufficient distance from the Marrows, are two lines of dwarf French Beans, these raised in pots or beds, and then transplanted to the open ground as soon as it is safe to do so. Early crops of dwarf French Beans and Scarlet Runners fetch good prices, and it is now the practice to raise seeds of both in pots and transplant to prepared ground in the open. The favourite market Lettuces are the Fulham White Cos and All the Year Round Cabbage. A salad, states an authority, should always be made of Cabbage, not Cos Lettuce, and the leaves should never be cut, but simply broken.

Despite the comparative failure of the crop through the drought in 1887, and through the wet

character of the summer in 1888, Tomatoes are being largely planted in the open. One piece in the open air is so forward that the plants are already setting their fruit, but they were raised early in heat, planted out in small frames, and every care taken of them, and they have done remarkably well. But all the raising in heat and growing on in pots cause a heavy expenditure in labour, that it is expected will be compensated for in the increased prices good early fruit commands. Warm sunny weather, with occasional showers, is what is required to bring on the Tomato plants rapidly, and get them out into bearing quickly. As soon as they make a good start a mulching of long manure is placed over the roots, which, while it keeps the soil cool and fertilises, also keeps the fruit from being splashed when heavy rains come.

Here are about three acres of as true and promising a piece of Early London Cauliflower as I ever saw; the plants are all of one pattern and of one height. They are just turning in, and a wagon-load a day will soon be cut. The plants were raised from seed sown in September last and planted out in November, and there is scarcely a failure. Some are allowed to go to seed, and seed of such a fine and true stock can be sold at a good price.

As soon as the spring Cabbages are cleared away, Coleworts, Savoys, and Leeks will be planted out. The seeds of the two former were sown in drills in the open air some time ago, and the plants will soon be large enough to transplant. The Leek seeds are sown in shallow boxes or in a frame, and transplanted during showery weather.

A large plantation of Victoria Plums, young and vigorous trees that bear plentifully every year when the season suits them, are somewhat disappointing. The trees were wreathed in blossom, and there was a rich promise of fruit, and the blossom appeared to set well. But a large number have failed to mature, and the crop will be a thin one. Is this a general experience? The Raspberries growing among the Plum trees promise well.—R. D.

Winter moth, protection against.—Mr. Wilson, Weybridge, writes to say that the plan recommended in the *Agricultural Gazette* of Oct. 15, 1888, of making a ring of cart grease or Stockholm tar round the bases of fruit trees, though very effectual in catching large quantities of wingless females, had not entirely prevented them from attacking the trees, as the leaves on some specimens thus treated are now being destroyed.

Sparrows.—How easily do gardeners become biased in regard to birds according to their actions. When birds prey upon the fruit tree buds, pull up and destroy Brassica or Radish seeds, or eat off the young Pea plants, then is an entire volume of invective hurled at the naughty birds, even if powder and shot are not also utilised to destroy them. But there is another side to the picture. We see so easily the mischief which birds do, but so rarely acknowledge the good they do, perhaps because that good is not made so manifest. Now I look out of my window and see daily that a large Apple tree, the leaves of which afford ample evidence of the prevalence of maggot, is greatly haunted by sparrows, which hop from branch to branch with wondrous avidity, and pick here and there of the destructive insects, so that during one day alone they must gobble up a legion of maggots or blight. What, therefore, would be the condition of our fruit trees were there no birds?—A. D.

** Recently in a market garden we saw the sparrows busily engaged as in the instance mentioned above. On examining the points of the Apple tree shoots it was seen that they were swarming with maggots on which the sparrows had been preying.—ED.

Insects in cellar.—Enclosed you will find some specimens of a kind of insect with which we are troubled. Could you name them and suggest some means by which to destroy them? They infest a cellar.—JAS. FIELDING.

** The insect infesting your cellar is a small beetle belonging to the genus *Cryptophagus*. These beetles usually live in decaying wood. Could you

wash out your cellar thoroughly with hot water and soft soap? Boiling water will kill them if it can be made to reach them. You give no particulars as to what they are attacking or what your cellar is like, so it is very difficult to advise remedies.—G. S. S.

Chiswick Chrysanthemum Conference.—A meeting of the executive committee was held in the band tent at the summer show of the Royal Horticultural Society in the Temple Gardens, on Friday, May 31. A representative schedule of classes was drawn up, consisting of thirteen for plants and twenty-two for cut blooms, embracing all sections and methods of cultivation, with a view to obtain competition to suit all classes of cultivators and lovers of Chrysanthemums. To make the exhibition still more useful, a class was made for appliances best suited for growing and showing Chrysanthemums. The subjects of papers to be read at the conference were selected, and readers suggested. Particulars will be announced as soon as the arrangements are completed. It was decided to issue papers to a large body of growers of the Chrysanthemum for statistical returns of various subjects connected with the plant and its growth for future usefulness.—E. MOLYNEUX, *Hon. Secretary to the Conference Committee*.

London parks.—I do not know whether you ever saw Battersea Park in those days when the design was bare and in its pristine ugliness. Gibson did all that mortal man could do to hide and modify its ugly features, but, much as we have to be thankful for to him, there was an inherent cockneyism in the design of Battersea Park that was inveterate and invincible. The original style of planting was to match. As to London trees, is it really a necessity of the London climate now-a-days that we can have nothing but Planes and Poplars? They have an awful Lowther Arcade look about them for a long time. How grandly the Elm and Lime used to grow in the London suburbs. The former especially was a great tree on this side of the water, and there were some magnificent specimens. I believe the main drainage system sapped and mined them.—M. ROWAN.

Professor Reichenbach's will.—The following extract from the will of Professor Reichenbach's will surprise and interest many: "My herbarium and my botanical library, my instruments, collection of seeds, &c., accrue to the Imperial Hof Museum in Vienna, under the condition that the preserved Orchids and drawings of Orchids shall not be exhibited before twenty-five years from the date of my death have elapsed. Until that time my collection shall be preserved in sealed cases. In the event of the Vienna Institute declining to observe these conditions, the collection falls under the same conditions to the Botanical Garden at Upsala. Should the last-mentioned institute decline the legacy, then to the Grayan Herbarium in Harvard University, Cambridge, Mass. If declined by that institute, then to the Jardin des Plantes at Paris, but always under the same conditions, viz., of being sealed up for twenty-five years, in order that the inevitable destruction of the costly collection, resulting from the present craze for Orchids, may be avoided."

The death of James William Wimsett, of the firm of Messrs. Wimsett & Son, Chelsea, occurred on June 4.

Names of plants.—*B. Vulcan*.—1, *Oncidium Marshallianum*; 2, a very pretty form of *Dendrobium Wardianum*, the sepals and petals pure white saving the faintest tinge of mauve at tips; it will prove a good thing; 3, Orchids should be sent from Burmah soon after the dry season commences; 4, yes, this is an Orchid, but we should not imagine it to be a showy kind. It is a *Pleurothallis*, a genus which contains an immense number of weedy plants. If growing well, it will probably flower this season.—*Constant Reader*.—*Ceanothus azureus*.—*W. J. E.*—*Hæmanthus Kalbreyeri*.—*Daniels Bros.*—The common Butterwort (*Pinguicula vulgaris*).—*Anon.*—1, *Ceanothus azureus*; 2, the Giant Knotweed (*Polygonum cuspidatum*).—*L. H. L.*—1, *Fuchsia procumbens*; 2, next week.

WOODS & FORESTS.

ACCLIMATION OF TREES.

A good deal has been said and written both by practical men and theorists on this subject, and although much useful information has from time to time been brought forward, yet the subject seems to be by no means exhausted. That trees that are not altogether hardy can be rendered so to a certain extent we have abundant examples to prove; while, on the other hand, hardy trees can be reared in a delicate manner for the time being through confinement and too much shelter, yet the natural constitution of any of these trees remains the same, or at any rate is not permanently altered either one way or another, as shown by their progeny. Practical experience tells us that trees of foreign origin that have not proved to be altogether hardy in this country at all stages of their growth cannot be acclimated to such an extent as to render their progeny ever after thoroughly hardy. For example, I have raised trees of the common Silver Fir (*Picea pectinata*) from seed collected from old-established trees in this country, as well as from seed brought from the Continent of Europe, and although both were grown in nursery beds side by side and received the same treatment, yet both were cut down by late spring frosts. I think this pretty conclusive proof that the nature of the tree as regards hardiness was not changed by acclimation in the least degree. In a similar manner I have raised trees from home-saved as well as foreign seed of *P. cephalonica*, and found the results to be in every particular the same as that given for the common species. By selecting a piece of exposed ground for a seed bed and allowing the plants plenty of space to root and branch out, we can thus by the aid of superior cultural skill produce fine hardy stocky plants, but here man's control over the constitution of the plant ends, Nature reasserts her sway, and proves through the influence of frost that we cannot alter the fundamental hardiness of the tree to a larger extent than that specified.

After acclimation in this country the Larch is considered to be improved in hardiness, and there is no doubt that this is so to a certain extent; at any rate trees raised from seed sown in this country do not start to grow so early in spring as those raised from foreign seed; hence they are less liable to be cut down by late spring frosts. But then the question naturally arises whether this tardiness in growth and blunted vitality is not the forerunner of the Larch disease. If the constitution and hardiness of the trees were improved to such an extent as some writers would seem to imply, one would naturally be led to expect the vitality and vigour of the tree to be increased in a uniform proportion; but such is not the case, and it seems rather strange that we cannot now grow the tree in anything like perfection in many parts of the country where it formerly flourished and attained a fair average size of timber. These are points of importance, and when we contrast them we find that they cannot be reconciled in favour of the doctrine of acclimation. Then again, home-saved Larch seed requires to be sown about five times thicker on the ground in order to produce a crop of plants equal in number to that of foreign seed, so that the vitality of the seed is clearly affected, as well as that of the plants, and this leads me to prefer trees raised from plump sound seed collected from healthy trees growing in their native habitats. I can see nothing to justify us in believing that the constitution of the tree and its healthy development have been in the least degree improved by

acclimation in this country, but rather the reverse, as the trees themselves show.

Whole plantations of young Larch trees have occasionally died off in parts of the country without showing any external appearance of disease of any kind, and as such trees were raised from home-saved seed gathered from acclimated trees, we are naturally led to the conclusion that their death was brought about by the impaired vitality of a degenerate offspring. Of course, soil and climate have a great influence in promoting the growth and healthy development of the trees, but, taking all these circumstances into account, we must trace success or failure in a great measure to the robust health and vitality of the plants. This lack of vitality in the seed and plants appears to me to be the first stage of the Larch disease proper, for although many writers on the subject speak of ulceration, blister, rot, &c., as the Larch disease, yet the origin of such can be clearly traced to different sources, and by mixing them up together as meaning one and the same disease only leads to confusion. Writers who tell us that the Larch has been so much improved in hardiness in this country warn us almost in the same breath against using Continental Scotch Fir, which, according to their doctrine, cannot be acclimated or improved in hardiness and the texture and quality of the wood which it produces. Granting this to be the case, yet the two statements cannot be reconciled, for this reason, that if the Larch were capable of being so much improved in constitutional hardiness, surely the Continental Scotch Fir, which is even a hardier plant than the former, could be improved in hardiness in a similar ratio. Such is not the case, however; consequently the doctrine of acclimation falls to pieces. The foreign Scotch Fir (*Pinus sylvestris Hagenensis*) has been grown in this country for many generations, yet it has neither improved in hardiness nor the texture and quality of its wood as compared with that of the native Highland Pine, and this is borne out by actual experience in planting both kinds on exposed Heather ground, as well as by cutting up the wood of matured trees grown under similar conditions as regards soil and locality. In discussing the merits of the Scotch Fir as a timber tree, "J. S. R.," in THE GARDEN, May 18 (p. 472), says—

Very little, if any, notice has been taken of how far the different varieties of the Fir influence the quality of the timber. That there are two descriptions of timber in this country is undoubted, &c.

This is perfectly correct. The matured wood of the native tree is of a hard, firm, close texture, red in colour and very resinous; while that of the foreign acclimated tree is of a whitish colour, soft in texture, and far less resinous than that of the former. When cutting up both kinds at the sawmill, the sawdust of the inferior tree when pressed in the hand feels soft and woolly, while that of the other is hard and firm, so that the quality of the wood can be known by this test alone. No better illustration of the fallacy of improving timber trees by acclimation could be given. J. B. WEBSTER.

The Silver Birch.—I have often felt surprised that this tree should not be more extensively planted in pleasure grounds, parks, and on large estates generally than it is. In manner of growth it is so graceful and so distinct from other forest or hardy trees, as to render it eminently fitted for purposes of isolation. A large, well-developed tree, so placed that its natural habit is fully displayed, forms a very pleasing feature in the garden landscape, not only when in full leaf, but also during the winter months, when, denuded of foliage, its characteristic features are more fully revealed. The graceful spray-like pendulous growth and

silvery bark show up charmingly against the fresh bright turf of a well-kept lawn, a tree dotted here and there about pleasure grounds doing much towards relieving them of their sameness, and, where Evergreens are largely employed, somewhat sombre aspect during the dull months of the year. There is, however, a variety of ways in which the Silver Birch might be employed. It has a very pretty appearance when so placed among coniferous trees and evergreen shrubs that they form a background to it, in such a manner that the head of the Birch stands out clear and well defined, whilst the white stem is, as it were, framed in verdure. In parks, good use might be made of this tree by grouping it here and there in such a manner that the bright stems would be distinctly visible when the foliage was off. I may mention, however, that there is considerable variety amongst the Silver Birches, some having the bark much more silvery than others, and having consequently, from an ornamental point of view, a much higher value. It is a pity that seeds should be saved from inferior varieties. Were a rigorous selection made, choosing only those trees remarkable for their clean white bark, a great improvement would in the course of time be manifested, and the value of this tree from a decorative point of view would be sensibly increased.—J.

The Black Italian Poplar is admirably fitted for a fence in moist soils. Plants one year old, which are generally about 4 feet in height, will form a tolerably good hedge the first year. If the soil is dug over and manured several months previous to planting, strong cuttings may be inserted about a foot apart, and these will make shoots varying from 3 feet to 5 feet in height during the first season. At the end of the second year, during the month of November, the top of the fence should be regularly reduced with a hedge-bill to the height of 5 feet. This will strengthen the sides of the fence, and, consequently, increase the stability of the stems. A very good plan is to tie rods of wood to the young trees at 2 feet or 3 feet from the ground, until they have become sufficiently strong of themselves to resist the pressure of cattle. When properly attended to, by keeping them free from weeds and trimming them regularly every autumn, these fences become highly useful and ornamental, and are at once amongst the cheapest and readiest of any that can be raised. The form of the hedge should be the same as that of the Hawthorn, only a little wider at bottom, and trimmed up in a wedge-like shape, which renders it firm and neat in appearance.—J. R. A.

Filling up plantations.—Upon exposed sites much loss is occasioned and unnecessary expense incurred by using trees too large in size. The wind-waving to which these are exposed prevents the formation of new roots. Plants each from 3 feet to 5 feet in height have here a much better chance of success than larger ones. Firs under 2½ feet, seedling Larch which have been two or three years transplanted, two years' seedling Scotch, Spruce, and Silver Fir which have had ample room in the nursery, Ash, Birch, Sycamore, and Elm, two years' seedlings, two years transplanted, and Oak, Horse and Spanish Chestnuts, and Beech of the same age, are to be preferred to larger trees. All tap-rooted trees should be continually transplanted or undercut in the nursery until the time of their final removal. Such trees as are intended either for the park or avenue, and are to be placed in well-prepared ground, and to receive all the care in staking, fencing, mulching, and watering which larger plants require, may be removed of any size, provided the operation be performed with due care.—J.

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London: 37, Southampton Street, Strand, W.C.

No. 917. SATURDAY, June 15, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature : change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

INDIAN NOTES.

VERY few people in England have seen the tree commonly known as Indian Laburnum, here as "Umaltaas" (*Cassia fistula*). In the dry climate of Gwalior it thrives better than in most places in India. It, however, grows well anywhere. Just now (May) the trees are a perfect mass of canary yellow, and as I see them dotted amongst the "Neem" trees (*Melia Azadirachta*) they look beautiful. Each raceme is finer than the best spike of *Dendrobium densiflorum* I ever saw, and in appearance, at first sight, the flowers are not unlike those of some lovely Orchid. I am planting this tree largely in the borders in masses mixed with bright green foliaged trees; the effect will be fine. It is a good waterside tree, and associates well with drooping habited trees.

Another fine sight in India is a large *Casuarina* tree covered with *Bougainvillea*. The "great one" in Calcutta is in the gardens of the Agricultural-Horticultural Society. When in flower it attracts a great many people. The light feathery branches of *Casuarina* seem to match the long streaming shoots of the creeper. I noticed several trees in other gardens near Calcutta with *Bougainvilleas* planted at their roots to run up; so it seems other people appreciate it too.

This is our Melon season; fine, scented Indian Musk Melons are good by themselves with a bit of sugar, sherry, and ice. I have now before me six kinds, and if I can procure a good lot of samples, I will send you descriptions later on. I used to think Melons unfit to eat, but after eating one they call here "Lal Chittellea," I have altered my opinion. This small Melon is flatish, irregular in shape, irregularly netted, yellow, blotched and streaked with russet red, unevenly ribbed, flesh green outside, red inside, very thick, solid, sweet and luscious, the flavour excellent. We cannot grow English Melons. In England the very richest stiffest loam is used for cultivation; here that would mean instant death. We grow them in sand best—rich sand, the dry bed of a watercourse, manured heavily. The bed of the Ganges in some places is an immense Melon bed, and often brings in a big revenue; besides the Melon cultivators pay enormous rents for the land, and often, as this year in Agra, a flush of water comes down and sweeps all away, leaving the poor cultivator penniless. English Melons seem to be the special object of attack of all kinds of pests, particularly a small red beetle that simply swarms on them, and devours every particle; even when there are none on the Indian plants, the English varieties suffer. This year I have a few fruits, but they are late; perhaps if I could get seed grown here they might do.

ROADSIDE PLANTING.—In India, wherever the British soldier goes to stay, if on his arrival it is a barren rock, he soon makes it a garden, or at any rate a green spot. Where I live now (Morar) is one of these reclaimed bits. This cantonment was formerly in British occupation, but when Gwalior Fort was given up to the late Maharajah Scindia of Gwalior, Morar was vacated too, and given over with the fort. All the roads for miles are lined with trees—fine trees too—but not very well planted. Still it is a great improvement on most stations in

India. Roadside planting in India is done to an enormous extent, more in a quiet sort of way by private individuals, or rather men in Government offices, such as collectors, residents, and others, than people in England or Government headquarters hear of. One gentleman planted some miles of Mango trees—fancy miles. These, I hear, bring in a revenue of four annas per tree. Here Neem (*Melia Azadirachta*) is the principal roadside tree. This was planted evidently because it was difficult to get anything else to grow, owing to water being so scarce. There are miles of Neem trees here, but they are mixed up with such trees as *Millingtonia hortensis*, *Acacia speciosa* (Sirris), both inferior trees and short-lived. This mixing up of bad trees is a great evil in this country. A few trees of some unsuitable kind often spoil what might be a beautiful shady drive. There has been a lot of writing in the Indian papers lately about cutting down trees on roadsides in Lucknow. I think Mr. Ridley was perfectly right when he cut out a lot of ugly Cotton trees, which only look well in the forest. These Cotton trees were planted as roadside trees for shade. They have no leaves on them for six months in the year, and that the hottest part, and afterwards one is blinded and half choked with the fibre from the seed vessels flying about for days. Some knowing individual appealed to the public and wrote a lot of long letters about this, but was rather quietly sat upon. These Cotton trees were cut down to give room to a fine lot of young Tamarind trees planted by Mr. Ridley, the able superintendent of the Government Gardens in Lucknow. But this act on the part of some official, I suppose, shows how much a man's work is thought of out here, where everybody thinks he knows more about one's profession than the man himself. I may add that the Tamarind is the finest avenue tree in India, and one that grows in the driest places, gives the best shade, and is a cool tree. Some trees are not cool. The natives say that if you sleep under a Tamarind you get fever. Why is it? Some of the handsomest specimen Tamarinds I have seen are in Bengal. In this dry part of India the Date, Tamarind, Neem, Jhamun, Mango, and Peupl are the finest trees for roadsides; in fact no other should be planted. In a future letter I shall give you an idea how they plant trees in Calcutta, where a clever lot of professionals and amateurs meet together every month for horticultural work. The first thing to do (tree planting) has never been studied in the eastern City of Palaces. What a glorious place it might be!

C. MARIES.

CLIMBER-CLAD BRIDGES.

THANKS to "C. C." for his charming note on these (*GARDEN*, June 1, p. 497). There is but one blot in it, and that is that bridges have a tendency to destroy the beauty of good landscape gardening. This is impossible provided the bridge is wanted for convenience and the character of the ground suggests the necessity for it. Like many other good things, bridges have disappeared from modern landscapes through their excessive use, and it is not so very long ago since few landscapes were considered complete without a bridge or bridges, whether any water had to be crossed or not. From this plethora of bridges it was only natural that there should be a severe rebound into none; and hence it has come to pass that rockwork, waterfalls, or mere stepping-stones or planks have been substituted for bridges—certainly not always to the improvement of landscapes nor the comfort or safety of passengers—across rivulets or streams.

Landscape gardening has, however, become more truthful as well as more picturesque; consequently bridges, climber-clad or otherwise, are likely to be-

come more plentiful in the landscapes of our near future. Why, indeed, fear to erect a bridge where it is needed, and see to it that the bridge itself and its environment are converted into a thing of beauty, and if not a joy for ever, at least a real convenience to its users and an enrichment of the general landscape!

What may be called architectural bridges are mostly beyond the sphere of most landscape artists; but rustic bridges, whether of wood, stone, blocks of cement, concrete, or iron, are quite within the reach of garden architects. It is a fundamental mistake to suppose that rustic bridges can only be made of wood, or even of rough unsquared wood with the bark on. Such notions used to be prevalent where rustic bridges were most used, and have given rise to a good many serious accidents. Not a few of the most rustic bridges have been built with rough rocks or stone and clad chiefly with Ferns, with here and there a wild Rose, Traveller's Joy, or other tangled climber.

The first structural consideration should be perfect safety in all conditions of flood or otherwise of the stream or torrent. The second is durability of structure, for various reasons; chiefly that all such structures are not only mellowed, but immensely enriched by lapse of time. The natural Mosses, Lichens, Lings, Grasses and other wild plants give touches of nature to rustic bridges that make them kin with it far more effectually than our ponderous suits of more artificial clothing.

Finally, our bridges in landscapes must be made beautiful. Had we not seen and known to the contrary, we should have thought it impossible to build an ugly bridge over dell or burn. Every form of curve or of arch is but a different phase of the line of beauty. Clothe these bald forms with beautiful Ferns, drooping climbers, or rambling creepers; enrich all this with the sight and sound of water in every imaginable volume of size and condition and rate of motion, and the bridge allures us across it with a light-footed spell, or soothes us to rest in the midst of its beauty. This combination of seat or rest and bridge might often be associated where cultured art and instinctive taste post bridges in the eye and heart of the landscape, and force them to contribute to its highest charms.

D. T. F.

ROSE GARDEN.

ROSE MARÉCHAL NIEL CULTIVATION IN THE OPEN AIR.

FROM the colour of the Maréchal Niel in the open air to its culture is a natural and easy transition, though perhaps hardly enough has been said of the variation and depth of colour of this best of all the golden Roses. It has been even said by some that the Maréchal fades into deeper colour and higher beauty. If so, this is probably a unique experience among all our Roses, with all of which the colours run out rather than in through long keeping. It is more certain that colour is burnt in or painted on heavily by the plants being grown in the fierce light of south walls in the open air.

What though some of the open-air Roses may be smaller than others grown indoors. The smaller Maréchal Niels are usually the more useful. The fat flowers, filled with weight and gold, are almost too uniformly lumpy to prove artistic. The colour becomes more rich and varied, the form more pointed and graceful as the flowers become less ponderous in size. But the greatest merit of growing the Maréchal Niel in the open air is that, combined with its culture under glass, this enables us to almost girdle the year round with its golden beauty. Under glass the Maréchal Niel as a rule blooms but once a year; out of doors twice, or even oftener. I have even had Maréchal Niel in bloom from May to November in the open air.

No doubt long and constant succession of bloom depends considerably on culture as well as place of growth. But no one, so far as I am aware, has succeeded in forcing the Maréchal into being a good summer or autumnal blooming Rose under glass;

and yet it frequently blooms twice—sometimes oftener—in the open air. First in May, or early in June, and again in August or September, or later. Under other treatment it occasionally blooms, if not perpetually, yet so long and closely in succession as to deserve that name almost as much as the well-known Gloire de Dijon. Let me not be misunderstood. I do not put the Roses on a par for freedom of flowering so far as amount of bloom is concerned, but rather in regard to its continuance. With large stocks of *Maréchal Niel* in the open, as well as several under glass, there need be very few months in the year when this best of all golden Roses may not be had. To this end a considerable area of wall in all possible aspects, not even excluding north, should be devoted to its culture. The object of the cold aspect is to retard the natural period of flowering for two or more months. *Maréchal Niel* will not succeed in all soils or seasons on a north or an east wall; but soils can be improved by drainage and substituting light friable loams for heavy loams or clays, and every now and again we have exceptional seasons when our finest *Maréchal Niel* will be obtained from our coldest walls. Southerly and westerly walls or fences may be depended on to yield good harvests of this fine Rose in average seasons and on average sites and soils.

In succession to walls, and as yielding the surest crops of this Rose, next to walls and most curious of all in their erratic inexplicable succession of blooms, standards on the Dog Rose of different sizes, ages, and height are the most useful. Youthful rosarians will probably exclaim, "Height, age, size, shape! what have these to do with long succession of bloom?" I cannot fully explain. Only this, I have seen that the oldest, tallest, largest standards have yielded most flower and the longest succession. Next to these I prefer wild, free-growing bushes on bed, border, or fence for this purpose. Let the *Maréchal* have its head and prune little or not at all if you would have flowers out of season, or hope to force the *Maréchal* to be always in season.

Another useful cultural expedient in pursuit of the same object is to prune tentatively a branch or a limb at a time. So soon as a branch is done blooming cut it back, and thus force it to break afresh, successional pruning thus proving the cause or powerful ally of successional blooming.

There are yet other methods of culture that favour the same object, that of the successional blooming of *Maréchal Niel*. Let the knife follow sharp on the heels of the fading bloom, cutting the flowering shoot boldly back to a strong bud or fresh branchlet, and thus throwing all the strength of the roots into a few vigorous branches, which will probably show a bunch rather than a solitary bloom.

One more method may be named. While the other branches are yet blooming, or before they do so, stop a few of the more vigorous shoots, even should a few blooms be sacrificed by doing so. So soon as the rank and file of the first blooming branches can be spared, cut them out and bend down the strong succession shoots into their places on wall or fence, bed, or border; the latter will frequently break into bud, and flower almost along their entire length, and will go on expanding their golden blossoms until arrested by the cold iron hand of the frost.

Finally, there are two opposite modes of feeding adopted with the *Maréchal Niel* to force it to bloom freely in season and out of season. These may be pithily described and correctly contrasted as the *régimen* of gross feeding and semi-starvation. Either may prove most successful according to climatal and other conditions. The more favourable the surrounding circumstances the better chance for the full *régimen*. The colder the soil, the more ungenial the climate, the more likelihood of the *Maréchal Niel* being starved into a fair or full supply of flowers in the open air, either in or out of season or at all, or any time from May to November.

I do not affirm that the *Maréchal Niel* Rose is hardy; there is all too much and too solid evidence to the contrary. It is, in fact, one of the tenderest, if not the very tenderest of all the Teas, if indeed

it be a Tea, and is often crippled and sometimes killed outright by frost. Still with ordinary or extraordinary skill and culture and by the use of simple means of protection, it may generally be relied on to fill up a most useful niche in our insatiable demands for golden Roses, not only through the early spring, but throughout the summer and autumn months, when golden Roses are apt to be specially scarce and hence more valuable.

D. T. F.

Austrian Briers.—When visiting an old-fashioned garden the other day I saw a fine plant of the Austrian Yellow Rose trained to a wall, as also a much smaller one of the copper-coloured variety associated with it. The yellow sort had grown to a height of about 6 feet and was covering a space quite 8 feet wide at the time I saw it. That part of the wall which the yellow one covered was literally a sheet of colour, while there were just sufficient flowers on the other plant to make the contrast pleasing. Had the two sorts covered the same amount of space I do not think anyone could find a more pleasing feature amongst hardy yellow Roses. I occasionally meet with both the Austrian and the double Persian Roses growing in the form of large bushes, and also treated as hedge plants, and although they flower well, the blossoms are not so freely produced as in the case of those plants trained to a wall. The plants in question are upon their own roots and send out suckers freely. It is very certain that plants raised in this way not only grow more vigorously, but live longer.—J. C. C.

Rose Marechal Niel.—I know a *Maréchal Niel* that has lived out of doors for years in a garden in Norfolk. In a hard winter some few years ago it was nearly killed, but it grew all the stronger in the spring and flowered well. I had a beautifully coloured one growing against my house near Windsor, with a south aspect. I have here flowering at the present time and grown against a trellis two large plants of Cloth of Gold. The colour of the blooms is not quite so good as usual. All other Roses are promising well and are most healthy. *Niphetos* has bloomed very well this year in the house, but it does also well out of doors. Carnations are looking very healthy, and will bloom earlier this year than last. *Mme. Gabriel Luizet* and *Mme. Lambard*, of which so much has been written lately, could not be doing better; the former shows no sign of mildew.—G. A. CURZON, *Hollywood, Boscombe, Hants.*

CHRYSANTHEMUMS.

E. MOLYNEUX.

FINAL POTTING.

THE last stage in the potting of the plants having now arrived, I will offer a few remarks upon the best method of carrying out the operation. The final potting of the plants is very important. Having previously recommended the ingredients, I will give now the quantities of each, and describe the operation of potting the plants. It is a difficult matter to advise the mixture best suited to all, as the constituent parts of the soil vary so much in different localities, but if I divide them into two kinds, heavy and light soils, it may serve a useful purpose. Taking first the heavy soils, I would advise as follows: Three parts of fibry loam broken up roughly, taking out the fine soil by passing it through a small mesh sieve, retaining nothing but the fibre; one part of decayed leaves, removing sticks, stones, and worms; one part of horse manure from a spent Mushroom bed, if none fresh is obtainable; one part of coarse silver sand, and half a part of charcoal and wood ashes, the former to be used in a rough state, say about the size of small walnuts. To every four bushels of soil add a 6-inch potful of soot. For this class of soil I prefer dissolved bones to ground bones, for the reason that the latter have a decided tendency to produce yellow or pale-coloured foliage, while the former have an opposite effect, producing in all cases foliage of a deep green colour. Where the loam is light in texture use four parts as fibry as possible, add one part each of horse manure and

half-decayed leaves, half a part of coarse silver sand, the same quantity of ground oyster shells, half a part of finely crushed bones, and the same quantity of soot as advised for the heavier soil. Thoroughly incorporate the various parts, using all as roughly as possible. The use of bones, either crushed or dissolved, is not necessary in order to obtain good blooms. Where any difficulty exists in obtaining the bones named recourse can be had to artificial manures, specially made, of which there are several which answer well for *Chrysanthemums*.

To obtain the best results it is necessary to pot the plants firmly, and then they will grow strongly and produce large vigorous leaves and stems. The branches as they grow should become hardened and in time properly matured, or failure results. Well ripened wood always produces flowers of the finest quality, and they remain in perfection the greatest length of time, forming quite a contrast to those blooms produced from plants having unripened stems, which quickly show an "eye" when placed in a heated building where gas is much used. The soil should be rammed firmly with a blunt stick. When the plants are thus potted the growth is not so rapid early in the season, but it is rendered solid and firm, and is more likely to mature in a wet season.

In soil of a light character it is hardly possible to pot too firmly, but it is not wise to overdo this when the soil is heavy. Careful and free drainage is essential to success. The pots and crocks used should be perfectly clean, and the latter free from grit. For the largest pots 2 inches of drainage is not too much, allowing a little less for smaller pots. The piece placed in the bottom of the pot should be large and quite hollow. Single oyster-shells answer admirably, the smaller crocks being placed carefully around and over these. Over the drainage put a layer of the roughest parts of the compost to prevent the fine soil running down and thus preventing the free egress of water. The best material for this purpose is pieces of thin newly-cut turf, as this does not decay so soon and is not so liable to clog the drainage. Where the turf is from heavy soil use rather less of it, adding some charcoal and a few fresh leaves. Some cultivators use all leaves to cover the crocks, but I do not like them nearly so well as turf, as they prevent the roots running through them freely.

If a small quantity of soot is spread over the rough part of the compost it will act as a stimulant, and prevent, to some extent, the ingress of worms when the plants are standing out of doors. Do not cover the top of the ball of soil too deeply, and leave a depth of about 1½ inches to allow space for water and top-dressing at a future time. If the soil is moist at potting (as it should be) no water will be required for three or four days, after which time a good soaking may be given if the weather is dry, but an occasional wetting of the foliage with the syringe will be found beneficial in the afternoons of fine days. The plants should be placed behind the shelter previously advised for a few weeks until their permanent summer position is got ready for them. Care should be taken that they are not crowded too closely together even in the protected position, as it would be quite a mistake to induce a weakly growth at the start, which must take place if the foliage does not receive sufficient light and air. To prevent the soil being washed off the roots lay a 2-inch square piece of tile, slate, or broken pot on the surface, and upon this pour the water.

Chrysanthemum Mme. C. Desgrange.

Some of the earliest plants of this variety which were topped once at 4 inches from the soil are now showing flower-buds at the point of each shoot. The plants have from three to six branches each and are about 2 feet high. These buds if allowed to remain will develop into blooms of good quality, and will open towards the end of August and early in September, when no doubt such plants and blooms will be found suitable subjects for conservatory or room decoration either as plants or in a cut state. Allow one bud only to each shoot to remain, removing any others which have formed. In this

way the whole energy of the plants is concentrated into the few blooms upon each. Our plants are now in 6½-inch pots, and in them they will flower, as we have another batch to succeed those, and these will go into 8-inch pots. The plants will be daily fed now until the blooms are thoroughly developed. Such small pots are not sufficiently large to hold soil enough to sustain the plants throughout the flowering period without stimulants of some sort.—E. M.

Chrysanthemum Fair Maid of Guernsey.—I was much interested in reading your note on this Chrysanthemum, as it flowered with me well during April up to the middle of May, much to the astonishment of myself and friends. I cannot say its late flowering detracted in the slightest from the beauty of its elegant blooms.—R. B. M., *Annan, N.B.*

NOTES OF THE WEEK.

Cypripedium bellatulum.—We have received flowers of a good form of this Cypripedium from Mr. C. J. Catt, The Gardens, Grappenhall Heyes, Warrington.

Iceland Poppies.—These are admirably adapted for warm light soils. Unlike many of the Poppies, there is at times a delightful scent given off by them. A mixture of the three colours—white, yellow, and orange-red—is very effective.

The Ramondia on a wall has been good here, three plants in one patch bearing 100 flowers. The white variety also is nice, but not so good as the lilac. Our form of white is a little flesh-tinted, and the flower is not so bold as that of the type.—F. W. B.

Carnation Souvenir de la Malmaison is especially well grown by Mr. Cole at Feltham. This variety is in fashion just now for button-holes, and the pink-coloured type has the preference. But this pretty kind is not constant. It frequently reverts back to the normal white variety.

Orchids from Bexley.—A fine gathering of Orchids comes from Mrs. Arbuthnot, Bridges Place, Bexley, Kent, comprising an excellent variety of the showy Oncidium Marshallianum, Miltonia vexillaria, Odontoglossum maculatum, O. Ruckerianum, and Cypripedium Sanderianum.

Conophallus Titanum at Kew.—This giant Aroid will shortly be in full flower in the Victoria house at Kew. Everyone at all interested in plants, and especially Aroids, should not lose the opportunity of seeing a marvellous form of plant life. It is a native of Sumatra, from whence it was introduced in 1878. The tuber weighed 57 lbs. about two months ago.

Geranium platypetalum is one of the showiest of the Crane's-bills and a glorious border flower. There is an exceptionally large mass of it in the fullest splendour in the Broxbourne Nursery. Scarcely a leaf is visible through the profusion of the rich violet-purple flowers, each about the size of a crown-piece.

Utricularia Endresi and montana.—Racemes of these lovely Bladderworts come from Mr. C. J. Catt. U. Endresi is one of the most beautiful of the genus, the flowers soft blue in colour. Mr. Catt also sends U. montana, a flower of great purity, and well shown in a coloured plate in THE GARDEN, Dec. 2, 1882. These two Bladderworts are two of our choicest exotic stove plants.

Thrift edgings.—We were reminded of the beauty of the common seaside Thrift by the luxuriant edgings of it at Broxbourne. Messrs. Paul and Son have done wisely to plant it freely. The variety alba is also blooming. It is like the common kind, except that the flowers are white. The double white Pink is used largely for edging, and there are many yards of it in flower.

Azalea indica alba in Devon.—I enclose a photograph of a plant of the old white Azalea indica alba growing here out of doors on a south-east border in the flower garden. The plant flowers freely every year, and now measures 9 feet through and 5 feet high.—J. CARTER, *Arlington Court, Barnstaple.*

*** Many thanks. The photograph is too obscure to obtain a good engraving.—Ed.

Saxifraga longifolia.—I send you herewith a photograph of a group of Saxifraga longifolia taken in my garden on the 8th inst. by my nephew, Mr. W. E. Methven, of Dundee, an amateur photographer. The plants were all raised from seed six or seven years ago from a plant which was then in flower. The rosettes of leaves are from 4 inches to 14 inches in diameter.

Should you think of having it engraved for THE GARDEN, you are quite at liberty to do so.—E. MOIR, *Craighead Villa, Newport-on-Tay.*

*** Many thanks. We shall be pleased to engrave it.—Ed.

Lilium tenuifolium is a most beautiful species, and the wonder is it is not oftener seen in cultivation. It is one of the earliest to flower, dwarf, rarely exceeding 1 foot to 1½ feet in height, and produces a cluster of about a dozen flowers of the most brilliant colour, like varnished sealing-wax. Owing to its flowering so early it is all the better for a little protection. Native of N. China, &c.

Lilium umbellatum, or as growers still persist in calling it *davuricum*, is most probably a hybrid between L. davuricum and L. croceum, and in consequence is very variable, both in the size and colour of its flowers and the length and breadth of its leaves. It is, however, very hardy, and very easily grown. It seems to do well in London, and thrives well in ordinary soil, rather poor than otherwise.

Two dwarf Rhododendrons of considerable beauty on the Broxbourne rockery of Messrs. Paul and Son at the present time are R. myrtifolium and R. Wilsoni. Both are dwarf in growth, spreading, and just the kind of shrub for the rougher parts of the rockery. The first of the two mentioned is a variety of the well-known ponticum, the flowers pinkish, small, and borne on neat heads. R. Wilsoni is a hybrid between R. ciliatum and R. glaucum, and has pretty pinky flowers.

Iris orientalis is a splendid Flag from Japan and Eastern Siberia. It is figured in the *Botanical Magazine* as *sibirica sanguinea*, but *sibirica* and *orientalis* are quite distinct, although there are points of resemblance between them. The flowers of *orientalis* are larger, richer in colour, and more fugitive than those of *sibirica*. A large break of it in the Broxbourne Nursery is the finest patch we have seen. The luxuriant growth, rich blue flowers, and stately habit constitute this one of the finest Flags of early June.

The Fuchsias on the roof of the greenhouse at Kew are again a mass of bloom, and excite a great deal of admiration from the many visitors which frequent this house. When trained up the rafters in this way Fuchsias have a charming effect, as the branches droop naturally and show off the flowers to advantage. The good old variety *Monarch*, which is used here for this purpose amongst others, is hard to beat.

Iris germanica var. Fontarabie.—Of the many forms and varieties of German Iris I know of none to equal this; the plant is so free, so compact, and so free-flowering. The flower-stems are from 12 inches to 18 inches high, the upper half almost entirely concealed by the very large, massive blue-violet standards. The falls are very long and much deeper in colour; the standards are conspicuously broad, the upper half falling inwards, thus giving the flower a ball-like appearance and distinguishing it at once from other varieties.—R. P., *Holgate, York.*

Orchis foliosa.—Amongst all the hardy terrestrial Orchids known to me at present, none are so easily established, or continue increasing with such rapidity as this. Though a native of sunny Madeira, it stands our trying winters without being in the least injured. This is rather remarkable considering the difference of temperature and the length of our damp sunless season. It seems to thrive most vigorously in a bog or damp situation. I find, however, that it always produces stronger stems and better coloured flowers when exposed to full sunshine. It may with advantage be grown as a greenhouse plant in pots in a compost of equal parts of peat and finely chopped Sphagnum. The first flowers opened soon after the middle of May, and they are now almost as fresh as ever.—K.

The Mocasson Flower (Cypripedium spectabile) is now flowering in the rock garden at Kew. The position differs somewhat from that in which it is usually seen growing, but the bog may account in a great measure for the success. The stems are very luxuriant, carrying a couple of flowers each, the slipper white, with a large deep rosy blotch in front. In America it grows in woods, &c., but at Kew it is fully exposed to the sun, and is really doing well. Our native Cypripedium is a grand plant, which requires a chalky soil, and when

treated well grows very strongly and flowers freely. C. pubescens, parviflorum, japonicum, macranthum, and acaule are all worth trying.—K.

Rose Marechal Niel in the open.—I send you by rail early this winter-like morning a few pickings of our Maréchal Niel from the open air. They are by no means the largest nor the finest we have had, as the flowers were closely gathered at the end of last week, and I was also desirous of showing you a fair sample of our average gatherings. The out-of-door Maréchals are also under average size and quality this year.—D. T. FISH.

*** Hearty thanks for these well-formed flowers. Please tell us on what stock you grow it in the open air.—Ed.

Verbascum olympicum.—In THE GARDEN, June 8 (p. 522), a notice is given of Verbascum olympicum. It may interest your readers to know that it has grown with me this year as high as 8 feet and is still growing, with over fifty branches, and is really worth seeing. Another plant is 7 feet high. The spike grew 5 inches each twenty-four hours. I obtained seed three years ago. Two plants only flowered this year for the first time; three other plants of same age show no sign of a spike.—ROBERT WARNER, *Broomfield.*

Achillea mongolica.—This is a closely allied species to the well-known A. Ptarmica. It grows quite as freely, though a little more slender than A. Ptarmica. The blossoms are produced in terminal corymbose clusters. The flowers, each about 1 inch in diameter, are very full, well formed, and of snowy whiteness, and are produced in great profusion for a considerable period. It is indeed a first-class border perennial. It will be a most desirable subject for bouquet making owing to the purity in colour and the flowers lasting so well when cut. In one of the herbaceous beds at York there is a considerable quantity of it now in blossom, from which I have cut the example sent.—R. P., *Holgate, York.*

Ixias from Holland.—No other genus of bulbous plants now in bloom exhibits greater brilliancy of colours than Ixias, the various tints of red, yellow, pink, green, and white blending together in a most beautiful way. Especially in our rich, sandy soil these bulbs succeed marvellously well. When planted not earlier than about November in a loose, well-worked soil on a warm situation, with a good coat of leaves or reeds to keep off the frost in winter, Ixias will succeed in any garden and never fail to give the greatest satisfaction, considering the freedom with which they flower, their bright colours, long and firm flower-stalks, and the length of time they last in water when cut. I forward some bunches of cut flowers, comprising all the newest and many of the best old varieties.—C. G. VAN TUBERGEN, JUNR., *Haarlem.*

*** A very beautiful gathering.—Ed.

Note from the Isle of Wight.—I think that *Littonia modesta* and *L. Keittii* are scarcely so select as you imagine them to be. I have had them both here for some few years. The treatment which they require is exactly that of the more tender Gladioli. As you say, they are very pretty. Mine have been in the open border for some few weeks, and they are now 3 inches or 4 inches above the ground. I have several times seen a notice in your columns and elsewhere to the effect that *Primula Parryi* is a lover of cold. That seems to me to be a very odd statement indeed. If it be the case—which I do not doubt at all—that it flourishes on the margins of icy streams, it is equally certain that it will put up with a great many degrees of heat. It is perfectly contented with the climate of the Isle of Wight, and blossoms abundantly. I remember seeing it doing very well last year in Mr. Boyd's garden near Melrose, and the only conclusion which I could come to by comparing his surroundings with mine was that *Primula Parryi* is a very accommodating plant, and that neither heat nor cold affect it at all. *Gladiolus vinulus*, which I raised from seed kindly given to me at Kew four years ago, is now in blossom in the greenhouse for the first time, and delights me exceed-

ingly. It is an exceptionally pretty flower. My latest acquisition is in the shape of a perfectly white Dandelion from Japan. I see no difference between it and our ancient enemy which we seek to extirpate as much as we can, excepting in the matter of colour. One is white and the other is yellow; one is very scarce in this country, and the other, alas! can hardly be called a rarity with us. But certain it is that my white Dandelion draws a full amount of attention at present to itself. When it has become plentiful in my hands and seed abounds, I shall scatter some of it in places where its fellow is growing, and then leave it to the wisdom of posterity to descant on the extraordinary change which has come over our wayside flower, and to decide whether it be the soil or climate or both together, or something else in the Isle of Wight, which has produced the phenomenon. It so happens that another white flower (*Lewisia rediviva alba*) is in blossom on my rockery. It would be difficult to say that it very much excels in point of prettiness the humble stranger from Japan.—H. EWBANK.

Lithospermum graminifolium.—All lovers of rock and border plants are well acquainted with the lovely blue *L. prostratum*. I think, however, it may safely be said few have as yet made the acquaintance of the one under notice. It is so totally unlike its relative *L. prostratum*. In *L. graminifolium* we have a plant forming large tufts, with Grass-like leaves, but with woody stems. At this season the flower-scapes rise from the midst of this Grass-like tuft. The spikes are each from 4 inches to 8 inches high and are surmounted by a cluster of drooping, bell-shaped blossoms of the most intense brilliant blue. The plant, so far as I have seen, prefers deep rich loam and stones in an elevated position and well exposed to the sun. It also makes a charming pot plant.—R. P., *Holgate, York*.

The **Phyteumas**, though not by any means numerous, are a very useful and interesting group of alpine. They are comparatively easy to manage as rock plants, and when established form charming little groups of curious purple-blue flowers. *P. comosum* is perhaps the best as a rock plant; its large heads of long tubular flowers are very pretty nestling amongst the cut leaves. It thrives best on limestone. Native of South Europe, Lake of Como, &c. *P. hemisphericum* is another useful species, thriving in a light, rich soil with plenty of grit. The flower-heads are smaller, the tubes shorter than those of *comosum*. *P. pauciflorum* is a very dwarf species, rarely exceeding an inch in height, the leaves narrow, in rosettes, the heads large for the size of the plant, purple-blue. *Orbiculare*, *Halleri*, *spicatum*, *Scheuchzeri*, &c., are all taller, but they are most beautiful plants, and indispensable for the rock garden.

Polygonum sphærostachyum.—This is without doubt one of the finest acquisitions to the alpine garden of recent years. It is perfectly hardy, easily managed, and produces flowers of the most brilliant hue in great abundance. It appears to be most nearly allied to the well-known *P. viviparum*, which, however, has longer and narrower flower-spikes, the flowers pink. *P. viviparum*, as the name implies, forms small bulbils which begin to grow before they drop. In *P. sphærostachyum* the heads of flowers are globose or roundish in shape, the individual flowers of medium size and of the most brilliant blood colour. It is a very slow grower and appears to take a long time to form a good-sized tuft. This can be facilitated, however, by taking care of the half ripe seeds or bulbils, which usually drop when quite green. They must be watched and gathered as they begin to drop and sown in a cold frame. Native of the alpine regions of the Himalayas.—K.

Delphinium nudicaule.—The best by far of the early Larkspurs is *Delphinium nudicaule*. Though the flowers are perhaps not so brilliant as those of *D. cardinale*, they are produced in greater profusion, last longer in beauty, while the plant is altogether dwarfer and more compact in habit. The only way I can manage it is to sow seed annually and plant out in the permanent quarters

either in autumn or spring. If left until spring, planting should take place early, as it is amongst the first to flower, but by successive sowings it may be had in bloom right through the summer. Another handsome species of a different stamp is *D. cashmerianum*. It rarely exceeds 12 inches to 15 inches high, the flowers numerous, large, and of a light purple colour, varying in seedlings from mauve to dark blue, &c. It is a fine plant for the rockery, and may be increased easily from seed.—K.

— This is certainly one of the most brilliant hardy flowers at present in the border. Its bright hue is in remarkable contrast to that of most members of the beautiful Larkspur family in which shades of blue predominate. The flowers are produced very freely even upon small plants, and they last a considerable time in beauty. It seeds freely and may be easily increased in this way. Coming as it does from warm districts in South America it requires a warm soil, but anyone having a sandy loam will find it do perfectly well.—A. H.

REFRESHMENT BOOTHS IN PUBLIC PARKS AND GARDENS.

THERE is one great blot in our public gardens that should be removed in the interest of peace and quiet—it is the restaurant booths, ginger beer and sweetstuff stands that disfigure our open spaces to an extent that frequently destroys the very object for which they were intended—rest and quiet, a leafy refuge from the noise, bustle and dirt of busy streets. We have lately been in the Paris Champs Elysée, and were there struck with the restaurants of every kind—ugly, trumpery buildings that have a spotty effect, and absolutely destroy the beauty of the gardens. Unfortunately, we have no need to journey to France to find similar instances of the same kind of thing, as our London parks and gardens afford many illustrations of such vulgar, unsightly and totally unnecessary innovations. There is not the slightest need for such erections. The articles that may be purchased there—and they are usually sweetstuffs—can always be obtained a few steps away; and then we have to count the dirt, noise, traffic, or crowds that such attractions bring. These booths are most objectionable when they are away from the outskirts of the park and given a central position, as at Finsbury Park. This is a comparatively small open space, yet it has a very large Japanese-like structure in one of its most beautiful spots, and where stony gravel now replaces what was once a pretty expanse of green turf. This is a flagrant instance of the abuse of our open spaces, as crowds resort hither for refreshments that could be obtained a few minutes' walk away, beat down the turf near, and turn the park into a semblance of Kew Green on a Bank Holiday. It is impossible to derive the good that one might under such circumstances; there is no rest nor repose when nuisances of this kind are permitted. The numberless diverging and intersecting walks are to distribute the people over the area as much as possible; but one central object, which should have no place, simply tends to localise the crowds, to the injury of the park itself and the discomfort of those who come there to seek that refreshing quiet a beautiful garden of trees and shrubs only can supply. Not long ago, just outside the restaurant in Finsbury Park, there were swings that we might expect to find at a village gala or Foresters' fête. Kennington Park is afflicted with a refreshment booth. This is in the heart of a crowded population, to whom the open space, with its trees and flowers, is essential for health and recreation; but instead of quietness there are the noise of buying and selling, the popping of corks,

and the traffic and dirt incidental to the Crystal Palace on a Whit Monday. On Saturday afternoons and evenings and Sundays, both Finsbury and Kennington Parks are in this condition, and yet such a state of things might reasonably be altered without in any way interfering with the true enjoyment and pleasure of the people. Where refreshment places are not provided by competition in the neighbourhood, it would be better to place them outside the gardens, or at the edge. The conveyance of goods necessary for a large restaurant is in itself an evil, whereas if placed at or without the margin, only the public roads need be used for supplies. Nearly all public gardens must have far more walks than are desirable, so far as effect goes. Introducing the refreshment booth in any shape adds greatly to the walk and road surface. The most objectionably placed booth we have seen is that at Battersea Park, and the prettiest part of this open space is spoiled by a large structure, thronged and noisy. The turf in the vicinity of these booths is trampled down and numerous beaten paths are marked in the Grass leading to them. These paths are very unsightly. The rush and clatter, paper and *débris* in their vicinity destroy all peace and quiet.

There are one or two instances where a refreshment booth is a real want; and in such a place as the Phoenix Park, Dublin, which is of many hundred acres extent, an open piece of ground might well be left in the centre, or near to it, for the sale of light refreshments, as these things could only be purchased at a distance. In such a place as Kew, too, a refreshment booth was required, and the one now erected there is on the whole unobtrusive and well placed. It would perhaps have been better if it had been built about 50 yards nearer the boundary wall. The structure is low and neat, and the fact that it is not easily found proves that it is well placed. Kew is so vast, that one can spend hours without coming near it, and few people really know Kew beyond the beaten tracks. The Rhododendron walk, for instance, is one of the most beautiful sights in our national garden.

We may not stop at refreshment booths. Such an evil is likely to give rise to another, and that possibly worse—the introduction of brass bands into our public gardens and parks. Something of the kind has already been suggested, and an article we lately read strongly advocated the use of music. Surely we hear sufficient of jingling bands in London and suburban streets to heartily wish they will never be allowed into a public park or garden. They are abominations which destroy the quiet of a garden, and turn our Sundays into holidays.

FLOWERS AND PLANTS FOR THE LONDON POOR.

TO THE EDITOR OF THE GARDEN.

SIR,—You will, I trust, once more be so good as to allow me to remind your readers that the Kyrle Society continues its work of distributing flowers and plants among the poor and sick in London, and will be thankful for any contributions of such on their behalf.

Plants in pots for the wards of hospitals and workhouses are much wanted, and roots of hardy plants and shrubs for the laying out and planting of open spaces which have been acquired, besides the flowers which are always hailed so gratefully by the recipients.

There being no storage room at the office, packages cannot be received there, but I will ask intending donors to be kind enough to communicate with me in the first instance, when I will send the addresses to which their gifts may be forwarded direct.

F. E. TRIPP, Hon. Sec.

Flower Distribution Branch Kyrle Society.
14, Nottingham Place, W.

PAXHILL PARK.

IN the pretty village of Lindfield is situated Paxhill, the seat of Mr. W. Sturdy. The district is famous for old houses, both mansions and cottages, but of the former Paxhill is now the best. Originally erected in 1606 in the Elizabethan style, it has since undergone restoration, and additions have also been made, but fortunately quite in harmony with the older portions. At the present time Mr. Sturdy is making further additions and is using the same substantial sandstone and copying the older portions of the house, so that when the new work becomes toned down Paxhill will again appear as one harmonious whole, which grows, as it were, to keep pace with time and modern wants, but does not grow out of

hills, large villages and small towns being just visible, the housetops occasionally appearing above the leafy mass.

From the house the lawn slopes gently upwards till it merges into a fine large meadow which crowns the hill. This being an Oak district, Oaks naturally predominate about the grounds, but a fine English Maple demands notice, owing to its great size. Near it are standing two enormous Spanish Chestnut trees, one on either side of the walk. They have an enormous girth of trunk and prodigious arms, whilst in height they tower far above all their surroundings. A peculiarity noticed about one of them is a characteristic spiral twist in the bark. This is not an unfrequent occurrence with the Spanish Chestnut, and would seem to

plants, and a little rock fernery is becoming a feature of interest.

The kitchen garden is very extensive. New glass structures have also been erected wherein to grow choice flowers and plants for indoor decoration. Grapes and Peaches are well grown, and a house was seen filled with healthy little bush Azaleas. One house had its roof entirely covered with Allamandas, the flowers of which at Paxhill are much appreciated in a cut state. Mr. Venn says he is always cutting them, and the flowers of this beautiful plant are always welcomed indoors. The old and striking Passiflora quadrangularis covers the roof of another little house, whilst a plant stove is filled with Dracænas, Crotons, Palms and Pandanads, all of which are of a useful size for indoor decoration.



Paxhill, Lindfield. Engraved for THE GARDEN from a photograph by Messrs. W. S. Fry, Brighton.

character. Ivy clusters against many portions of the wall, producing some curious effects of light and shade around the pretty gabled windows. As the name implies, the house stands on a hill which overlooks some choice scenery. The hill is of easy ascent. A pretty drive, fringing a small ornamental sheet of water, leads up to the house. On the right of the drive are verdant meadows and on the left an Oak wood, a portion of which, cleared of the undergrowth, forms a Grass verge between the road and the wood, whilst the Oaks left standing afford an agreeable shade. The house stands upon a south-western slope, the ground rising still higher upon the lawn front. There is a broad expanse of lawn, from which is obtained a splendid view of the richly wooded country, stretching away as far as the southern

be one of those freaks or vagaries that cannot be satisfactorily accounted for or attributed to any definite cause. Whilst one tree, and that the smallest of the two, had the corrugations of the bark in perpendicular lines, in the other they took an oblique turn until a complete circle was formed. A Medlar tree stands upon the lawn, but it is now fast decaying. A substantial and spacious conservatory is built near the house. It forms a most agreeable promenade, especially in winter, for the same rich landscape stretched out far and wide before the lawn can be seen through the glass sides of the conservatory. The main rafters are wreathed in climbers, and in the centre bed is a Dicksonia planted out, and that has long ago attained the dimensions of a tree. Low stages all around are filled with dwarf-flowering and fine-foliaged

But whilst the glass and kitchen garden departments show their adaptation to modern needs, it is pleasing to note that the fine old house, in which the chief interest naturally centres, is in no danger of being modernised at Mr. Sturdy's hands, but is only being restored where necessary, so as to place it in a fit condition to stand as many more years as have elapsed since its erection.
A. H.

Ladies as gardeners.—An unusually large meeting of gardeners assembled a few days ago in Berlin to consider a proposal made for training ladies of education as gardeners. A lengthy debate took place, and it was finally resolved that, in the interests of German horticulture, as well as in the interests of the ladies themselves, it would be better to oppose the innovation, because gardening de-

mands more physical strength than women in general possess, and because there is already an over-supply of men who are thus occupied. There never could have been a question of training ladies of education to dig, but only to attend to the scientific part of the profession and its higher branches. In a private capacity there are hundreds of ladies in England who are excellent gardeners, and spend a great deal of time in domestic horticulture.—*Daily Paper*.

STOVE AND GREENHOUSE.

TUBEROUS BEGONIAS AT SWANLEY.

VOLUMES have been written upon the tuberous Begonia, so that it would appear some apology is necessary for again introducing an apparently hackneyed theme. But those who are interested in such matters know that the restless energy of the florists permits of no standing still. In the life history of a popular flower there is a gradual, sometimes rapid, development from a common type to a certain ideal fixed in the mind's eye of the hybridist as the goal to be reached. Thus each year brings its surprises, new departures, and improvements, either in the habit of the plants or the colour and shape of the flower. The tuberous Begonia illustrates as well as any flower the remarkable results that may arise from a persistent, unflagging endeavour to achieve a certain kind of perfection. It has reached a development that would scarcely have been credited a few years ago, and as a result we have flowers as double as it is absolutely possible to make them, grotesquely ugly, ill-formed, and heavy. This is the result of aiming simply at size. No matter what the colour is, if the bloom is almost as large as a man's fist and as shapely, it is counted as a thing to be preserved instead of tossed on one side as a monstrosity. But fashion runs to extremes, and it has done to the full in the tuberous Begonia. But a change has come; and it is only necessary to run down and see the Begonias in Messrs. Cannell's nursery at Swanley to note the difference in habit and other points from the varieties of but two or three years ago. There is in the Swanley strain a remarkably compact habit, so that it is almost needless to have sticks, and then only when the plants are so laden with flowers as to require support of some kind; and a fresh, vigorous leafage that in itself constitutes a rich and charming attraction. We see no bare leggy stems or weak growth, but healthy foliage, so thickly set, vigorous, large, and rich in colour as to make a dense mass of green. This is the kind of luxuriant health it is delightful to see, and from their smallest stage the plants show this desirable trait. And there are seedlings in all stages of development, some freshly pricked off, others in 3-inch pots, and, of course, many in full flower. But those who wish to see them in beauty should wait about a month, as then hundreds of varieties will be in full flower; whereas now the season is just commencing. It is not only in the habit of the plant that a change has taken place, but in the style of the flower itself, especially in the double form. Many of the introductions of last year had a banked-up centre, almost conical, and as ornamental as a sugar-loaf, layers of petals arranged one above another. But this class of ungainly, unshapely flower is giving way to a more moderate bloom. Messrs. Cannell are working to obtain a race in which the flowers shall have no high conical centre, but rather a broad firm petal and fulness and evenness of form, as we might see in the expanded flower of a Hybrid Perpetual Rose. This is opening up

another phase of the Begonia which will give it a new lease of life, and still further increase the great demand that has existed. A variety with a good base of leaves, above which the well-shaped, erect flowers appear on sturdy stalks, seems to be the great ideal of what a tuberous Begonia should be. But when the flowers are unduly large, their weight drags down the stems, so that a stick is required, and then at a stroke much of the beauty of the plant is gone. In the single varieties a radical change as to the size of the flowers is also necessary. Some are 7 inches or 8 inches across, with a flat surface, in which the various parts are all ill-proportioned; but then the flower is large, and that to many is the great charm. But in Messrs. Cannell's collection we notice varieties with flowers of medium size, neater and better shape, and it is these that will be sought for now that there is a perceptible disinclination to seek only "big" blooms.

There are few flowers that are more easily grown than the Begonia. The seed, if sown in the middle of February, will produce plants that will flower the same year; the second season the specimens give a wealth of bloom, and then and during the next year they are in their fullest beauty, but after that the flowers become smaller. The tubers are then cut up for stock. Besides raising from seed, the plants are propagated largely from cuttings, and in this way named varieties are perpetuated.

The range of colouring in the flowers extends each year. The yellows are improving, the whites clearer, and there is an unlimited choice of crimson, orange-scarlet, and bronzy-buff shades; but the most telling of all are the pink and salmon-tinted varieties, especially when the flowers are double and well filled out. In the large batches of seedlings at Swanley there are several choice treasures, most of which in the double class have that rosette-shaped flower which we wish to see more of in place of the high-centred types. One was a brilliant scarlet and like a Gardenia in form; another tinted with salmon, and yet another as soft and charming as a blush Rose. The best of the double whites is undoubtedly the beautiful Octavia, which created a small stir last year. Already some of the plants of it were in bloom, and it will last until November, thus giving a long season of flowering. Its blooms are as neat as those of a Gardenia, ivory-white, full, and most acceptable for button-holes or filling bowls in the house. It is as free blooming as any variety we know. A very delicately coloured kind is Rosebud; it is like a Rose bud, and of much the same shade of colour as Souvenir d'un Ami Rose; the centre dense, flattish, not raised unduly. A beautiful kind is Lady Harriet Cavendish, the flowers pink; and just as lovely in its way is Mrs. James Whitehead, which has a flower of a pearly white colour, the centre shaded with salmon. The variety named Countess of Dudley is pure ivory white. Hon. Mrs. G. Goschen is a pale creamy flower, and Imogen is delicate pink. These are all double-flowered, and just a brief selection of a few of the best of this season; but, of course, there are dozens of others just as good in their way, and offering a remarkable range of delicate and pronounced shades. Each week brings with it some novelty. The double forms are certainly the hardest to grow, but when good varieties are chosen and well grown, they are more beautiful than the single types. The single forms seem to have somewhat usurped the place of the double-flowered varieties; but both should be grown, and with a good batch of plants there should be no want of colour in the greenhouse or garden.

In certain positions and seasons, the tuberous Begonia makes a gay outdoor flower, but often the brittle heavy blooms are as much damaged as those of the Tulip. It is the pendent and small-flowered types that are the best for this style of gardening. Worthiana is one of this character. The plant is compact, yet hangs its brightly coloured flowers, so that rains have no effect on them.

Sollya linearis.—This little New Holland plant is extremely pretty just now, being studded with its small bell-shaped blossoms that are of an intense blue colour, a tint by no means common among greenhouse plants, and on this account especially valuable. It is a medium growing climber with slender wiry stems and narrow deep-coloured evergreen leaves, while a succession of bloom is kept up for some time. It may be employed for the clothing of the smaller rafters of the greenhouse or for a similar purpose, while useful little specimens can be readily formed by training the growing shoots around a few sticks and allowing them to flower in this way. The entire beauty of the plant, however, is lost if the shoots are tied in too closely, and the best way is to dispense as far as possible with any training, using just enough sticks to keep the plant in shape. Cuttings of this little Sollya if formed of the growing shoots strike root readily enough under favourable conditions.—H. P.

Fuchsia splendens.—While the list of garden varieties of Fuchsia now in cultivation is far too extensive, there are some of the original species that are equally as beautiful. Among these must be included *F. splendens*, which is a free-growing species with pale green heart-shaped leaves and very peculiar flowers, the tube of which is of a bright crimson tipped with green, and peculiarly contracted at the mouth. When grown for the purpose this species will flower during the winter months, but it is equally free-flowering at this season of the year, and affords a very pleasing variety to those generally grown. It is by no means the only species of Fuchsia worth ranking with the best of the garden varieties, for among others may be mentioned the large-growing *F. fulgens*, with its scarlet and buff flowers, each as much as a couple of inches long; *F. corymbiflora*, whose large bright coloured blossoms are borne in drooping clusters; the two miniature species, *F. microphylla* and *F. thymifolia*; *F. triphylla*, with vivid vermilion-red flowers, that requires more heat than any of the others; *F. penduliflora*, whose blossoms are seen to such advantage when the plant is trained to the roof of a greenhouse; *F. spectabilis*, *F. serratifolia*, the various forms of *F. macrostemma*, such as *pumila*, *gracilis*, and the variegated-leaved form of this last.—H. P.

Combretum purpureum and Ipomœa Horsfalliae.—"H. T. P." tells me that he has tried to strike these plants times without number, and always failed, and adds that he disbelieves my statement that they can be struck. When I first began plant-growing I tried every kind I could lay my hands upon that had the name of being difficult to strike or to grow. The first cutting I put in of one of the plants named (the Combretum) was given me some thirty-seven or thirty-eight years ago by an old nursery propagator along with one of *Acrophyllum venosum*. He remarked at the time, "If you strike either of them you will do more than everyone is able to." The result was that both struck, and I grew them on into large specimens. Since then I have often struck both the Combretum and the Ipomœa, the wood being in a similar condition, and the treatment the same as described at page 366. In reply to "H. T. P.'s" inquiry if the plants I have struck are in the trade, I may say that I have never had anything to do with the trade either in propagating or growing; but I am tolerably well acquainted with the practice followed in the trade establishments. What I write is with a view to help those who have to do with plants in private gardens, and who may not in all cases have had an

opportunity of gaining much experience in the propagation or cultivation of the plants they may have to grow. The reason I spoke of striking the plants named from cuttings in place of following the trade practice of layering them was from the fact that layering is a proceeding that frequently cannot be adopted in plant houses in private gardens. "H. T. P." is not the first nursery propagator that I have met with who has jumped at the conclusion that when they have failed to strike a plant from shoot cuttings, it could not be done, when the contrary has been proved by the success of others with less pretensions.—T. B.

DWARF-FLOWERED CANNAS.

THE dwarf-growing or *Gladiolus*-flowered *Canna* comes more under notice each year, and the reason is obvious. No plant so thoroughly accommodating, ornamental, both in leafage and flower, and easily grown can remain long uncared for. Messrs. Cannell and Sons, of Swanley, discovered its intrinsic value, and at the present time have a mass of the best varieties planted out in a central bed in one of their long glass houses. The English grower cannot be credited with the striking improvement in the *Canna*, a new race we may say, as there is a great difference between the recent types and the lanky specimens that were used so freely in bedding out a few years ago. The credit belongs to M. Crozy aine, of Lyons, France, who for years has been working to produce this class of plant, that adapts itself so well to English gardens. Now our own nurserymen are raising seedlings with a view to still further enlarging the range of varieties, and in the Swanley Nursery is a batch which will doubtless give something new and valuable. There are several characteristic points in the French *Canna*. The most important is the dwarfness of the plants, as few are much more than 3 feet in height, some less than that, and as sturdy in constitution, leafage, and flower-stem as anyone could possibly desire. Another point is the long season of flowering. Some varieties at Swanley are already sending up their flower-stems, and will continue to do so until the early autumn, when their gay season ceases. Thus from May to September there is a succession of bloom as striking, varied, and brilliant as in the herbaceous *Calceolarias*, and with careful crossing we shall get a greater variety of tints and stripes. In some kinds the colour is rich yellow, over which are many crimson or reddish brown spots. These give a brilliant effect, just as much as the rich crimson selfs, of which there are several. The coloured plate in THE GARDEN of March 2, 1889, shows this. The two varieties *Louis Thibaut* and *Victor Hugo* are there represented, in the first named the colour being rich yellow spotted with crimson, in the other self crimson. These are two excellent types of the French *Canna*, and a reference to this coloured plate will show their distinctive character better than the most vivid description. The proper place for the plants in the summer is the flower garden, and the dwarf types will no doubt be largely used in our parks and gardens for forming beds by themselves and dotting about over the surface of others to relieve the dead flatness and formality. Last season we saw a few used in this way, and with the most happy results, as the leafage of the *Canna* is in itself tropical, fresh, and handsome. And this leads us to allude to the diversity of form and colour in the leaves. Some are of the richest green, others paler, and a few of the most lustrous chocolate, a magnificent foil to the deep crimson flowers. A bed of coloured-leaved *Cannas* in full bloom and well placed in the garden with leafage as a background will make a new and pleasant feature. The time to plant out is early June, when all risk of frost is over, and from then until autumn, when frosts blacken the noble foliage, the *Cannas* will give very little trouble. If in an exposed position, it is prudent to put to each a strong stake, but in the case of the dwarf types, which we infinitely prefer to the taller old-fashioned kinds, very little support is required, as they do not grow sufficiently high to suffer from high winds and storms. One great point is to have a well-manured soil, as it is well known there are

fewer plants that like rich feeding more than the *Cannas*, from the noble *C. Ehemanni* downwards. During the summer if the weather is as warm as it gives promise to be, plenty of water will be needed at the roots to maintain a fresh and luxuriant growth. As soon as the frosts have destroyed their beauty, lift the roots carefully with a fork, remove as much of the soil as possible without injuring the plants, and store away for the winter in a cool dry house under the stage of a greenhouse, where there is but little damp. In the spring the roots, after having been divided and started into growth, may be planted out again in freshly prepared soil.

There is, however, another use for the dwarf *Cannas* besides using them for single beds, edging large ones, or removing the stiffness in flat arrangements, and that is for pots. We could understand the dislike shown to the very tall kinds for pot culture, but now we have the French race there is no excuse. Even the glorious *Canna Ehemanni* is seldom seen; and one of the only places in which it used to be thoroughly well grown was in the Royal Horticultural Gardens at Chiswick some years ago. One summer there was a row of plants on the central stage in the Paxton house, and for weeks they kept the place furnished not only with rich foliage, but also with flowers of the finest crimson colour. These specimens were constantly used for the great exhibitions then being held at South Kensington, and few things stood the trial better, though it was essential to protect the flowers as much as possible from undue shaking. And with *Cannas* at command there may be made many a bold, handsome group in the conservatory, as the leafy plants form a splendid background, with the help of but a few specimens. We are, however, thanks to M. Crozy, not now limited to *C. Ehemanni*, though we should be the last to discard it in favour of the newer introductions; but it is these dwarf kinds that will be grown largely in pots, as they are less bulky, and, therefore, lighter to handle, very free and varied in colour. There is a selection of the best kinds now in bloom at Swanley. They were planted last spring in a rich bed of soil in one of the houses, and from the bottom growth they are making they will be a fine sight later on. September is the month for them, but throughout the summer there is plenty of flowers. It is when the finest kinds are thus grouped that we can see the great variability in both flowers and foliage. Some have broad petals, and these are generally the best; and in others it is the colour of the leaf that constitutes the great attraction. Artificial heat is required just to start them; but during the summer the sun alone should provide this. As there is a great profusion of flower, a considerable amount can be cut, and in this utilitarian age this is a point of no small importance.

The names of a few varieties may be given to help those who intend to grow these *Cannas*, and two to commence with are those referred to above. *Admiral Courbet* has handsome flowers, spotted with red on a bright yellow ground; the leafage rich green. *Lutea splendens* is a good yellow, and *Francisque Morel* makes a striking effect by the combination of its rich crimson flowers and deep foliage. *Mme. Just* has orange-red flowers, shaded buff; the petals broad and firm. *Senateur Millard* has finely coloured chocolate foliage, but possibly *Geoffrey St. Hilaire* is one of the very best; the foliage is dark and handsome, and the flowers of a fine orange-red colour. *Capricieux* has scarlet flowers, edged with yellow; and in *Ulrich Brunner* these are crimson-scarlet; the leaves a very deep reddish tint. *Revol Massot*, crimson; *Edouard Morren*, rich yellow, spotted with red, very dwarf; *Frederick Benary*, rich crimson; and *Chevalier Besson*, shining carmine, are all good varieties.

The *Stephanotis* house in the nursery of Messrs. Hawkins and Bennett, Twickenham, is worth a visit. The plants a few days ago promised well for one of the largest crops of flower that has ever been produced. Each twig had its buds, and at every node they clustered, even the youngest shoots showing flower. The plants are in a low span roof house, and trained near the glass. They

are in square slate boxes and pots, the soil being peaty. The strongest specimens are those in the boxes, and this we can understand, as there is a larger body of soil, which does not get dry so quickly as would otherwise be the case. Immense quantities of flowers are cut for the London market, and there is always a demand for the ivory-white, strongly scented flowers of the *Stephanotis*.

WORK IN PLANT HOUSES.

STOVE.—*CELOSIA PYRAMIDALIS*.—Plants raised from seed sown in April will now be in a condition for putting into the pots in which they are intended to bloom. Quick-growing subjects like this *Celosia* will bear liberal supplies of manure water, provided it is not used too strong, and on this account there is no need to give them pots unduly large. Six-inch or 7-inch pots are large enough to use. Loam, with a liberal addition of rotten manure and some sand, is a good compost for them. From the time the seed germinates until the plants come into flower, they should be kept close to the glass in a light house or pit where there is not too much heat. To the erect spiral habit of the plants is in a great measure due their elegant appearance, which contrasts so well with things of bushy growth. But unless they get an abundance of light and are not kept too warm they grow too tall to look well. A thin shade is necessary in bright weather, as without this the leaves lose their colour. To keep down red spider, to which, in common with other varieties of *Celosia*, they are liable, syringe freely every day. A little more seed should be sown to give a succession of bloom, which, if desired, may by a still later sowing be kept up to the end of the year.

ACHIMENES.—Tubers that were started late with the object of having a succession of bloom will now require putting into the pots or hanging baskets in which they are to remain. For large conservatories there are few flowering subjects that make such a display. The plants look best when hung alternately with baskets of *Ferns*, as the fresh green fronds of the *Ferns* are a relief to the mass of colour which the *Achimenes* present when in bloom. For this kind of association, *Ferns* of moderate growth should be selected, such as *Adiantum cuneatum* and others of like habit, and *Davallias* that do not attain too large a size. Good-sized baskets should be used. Grow the plants in an airy intermediate house. Carefully attend to watering and use the syringe freely. Both are necessary to keep the leaves fresh and healthy up to the end of the flowering season. Without this the plants have an indifferent appearance.

GLOXINIAS.—Plants raised from seed sown in winter and now in small pots should be moved into others 4 inches or 5 inches in diameter; these will be large enough for the first season. An intermediate temperature is quite warm enough to keep the plants through the summer. When subjected to too much heat, the foliage gets infested with thrips and red spider. All the light that can be given by standing them continuously close to the glass is necessary; in the absence of this both the leaves and flowers come weak. Previous to the plants flowering, *Gloxinias* should be well syringed daily; without this the leaves are almost sure to suffer through the attacks of thrips or red spider. In addition to the syringing, the under side of the leaves, where it is difficult to reach with the water, should be examined frequently, to see that the insects do not lodge there. Sponging the under side of the leaves with a solution of *Gishurst* is the best remedy when the insects are present.

GESNERAS.—If tubers of the winter-flowering kinds, such as *G. zebrina*, have not been already started, it is time to get them in. One or two of the scaly roots may be put in a 3-inch pot, or a number can be put in a shallow box, and after they have got fairly into growth they may be potted singly or in pairs. The plants are better for not being too much hurried, and there is still plenty of time for them to gain the requisite size and strength before winter. A temperature of 60° or 65° is enough in the night. Let them have plenty of light and shade at all times when the weather is bright

Give as much air in the daytime as admissible without over-drying the atmosphere. The necessity for avoiding this condition of the atmosphere in warm plant houses is often not sufficiently understood. When large volumes of air are admitted it is impossible to keep up the requisite amount of atmospheric moisture, and in the absence of this insects of all kinds increase apace, and the plants fail to make the progress that they should, and otherwise would do. Where due attention is paid early enough in the mornings to what the weather is likely to be during the day, and the fires are regulated accordingly, there is no need for opening the lights and ventilators to the extent that is often practised.

GESNERAS, SUMMER-FLOWERING.—The summer-flowering species of Gesnera have few equals amongst the small-growing section of stove plants for the display they make when in bloom. The old red-flowered species, *G. Cooperi*, is one of the brightest plants in cultivation and gives little trouble to the grower. Plants that were started early will soon be in bloom. If, when the flowers are over, the plants are kept in the stove and the soil kept moderately moist, they will push up a second lot of shoots that will bloom in the autumn. But to do this the tubers must be strong and the foliage kept free from insects. In a house where mealy bug is plentiful the Gesneras should be frequently looked over.

ATACCIA CRISTATA.—The time that this singular plant produces its principal crop of flowers depends on the amount of heat it receives. When grown in a temperature such as the hottest section of stove subjects like it usually blooms about this time. After the first crop of flowers is over, the plants when strong generally push up an occasional scape during the summer. This *Ataccia* increases slowly, as the principal method of propagation is by division of the side shoots, and even strong specimens produce these slowly. The side-breaks appear about an inch or two above the collar of the plant, and, when they have attained some size, usually emit roots, which extend downwards until they reach the soil. If when in this condition just before they enter the soil the shoots are detached with their young roots intact and are put separately in pots they do not feel much check, but commence to grow away at once. Orchid peat, with some of the earthy matter shaken out, is the best material to grow the plants in; some small crocks and sand should be added. After the suckers are potted keep them sufficiently close under propagating glasses to prevent the leaves flagging, but do not exclude the air more than is necessary to do this, for both leaves and stem are soft and fleshy and liable to rot if too much confined or too damp. On this account keep the soil only moderately moist. The plant likes a good deal of heat at all times, especially whilst the suckers are getting established. When the roots have got sufficient hold to support the leaves without their flagging, remove the glasses and raise the plants so that they will get plenty of light, for though the leaves are too soft to bear being exposed to the sun without shading during the spring and summer, the more light the plants obtain the better they thrive and the more offshoots they make. Old examples of this *Ataccia* that have got a portion of bare stem devoid of leaves usually push out roots above the soil. If when in this state the top is cut clean off about an inch above the collar and treated as advised for the offshoots the plants will soon get established and will grow away without feeling much check. After removing the top the stool should be kept drier than usual, giving no more water than necessary to keep the soil fairly moist. Managed in this way, it will push several shoots from the latent eyes; these may be allowed to grow on, by which means a large specimen can be had, or the shoots may be taken off after they have made three or four leaves each and rooted separately.

GREENHOUSE.—ZONAL PELARGONIUMS.—If, in place of growing quantities of these Pelargoniums in greenhouses in summer, when their right place is out-of-doors, their use under glass were confined to the winter and early spring, it would be a more

satisfactory arrangement. To have the plants in the best condition for bearing the warmth necessary to bloom them well in winter they require especial preparation; for unless where the houses in which they are flowered during the sunless season admit an unusual amount of light and the plants are close to the glass, young soft examples are often more inclined to run to leaf than produce bloom. Plants that have been flowering through the winter under the conditions of warmth named should now have their branches shortened well back. If after this they are stood in a pit or frame, with only a limited amount of air, they will break in a few days. When an inch of growth has been made turn the plants out of the pots, remove half the old soil, and put them in others two sizes larger than those they have been in. Put them back in the frame for a few weeks, and then stand them out of doors where they will be fully exposed to the sun. Here they should remain until it is time to take all such stock under glass. In this way the growth that is made will be short-jointed and strong. The roots will, before autumn, get well hold of the soil, and the plants will be in a state to bear an intermediate temperature during the winter without the shoots becoming drawn. Where old plants of this kind are not at hand autumn-struck cuttings will do. These should be moved into 5-inch or 6-inch pots. Give them good fresh loam, with some rotten manure and sand mixed with it. Make the soil solid in the pots; loose potting with soft-wooded plants of this kind does not favour the production of a mass of roots.

LARGE-FLOWERED PELARGONIUMS FOR EARLY SPRING-BLOOMING.—The varieties of this section of Pelargonium that can be had in bloom from the beginning of March and onwards during the early part of spring deserve especial attention. Old plants that have been flowered for one or more years are in some respects preferable to younger ones. Any that have been blooming during the past two or three months should now be cut close in a similar way to that practised with the large-flowered later sorts after blooming. When they are headed down keep the stools in a pit or frame, giving them only a little air, and no water at the roots until they have started into growth, but syringe them overhead once a day. When they have started, shake them out and give them pots a size or two larger. After this keep them in the frames until they have made an inch or two of growth and the roots have made some progress, when stand them out of doors, or, what is better, let them remain in the frames with the lights off, except when there happens to be more rain than they like. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Othonna crassifolia makes a distinct pot plant for giving a finish to a group of plants in a house. It has small succulent leaves and yellow flowers almost the size of a halfpenny. It grows freely.

Allamanda neriifolia.—This South American *Allamanda* is in bloom in the Palm house at Kew, where, amongst Ferns, small Palms, and fine-foliaged plants, its comparatively small, deep golden-yellow, bell-shaped flowers are remarkably rich and handsome. It is a choice kind for growing in pots.

Paris Daisies and maggots.—For the last two or three years we have been much troubled with maggots in the leaves of our plants of Paris Daisies. These maggots disfigure the plants to such an extent as to render them of little use to us, as they become nearly defoliated. Squeezing does not seem to get rid of them. Can anyone tell me what moth or butterfly deposits the eggs, or how these insects referred to are bred, and what is the best way of preventing their coming or getting rid of them when they are infesting the plants?—S. D.

* * * The best way is to burn the plants that are attacked, and obtain some young stock from a source where the maggot has not been found.—Ed.

Three good zonal Pelargoniums are *V. P. Raspail*, a double scarlet variety; *Queen of the Whites*, single white; and *Constance*, single pink. These are largely grown by Messrs. Hawkins and Bennett, who find them of the proper colour to suit the public taste.

The Ivy-leaved kind, *Mme. Crousse*, is, of course, cultivated. There is nothing in its line of colour to equal it.

Schubertia grandiflora.—In the notes that have appeared from time to time in *THE GARDEN* concerning this stove climbing plant, which has been by some put forward as a rival to the ever-popular *Stephanotis*, little, if any, mention has been made of the most unpleasant odour of the foliage, especially when young. This odour is so disagreeable and so pronounced, that if a branch or two be brushed against it is noticeable for some distance. The *Schubertia* undoubtedly has many desirable qualities, for it is easily propagated, grows fast, and is by no means particular as to soil, added to which it is very free-blooming, but its offensive odour is against its common cultivation.—H. P.

PROPAGATING.

PELARGONIUMS.—All the early-flowering varieties should now be propagated as soon as possible; but, previous to taking the cuttings, the plants should be placed out in the open and kept dry for a time. The wood will then get well ripened and firm, and the plants may be cut back close at the time the cuttings are taken. I like to make the cuttings as short as possible, and to select them from short-jointed shoots, as these form better plants. The cuttings may be put in pots, using light sandy compost, or they succeed well on a spent hotbed if surfaced over with a little fresh compost. The plants should be kept dry until the cuttings are well callused. Although they may succeed very well if fully exposed to the sun, I like to shade a little, especially if the shoots are rather soft, and I think they start away better after they are rooted if not too much dried up. Care should be taken that cuttings are free from green-fly before they are put in. There will be no advantage in propagating early if the plants are allowed to remain in the cutting pots or bed too long. They should be potted as soon as sufficiently established. After potting the plants they may be kept close for a few days, but as soon as they have taken hold of the new soil, the more they are exposed the better.

ZONAL PELARGONIUMS.—Although it may now be rather late in the season, there is yet time to establish useful little plants for winter flowering. In propagating this section of Pelargoniums at this season, they should be treated somewhat differently to when they are struck in the autumn. They will succeed better if kept quite fresh and placed in a close frame where there is a little bottom-heat. If the cuttings are taken off and put into small pots, giving them just sufficient moisture to keep them fresh, they will root in a very short time. For plants that are intended for winter flowering it is most important that they should be potted rather firmly in good loamy soil, and grown on during the summer in an open exposed position, keeping the plants stopped and all bloom buds removed. When the time arrives for housing the plants, they are full of short-jointed hard wood, which will soon produce plenty of bloom. Varieties are now so numerous that it is almost useless to make a selection. I may, however, mention *Queen of the Whites* (Improved), which is undoubtedly the best and purest white; *Robert Hayes*, a good pink; *Henry Jacoby*, crimson-scarlet, and for a profusion of bloom *Vesuvius* and *West Brighton Gem* have no rivals. The semi-double *F. V. Raspail* is more extensively grown for winter flowering by market growers than any other sort.

CRASSULAS.—This genus is perhaps a little out of date at the present time, yet some of the species are very useful, and when well flowered they are very showy. *C. coccinea* and varieties, *C. jasminea*, and *C. falcata*, which is better known as *Rochea falcata*, are most useful, as is also *C. lactea*. The strongest shoots should be selected for cuttings, and when taken off a few of the bottom leaves may be removed. The cuttings should then be either put in quite dry sand, or laid on a shelf where they may remain until the moisture at the base is

quite dried up. They will then soon produce roots. Like many other succulent plants, the *Crassula* requires more liberal treatment than it often gets. For potting, good loamy soil should be used with some well rotted manure; a little burnt earth or lime rubbish is also beneficial. The plants should be grown on in a cool greenhouse or pit, but should be well exposed to the sun. I have rarely seen *C. falcata* well flowered, yet it is one of the most showy of all greenhouse plants, the large terminal corymbs of orange-scarlet flowers being unsurpassed in brilliancy. The pure white *C. jasminea* is also most deserving of attention. A.

FRUIT GARDEN.

EARLY APPLES.

EARLY Apples, like the early sections of other fruits, possess a certain value of their own on account of being amongst the first to yield a

there are few who cannot appreciate a ripe June-ating on a hot July day.

IRISH PEACH is a variety possessing all the qualities of a first-class early Apple—firm in flesh and abundant in refreshing juice when eaten from the tree, which is the best way to fully enjoy it. The fruit is handsome and of good size, and when tinged with crimson, as it is on the sunny side, and carrying a delicate bloom, it forms a beautiful dish. The tree is a good grower and bearer, but it resents the knife. A tree which is annually pruned seldom bears more than a few dozen fruit at a time, while if freedom of growth is allowed a good crop is ensured. Many of the trusses of bloom form on the terminal buds.

RED ASTRACHAN resembles the above in some points, and consequently is sometimes confused with it. It is certainly a very beautiful fruit, but far inferior to Irish Peach in point of flavour.



Fruiting branch of Lord Suffield Apple.

dish of fruit for the dessert or an early gathering for the cook. Those varieties which ripen early and require to be eaten from the tree have an almost unique flavour and perfume, and to those who appreciate a fresh Apple, they are, if caught at the right time, most delicious and refreshing. Two or three new varieties have been lately added to the list of early-ripening kinds, and I hope they will prove acquisitions, but it is yet early to say anything of them. One thing is quite evident: the existing list might well be reduced to a very small compass.

THE JUNEATINGS, red and white, we must of course retain, if only for their long connection with English gardening. They are, moreover, both of excellent quality as early Apples, and

QUARENDEN (Red) on soils where it succeeds is well worth growing as an early kind, being a variety of excellent flavour, the flesh white, tender and very juicy. The tree is a great bearer, and on this account, perhaps, the fruit is often seen small and scabby. To have fine examples, good cultivation and attention to thinning must be accorded to the trees.

KERRY PIPPIN.—This beautiful and delicious little Apple should be in every garden, for it is, I think, the gem of early varieties, making up in quality what it lacks in size. The tree is not a vigorous grower, but generally bears well. On good Apple soils I have seen it form good sized standards, when the fruit comes fine and of a rich colour.

By far the most important early Apples are

those which lay on flesh thickly, thus rendering them serviceable for cooking at an early date. The Codlins stand first in this respect, being fit for use when about the size of Walnuts, when they may be cooked in a variety of ways. There are several varieties of Codlins, the common English being well known to all.

KESWICK CODLIN is a most excellent kind, no other variety making such fine Apple jelly, while for all other cooking purposes it is unexcelled. The tree is a good grower and seldom misses a crop.

LORD SUFFIELD.—This grand variety, of which an engraving is given, is certainly one of the most popular early kinds, and deservedly so, considering the many good qualities it possesses. The fruit and the growth of the tree both partake somewhat of the Codlin type. The fruit, however, attains a much larger size, and when ripe is of a beautiful pale yellow colour, covered with a delicate bloom. The tree is a good grower and constant bearer; the fruit is ready for picking early, and is always of excellent quality. Unfortunately on some soils the tree is given to canker, and in not a few places its cultivation has had to be abandoned on this account. Where this is the case its place is being filled with Ecklinville Seedling, a more hardy and robust kind, although equally prolific and coming into use nearly as early. So great was the demand for Lord Suffield last winter, that all the available trees were purchased long before the time for lifting, and nurserymen might have sold thousands more if they had been forthcoming. The fruit attains to a large size and is of excellent quality.

DUCHESS OF OLDENBURG.—This variety is of Russian origin, and is a valuable early kind. The tree is of rather a bad habit, and requires a little guidance if an evenly-balanced head is desired; nevertheless, it is a good bearer, the fruit being handsome, with a rather more decided acid flavour than the other early kinds. There are several other kinds which come early into use, amongst the best being Stirling Castle, Lord Grosvenor and Loddington Seedling.

A. BARKER.

Thinning late Grapes.—The time to thin late Grapes to avoid overcrowding is when the berries are about the size of Peas. If the Grapes are for immediate use, a little crowding is not so objectionable as when they are going to hang in winter. In all cases the berries formed in the interior of the bunch should be freely removed. By the time they have completed swelling they should still be so thinly distributed that moisture would have no difficulty in passing amongst them without lodging. When in this condition the air will pass between the berries so freely that decay from damp under any conditions will be almost unknown.—J. MUIR.

Peach curl and blister.—Many may have supposed that the warm weather would prevent or cure the Peach blister, but instead of such a desirable event the hot sun has much to do in bringing it about, as by its action, following immediately after severe cold or a chill, the tender tissues of the leaves are scalded or injured, and they swell and thicken in the way now seen. The only remedy is to pick them off, and the sooner this is done the better for the trees, as while they remain they are a severe tax, and take the greater part of the strength of the plant to support them. The curl arises from aphides, which are more than usually troublesome this season, and to attempt to deal with them by using strong insecticides is very dangerous while the fruit is in its present stage, as what will kill the fly is apt to damage the Peaches or Nectarines. The safest thing to use just now is tobacco dust, a puff of which sent from a distributor so disconcerts the aphides, that they soon begin to wriggle and tumble, and if not actually

killed they quickly fall off the trees, or may be speedily washed away by water applied through a garden engine or syringe.—S. D.

FEEDING POT STRAWBERRIES.

MR. BARKER, writing on the culture of pot Strawberries in a recent issue of *THE GARDEN*, makes the somewhat startling assertion that the application of liquid manure has but little effect on the size of the berries. This is so much at variance with my own experience, that I am constrained to say a few words on the subject. I do not doubt that Mr. Barker is an excellent Strawberry grower, but when he says that from the time the plants are started until the fruit is ripe no great quantity of active roots are observable, I must confess that plants in that condition would not suit me. I have never been satisfied unless my plants had the pots crammed with roots in autumn, and I have invariably found that the crop was deficient when these roots were not retained intact through the winter and increased in activity during the forcing period. When a Strawberry is doing well the roots will, like those of any other plant that is healthy, increase in number and vigour as the plant waxes in strength. Plants in this condition will take, and indeed must have, a great amount of water, and if they do not utilise any manurial stimulant that may be given them, then the high feeding that London market growers practise with all the pot plants they grow must be altogether wrong. What seems to me inexplicable is that Mr. Barker advocates the use of stimulants when the plants are finishing their growth in autumn, whilst deprecating the employment of the same at the fruiting time. Surely if the soil becomes too exhausted to enable the crowns to plump up properly, it should not be in a condition to swell off a crop of fruit without some help. So far as the giving pot plants food in autumn, I consider that Mr. Barker's advice on this point should be taken to heart by all engaged in Strawberry forcing. Several years ago I myself urged the expediency of doing this with root-bound plants; but I was severely taken to task by one of our noted fruit growers, who declared that nothing but pure water should be given to pot Strawberries at that particular period of their growth. With all due respect to such an authority, I prefer to go by my own experience, as by so doing one cannot be far wrong; and this is my experience, that as soon as a plant in a pot becomes matted with roots, there is nothing worth speaking of for them to eat, and if we want that plant to live and thrive we must give it some food in any fashion that may best suit our convenience.

Whether a Strawberry is finishing its growth in autumn or swelling off its crop, the necessity for the application of some stimulant may be equally imperative. However important the feeding of pot Strawberries may be, there is no doubt that it may be overdone, not only as regards the strength of the stimulant, but also with respect to the period of its application. I have no doubt that the absence of active roots is often due to the strong doses of rank manure water that many consider to be a prime necessity. The roots cannot at once utilise the liquid manure and it tends to make the soil sour and frequently turns the tips of the roots black. The same quantity divided among half a dozen waterings would do a lot of good. Up to the time that the fruit is set nothing stronger than clear soot water is needful, but rather harmful, as tending to encourage a grossness of habit that is incompatible with economy of space. When the berries begin to swell a young leaf pushes out of the crown, and this is the time that the plant can and will utilise any food that may be discreetly applied. My plan has been then to put a little guano in the tanks, not nearly enough to colour the water, and thus they got something rather more nourishing than pure water each time the soil required moistening. I think that if Mr. Barker had seen the crops that have been taken from plants in 4½-in. pots under this treatment he would acknowledge that feeding pot Strawberries goes for something in their culture. I admit that feeding under some circumstances is unnecessary. Plants imperfectly pro-

vided with roots in the rich, heavy soil many use are not in a condition to need it. I know, too, that such plants are common, but they are not to be endured by those who desire profit from their labour.

J. C. B.

THE FAILURE OF THE FRUIT CROPS.

So far as my observation and correspondence have gone, this sad misfortune is almost general. Trees and localities here and there may have escaped, as, in fact, they always do, but failure is the rule, fruit the exception. This is the more unfortunate, as the promise was so brilliant, the failure so sudden. We are also left very much in the dark as to the cause of failure. Of May frosts, we could hardly be said to have had any; certainly none of sufficient severity to have wrecked our fruit in blossom or in embryo, and yet the crops have vanished with a thoroughness and completeness hardly experienced in the recollection of the oldest cultivators.

There seems but three possible causes to account for the general failure: The sunless season of 1888, the pest of maggots last year, and the tropical heat of several days of May. As to the first, as the sunless dripping summer of last year did not prevent a brilliant show of bloom, it is difficult to see how it could hinder this fair promise from growing into a rich harvest. And yet we all know there are blossoms and blossoms; some a mere spread of showy stamens and petals, gay enough to please the eye and inspire hopes of fruit and nothing more. And yet others with their ovaries and pistils fresh and strong; the buds of the embryo fruit set firmly on their stems, and any amount of pollen and vital energy to start the baby fruits so freely on the highway of perfect life, and to ensure their enriching our fruit baskets in due time. And it is not only possible, but probable that the sunless skies and low temperature of the past summer sufficed to form and fill the fruit-buds with beauty, while they lacked the power of laying the sure, solid, and safe foundation of perfect fruitage.

Two things are certain; we have had a most brilliant blossoming; we have virtually no fruit; or if anyone can offer a better explanation of cause and no effect they had better declare it through the pages of *THE GARDEN*. The suddenness of the transition from abounding plenty to absolute failure also favours this explanation. Provided the fruit buds were scantily filled, what more probable than a sudden spread of brilliant beauty, sheer exhaustion of vital energy, and sudden collapse.

The second most probable cause of failure may be attributed to the pest of maggots last year. The chief difficulty in regard to this is that while maggots were then almost wholly confined to Apples, the fruit failure of this year includes Apples, Pears, Plums, Apricots, and to a less extent Peaches and Nectarines. The failure of the Apple crop seems, however, more general than that of any other fruit, and so far as this prevails it gives countenance to the inference that the wholesale denudation of leaflet and branchlet of last summer could hardly fail to tell powerfully on the general barrenness of this season.

But most of us were wholly thrown off our guard by the brilliant blooming of the Apple and other fruit trees this spring, and we jumped too suddenly to the conclusion that if the maggot-eaten, leaf-riddled trees could bloom so brilliantly, why should they not also have nurtured and matured their rich promises into a perfect harvest of sweetness and plenty? Ah! Why, indeed? Only that there are so many slips between the cup and the lip, between the start and the finish in fruit growing.

But our third reason alone or in conjunction with either one or other of our first or second reasons may probably account for the general and wholesale character of the hardy fruit failures of the season. Were the blossoms weak or imperfectly filled with vital force, an abnormal amount of heat would exert more power upon them, and hence possibly the suddenness as well as the severity of the failure. The midsummer heat rushed them

out and off in a few days, sweeping them past at such an express speed as to afford no physical possibility for their setting.

The symptoms, the residue left point to this being the real explanation of the general failure. Bunches of withered flowers rather than embryo fruits cover the ground or stick on to the trees in all directions. They look exactly as if they had been starved or scorched off; and probably they were.

Maggots in many cases have followed, in few or none preceded the work of destruction, and seem to have had little or nothing to do with it. Cultivators will be wise to keep them down and extirpate them by every possible means, as their serious ravages can hardly but predispose the trees to further weakness and failure.

D. T. F.

WORK IN FRUIT HOUSES.

PEACHES.

EARLY houses in which the fruit is ripe or ripening must now have an abundance of air by night and day, always provided the weather is mild and favourable and the Peaches can be protected from rain, as I have seen most beautiful fruit spoiled in a few minutes by exposure to showers. Warmth with air gives colour and flavour; hence the advantage of bright sunny days; but, lacking solar influence, the pipes should be gently warmed to maintain the proper temperature and to expel stagnant moisture. A certain amount of moisture of course is essential to the preservation of the foliage, but this can always be created by damping the stems, floors, and walls with the syringe on bright mornings or by syringing very freely trees which have been cleared of fruit. When all the Peaches have been gathered, shoots which have performed their office and are no longer required should be cut out to make room for the full development of the foliage and to let in light and fresh air, for without the hardening influence of these elements bright brown wood clothed with plump silvery buds can hardly be expected. Although performed thus early, say in June, this really is the pruning which, in times gone by, was put off until the trees were bare of leaves in the autumn, and as this thinning forms gaps and wide spaces, the shoots retained should be regulated and tied somewhat loosely to secure an even spread of foliage and shade, where otherwise the old stems and branches might be exposed to the paralysing influence of the July sun. Many trees, especially when they become aged and more or less feeble, not unfrequently lose whole branches from exposure to bright sun pouring upon them through large squares of 21-oz. glass. Copious ventilation and liberal root watering are excellent preventives, but these should be supplemented by training the young shoots upon their back immediately after the fruit-bearing wood is cut away. Next to thinning out—a matter of great moment—are cleanliness and freedom from insect pests, including red spider, scale, and black fly. The syringe in good hands is fatal to the first; brushing the old wood with a dry bristle brush scotches the second; and dipping in tobacco soon makes a clearance of the fly. The roots, needless to say, must be kept thoroughly moist by the use of pure water or diluted liquid, according to the vigorous or debilitated condition of the trees, care being taken that the latter or mulches of manure be not overdone, as stimulants in excess force a gross growth when the wood should be ripening. Stripping the house soon after the fruit is gathered should not be indulged in unless the summer is extra hot and bright, and then only to allow time for painting and repairs in August and September; but much good will be the outcome of running down the lights when warm rain is falling and heavy dews prevail.

Succession houses.—The fruit in succession houses having made unusual progress throughout the month of May, time at one period apparently lost has been redeemed, and fire-heat having been slackened, the trees are unusually fresh and healthy, the crop promising to be extra fine. As this gain must be maintained, fruit in every stage should be thinned with a liberal hand, the points pinched from all

shoots which will not be wanted after the crop is gathered, and the trees neatly, if not finally tied down. The trees for the present will require thorough syringing with soft water or water free from lime twice a day, the first time soon after 6 a.m., when night air is shut off; the second time about 4 p.m., when the house must be closed for three or four hours to swell the fruit. The borders (inside, of course) will take copious supplies of tepid water, pure or stimulating according to the strength of the trees and the weight of the crop, and where decidedly weak or overstrained they may be fed through the foliage by damping every evening with liquid soot water or guano.

Late houses, like the preceding, are quite forward enough; in fact, in face of a good season, perhaps a little too forward for leading up to the crop—unusually late upon walls. How the latter may be hastened will be stated by-and-by; when to retard the house fruit must be entered into forthwith. The fine rains having so thoroughly moistened the outside borders, rapid growth of wood and fruit can hardly be prevented, and yet an attempt must be made, not only by opening the ventilators to their fullest extent, but also by deferring closing until the sun is off the house and giving an extra quantity of fresh air earlier than usual every night. The floors of the houses, too, may be well moistened two or three times a day, and instead of tying down frequently, the trees already heeled in may be allowed to run into a moisture-holding, shade-producing, abandoned growth. Natural shade from the leaves and shoots, provided the latter do not touch the glass, always favours free development of the fruit, but pushing now and shading later on affects the colour and flavour, as good Peaches must have plenty of light and air when taking their last swelling for ripening.

PLUMS.

The fruit upon the earliest varieties by this time will be far advanced towards ripeness, and although the syringe must not be entirely discontinued, the water used must be pure and soft and directed to the trees with caution. A thorough syringing, that is to say a shower of soft water that will wet every part of the fruit will be less likely to injure the bloom than light and timid sprinkling, but thorough culture, including war with insects, having been the order, all early sorts should now ripen perfectly where damping is the only mode of producing moisture. Diluted liquid also may be superseded by pure water, of which liberal supplies must be given to pot-bound trees, and the better to prevent the possibility of drought, each pot, as previously advised in the management of Cherries, may be completely covered up with some non-conducting material. Cocoa-nut fibre is one of the best materials that can be used, but lacking this the remains of an old dry Mushroom bed will answer equally well.

Late trees, including Golden Drop, will be sufficiently advanced to take the fullest supply of top-dressing, and the maximum quantity of stimulating liquid, which may be varied with advantage. Good drainage from the stables, well diluted, is the best home-made liquid, as it teems with ammonia, and when bone-dust is mixed with the top-dressing the trees have all the leaf and kernel-producing food they require. Change, nevertheless, is advantageous, and this can always be produced by the introduction of guano, soot, and Thomson's Vine manure. Pot trees must be kept closely pinched and free from insects by fumigation or dipping the points of the shoots in weak tobacco water followed the next morning by good syringing. Trees upon trellises require training and tying in, stopping being confined to the repression of strong shoots taking an undue proportion of the sap. If laid in 5 inches to 6 inches apart and properly ripened, good intermediate shoots of the current year will flower freely the following season; also, like Apricots and Cherries, they will form close spurs, which will bear fruit for an indefinite number of years.

CHERRIES

now ripe must be well protected from birds. Also, the fruit being required to hang for any length of time, some light shade may be drawn over the roof,

Ripe Cherries cannot be kept too dry and cool, but the roots must not be allowed to feel the want of water, as a check from this cause will result in the speedy shrivelling of the May Duke and other thin-skinned varieties. Bigarreus and all the hard fleshy sorts, on the other hand, will stand more drought, but these in a short time show a shrivelling disposition in the stalks, a sure sign that their season has been contracted by lack of root moisture. When early pot trees have been cleared of all their fruit and thoroughly cleansed, any that require potting should be taken in hand forthwith. They need not have a large shift, just sufficient to admit the potting stick, as the compost in a dry state must be rammed until it is as firm as the old balls. Good medium loam, old lime rubble, and a dash of soot and bone dust suit the Cherry, also the Plum, and, provided they are well fed when in growth, rotten manure in the soil may be dispensed with. When the work is finished the trees should be placed in a close temperate house where they can be regularly syringed, but the old balls being thoroughly moist at the time of potting, root-watering may stand over for a few days. Under this treatment for two or three weeks the roots will take to the new soil, when the proper place, not only for these, but for others which do not require potting, will be a light airy spot in the open air. In this position they should be plunged to the rims and well mulched to save watering, but not to put an end to copious supplies when necessary supplemented by good syringing after bright sunny days.

FIGS.

Early forced trees now swelling the second crop of fruit will well repay the highest culture which can be given to them, also the crop must be well thinned down to a fair percentage of the most forward that will ripen quickly and as nearly as possible simultaneously. This end is best secured by rubbing off all small figlets as they show, when in many instances others late enough to stand through the winter and give the first crop next year will be formed at the base of the leaves thus deprived of their burden. As very early trees might be induced to ripen this the third generation, I must venture the question, Would it pay? I think not, for in the first place, the fruit would be much smaller than that obtained from later trees; in the second, owing to the length of time it would take to finish the crop properly, the trees must be kept at work when they should be at rest; and last of all, being sparsely set with fruit when the leaves fall, they would balance the account by taking half the next season to recuperate. A constant supply of Figs from April to November is by no means difficult, but three compartments at least should be occupied, the first and second giving two crops each, the third only one, as late trees neither require forcing nor pinching. By adopting this plan none of the trees will be overworked, all of them will give full-sized fruit, and having their proper season of rest, they will improve with age and continue fertile for a lifetime. But, returning to our early trees, and assuming that the roots were kept slightly on the dry side when the flush of the first Figs were ripening, no time must be lost in giving them a full supply of warm diluted liquid, in adding fresh top-dressing, in resuming good syringing, and, as I have just observed, in thinning very freely. If spider has attacked the trees, now is the time to make a clearance by the maintenance of a thoroughly moist atmosphere, no difficult matter, as fire-heat will now be at a minimum, and solar influences alone should favour closing extra early at a temperature ranging from 80° to 90°.

Succession houses in which the fruit is now beginning to ripen must be kept somewhat drier by a partial discontinuance of the use of the syringe overhead, but the floors, walls, and other surfaces may be regularly damped with clear diluted liquid at least twice a day in fine weather, and on no account must the roots at this season feel the want of water. Should the weather prove exceptionally warm firing may not be necessary certainly through the day, but being so subject to spotting when the temperature ranges low, a little dry fire-heat with night air, whilst preventing condensation of mois-

ture, will greatly improve the quality of the fruit and favour its keeping for a few days after removal to a dry, airy fruit room. If required for home use, the fruit, fully exposed to sunlight and air, should be allowed to hang upon the trees until quite ripe, well coloured, and inclining to crack along the sides, but not to fly open at the eye—a sure sign of an excess of stagnant moisture. Each Fig should then be gathered and laid upon an inverted hair sieve in a warm, airy store room. If, on the other hand, the Figs are intended for packing, the house must be kept extra dry and airy, and each fruit must be gathered a day or two before it reaches dead maturity.

Packing Figs.—In order to secure safe transit in good condition, each fruit should be well coloured, perfectly sound, and free from spot or mould when gathered. Exposure for a few hours in a very dry room will then do no harm, but much good, as the atmosphere will absorb all surface moisture. A box 4 inches in depth and sufficiently large will take one layer of the finest Brown Turkey ever grown, and as these suffer more from damp than moderate pressure, the packing materials, be they well beaten Moss or soft paper shavings, should be thoroughly dry and elastic. Having rolled each fruit in a dry soft Vine leaf, enclose in a square of tissue paper to keep out dust, and at the same time to prevent the possibility of the packing tainting the flavour. Pad the bottom of the box with a good layer, say, of Moss, then throw in a quantity, and with the fingers form a nest in the left hand corner; introduce the first fruit, then more Moss, and so on until the first row across the end is finished. See that half an inch of Moss or more forms a division between each fruit, and continue row by row until the box is full; press a little of the packing well into the corners and along the sides to prevent the possibility of any one of the fruit touching the wood or moving; fill up with a good layer of packing, allowing it to rise a little above the level to ensure even pressure from the lid; secure the latter with two small nails, cord separately or two or three boxes together; send by passenger train, having advised in advance to be met at the terminus. If Moss cannot be obtained, use paper shavings in preference to wadding.

HARDY FRUITS.

Although aphid has not been troublesome, fruit growers in this part of the country have had a terrible pest to contend with in grub upon Apples, Plums, Cherries, and bush fruits; whilst in the neighbourhood of Worcester and the valley of the Teme the hailstorms have lent their aid in defoliating the trees. In this part of Herefordshire, Apples are a thin and partial crop; Pears, which produced an irregular supply of fine blossom, have dropped wholesale; and Cherries are thinning down to a light sprinkling of fruit. This condition of our orchards does not surprise me, as I have not had the good fortune to live in a locality in which really good crops of fruit have followed so unkind a summer as that of 1888. The glowing accounts which have reached me from other parts of the country as yet have not been contradicted or qualified; consequently I am willing to hope friends who have dubbed me pessimist will not find their own swans dwindling into smaller birds. Plums, I have learned in passing through the district, are promising about Evesham, and the foliage looks well in the distance; but spreading sheets beneath the trees and shaking down the grubs has not a good ring even for those who make more money out of half crops than of full ones. I am well aware of the fact that it is yet early to express a decided opinion of the fruit harvest; not so to persevere in picking and pinching, cleansing and training, as next year's success in a great measure depends upon the way in which the trees are now managed. If really fine summer weather now follows the soaking rains which characterised the end of May, growth, especially upon lightly-cropped trees, will be unusually strong, if not gross; consequently timely attention must be given to repression, close training, and full exposure to light and air. Wall trees of all kinds, if not already deprived of breast and

superfluous growths, must be shortened into three or four leaves; whilst those retained must be closely nailed or tied into the brickwork. Bushes and pyramids may also be thinned, especially near the centres, but unless space be limited, the principal outside shoots may be allowed to extend so long as the flow of sap is fairly distributed over every part of the tree. Some shoots almost invariably take an undue share of the sap, but timely pinching here comes in, as it is by means of the finger and thumb that the proper balance is maintained. As the trees are manipulated and trained an eye should be kept upon the crop of fruit, which will be fine and valuable or mediocre and comparatively worthless in proportion to the way in which it is thinned. The days when quantity took precedence of quality have gone by; indeed, so completely have tastes changed, that consumers now insist upon having fine samples of the best varieties for dessert and cooking. Another advantage is the outcome of timely and judicious thinning, and this, it is hardly necessary for me to repeat, is annual cropping, as no one can gainsay the fact that enervated trees persist in taking one season at least to recuperate. When thinning has been brought to a close, fruit trees of all kinds should be kept free from insects by copious washing in hot, dry weather, also the crop should be assisted by timely mulching and possibly by feeding with good liquid, soot, guano, bone-dust, or other highly concentrated manures. The best mulch for trees growing upon heavy soils is fresh manure from the stables, and the same may be said of the liquid which it produces, always provided it is used in a weak state. Cow manure is cooler and milder; hence its value on hot, dry, sandy soils liable to drought and upon which the trees are subject to red spider.

STRAWBERRIES, most promising and abundant, having been well littered down will take no immediate harm, but any attempt at propping or supporting the fruit must be taken in hand at once, as extra early sorts will soon be ripening. Fruit for special purposes should be well thinned and tied up to short sticks or Birch props, well mulched, watered if necessary, and carefully netted. Slugs and snails are a plague in themselves, and birds, thanks to a mild winter, are unusually plentiful. Nets, fortunately, are very cheap, and can be obtained in almost any size, the great secret of successful use resting upon timely application. Where stock plants put out last August have been denuded of all their flower-scapes, the first set of runners will soon be fit for pegging down upon small pots, or, better still, upon 5-inch to 7-inch pots for next year's forcing. I prefer the latter, as the roots grow away without a check, the crowns, never too deep, ripen well, and as compared with shifting from 3-inch pots much time is saved in labour.

W. C.

Red spider on Vines.—No matter how perfect the condition of the Vines may be, if an attack of red spider develops itself on the leaves before the berries commence to colour, the chances of the colouring taking place are very much jeopardised if means are not at once taken to eradicate the pest. Nothing that I am acquainted with prevents the berries colouring so effectively as having the foliage covered with red spider. Two varieties—Muscat of Alexandria and Black Hamburg—are more susceptible to attacks than any other sorts that I am acquainted with, probably owing to the fact that they have more fire-heat through early forcing than other varieties. The period when this pest most often appears is just when the berries are commencing to colour. I never yet saw a house of either of these kinds colour well where the foliage was infested by this spider. The most often advised remedy is that of sponging the leaves with tobacco water, soapy water, or other liquid preparation. This work, however, is most difficult to accomplish effectually without spoiling the appearance of the bunches by rubbing the berries. Some growers coat the pipes over with sulphur either made into a paint and applied with a brush, or wet the pipes through a fine-rosed water-pot and then sprinkle on the sulphur, first making the pipes quite hot and closing the house. I have

tried this plan and found it wanting. The best of all remedies is to dust the affected leaves with dry sulphur upon the first appearance of the spider. By using a distributor the foliage can be covered without disfiguring the bunches.—S. H.

GUNNERSBURY PARK.

THIS demesne, which ranks among the very finest in West Middlesex, is best seen in May. Gunnersbury is rich in noble trees. There are grand old Cedars that have been in existence probably two centuries; there are lofty Elms, giant Chestnuts, that are laden with spikes of blossom; noble Beeches, Oaks, Sycamores, Limes, Acacias, Ashes, and many others. In one part of the grounds there is a fine specimen of the Knaphill variety of Weeping Beech, a tree with a most elegant pendulous habit of growth, standing out boldly against a background of Cedars. Some good specimens of Weeping Ash are to be found about the grounds, and, like the Acacia and Walnut, they are late in coming into leaf. One can say of Gunnersbury that it has a good soil to plant into. The planting and transplanting of large trees are being frequently done. Last February and in the early part of March, Mr. Roberts transplanted trees of Lime, Sycamore, Chestnut, &c., each from 25 feet to 30 feet in height, and all seem to be doing well. But it can be said of the spring that it proved a moist one, and, therefore, favourable to newly-planted things. Sycamore and Ash are found to transplant well.

Thorns abound, especially some very fine specimens of the common Hawthorn of the hedgerow that have been moved from the sides of walks they had overshadowed by reason of their size. It is interesting to notice how much earlier in flowering some are than others. In what is known as the Potomac, a large breadth of new pleasure grounds near to Kew Bridge, which was added to the estate some years ago, some of the Thorns were in full bloom by the first week in May, while others had given no sign of opening their buds. The common Thorns come into flower well ahead of the double varieties, and thus a pleasing succession is formed. The Lilacs are very fine—the Persian, the common white and purple, and such fine forms as Charles X. and others. *Prunus sinensis flore-pleno* displays its pure white blossoms along the fringes of shrubberies, and there are some fine bushes of the Guelder Rose that will soon be almost covered with their ball-like blossoms. One market gardener close by Gunnersbury grows this somewhat largely for bunching for market, and I think it would be difficult to mention another shrub that will bear rough treatment like this one. The flowering branches are somewhat rudely torn from them, but the plants soon put forth fresh growths which produce blossoms. Patches of the double and single Furze are seen in appropriate places, imparting a golden sheen just above the level of the Grass line. It appears to be a singular provision of this plant that while the blossoms of the double form are sweetly scented, having the delicate aroma of new-mown hay, the single flowers appear to be quite destitute of it. The double Furze can be planted with great advantage along the sides of walks. *Pyrus Malus floribunda* is a lovely flowering tree at this season of the year, and is employed by Mr. Roberts to rise just above the level of lower shrubs. The Bladder Senna (*Colutea arborescens*) is seen grown into a good-sized tree, and is covered with yellow blossoms which are followed by the curious inflated seed-pods. The Barberries are very fine. There are two huge beds—one planted with *Berberis Darwini*, the other with the hybrid *B. stenophylla*. *B. Darwini* is the earlier to flower, but is not so long in the racemes as *B. stenophylla*. The latter has flowers in branching racemes, and they are of a bright yellow colour. The pretty early-flowering *B. dulcis* is also to be found here, but it is later in blooming.

Mr. Roberts has also planted the double Furze at the sides of the ornamental water, and its golden flowers appear additionally attractive when reflected in the water. At the head of the piece of water near the mansion there is a waterfall, and this is

enclosed by means of various flowering and other shrubs, such as shrubby Genistas, *Spartium*, *Daphne Laureola*, &c., and by the side of the water, where the soil is moister, are large clumps of *Spiræa palmata*, which grow vigorously and flower very finely. *Lithospermum prostratum* is good here also, with the Irish Heaths and clumps of *Lythrum roseum superbum*.

Beds of hardy *Rhododendrons* and huge clumps of the same are very effective; the varieties very fine, and the trusses in some cases enormous. The plants are first of all forced into bloom in the conservatories, and then planted out for permanent effect.

The Copper Beech, *Prunus Pissardi*, and *Acer Negundo variegatum* being plentifully distributed had their appropriate effects also. They form a delightful foreground—the latter especially—to masses of foliage, in which many shades of green are perceptible—from the delicate tint of the American Oak to the sombre green of the Yew and the Fir.

R. D.

GARDEN FLORA.

PLATE 705.

CALIFORNIAN ANNUALS.

(WITH A COLOURED PLATE OF *CLARKIA ELEGANS* FL.-PL. *)

THE garden of annual flowers is not by any means the least important of the many phases of summer decoration now in vogue. The majority of annuals, and the Californian ones especially, are very easily managed, and with ordinary garden soil and successive sowings they will continue to give a display of flower from early June until the frost comes in autumn. Annuals are extremely well adapted for small gardens. A large supply of flowers can invariably be obtained from a small space, and their present state of perfection adapts them as well for the supply of cut flowers for the table as for the enhancement of the flower border in the open air. A very large number of species of various kinds are now grown, and their cheapness furthers their cultivation to a great extent. The seed farms from which the annual supply is drawn have of late years, on the Continent at any rate, developed enormously, and now form an industry of a very important kind, giving constant occupation to hundreds of workers. Annuals show improvement or development in their habit of growth and flowers far more quickly than our hardy perennial plants. The present genus of *Clarkia* is no exception, but rather a striking example of the almost incredibly short space of time it takes the careful florist to produce one of our best annuals from what was practically an obscure botanical species. These plants were only known to botanists fifty years ago, and, if cultivated at all, only for their rarity or interest. The florist, with patience in selecting, &c., has given us in the time specified above an almost endless variety in form, colour, and habit, from single to fully double flowers, and from pure white through all the shades of purple to crimson, &c. All the varieties, which are now very numerous and mostly distinct, are eminently suited for the flower border and beds; the dwarfier and compact-habited kinds we find very useful for the rock garden, where on sunny exposed spots they give us a welcome bit of colour. The growth of annuals, as of all other plants, is, of course, materially affected by the nature of the soil they are grown in, and in all cases we have found nothing more suitable than light, rich garden soil. Clayey or retentive soils are always considered bad for annuals,

* Drawn for THE GARDEN by H. G. Moon at Verrieres-le-Buisson, June, 1888. Lithographed and printed by Guillaume Severeyns.



DIANTHUS CARNEOLINEA, or PINK CARNATION.

even of the stronger kinds, and where such soils exist it will be loss of time to trouble with the Californian species at all. The seed may be sown either in autumn or spring, the latter time of necessity for those kinds of a tender nature, but with most of the hardy species and varieties I would recommend the beginning of September, as this enables the plants to gain sufficient strength to tide over the winter. The autumn sown seed will flower early in spring, when another sowing may be made, and thus the succession continued throughout the summer and autumn months. No seeds should be sown before the middle of March. Seed sown at this time will bloom in July, and another sowing may be made about the middle or end of June to flower in September and October. Thinning the seedlings to an inch or so apart as soon as they are ready to handle should never be neglected, and should be done with care, 90 per cent. of the failures being certainly due to carelessness in this simple



Clarkia pulchella.

matter. The seedlings become stunted, and flower before the stems have attained the diameter of an ordinary knitting needle.

C. ELEGANS, though not so variable as its near ally *C. pulchella*, is the type of many striking forms, not the least beautiful of which is the subject of our coloured plate. The seeds of this species were found and sent home by Douglas while travelling for the Royal Horticultural Society in North California, and flowered in their gardens at Chiswick for the first time in 1833. It is figured in the *Botanical Register*, tab. 1575, where the author, in speaking of *C. elegans*, says "that, like the Rose, this plant carries a charm with it which beautifies even a weed." It differs from *C. pulchella* in its broader leaves, its undivided rhomboid petals and fertile stamens. Synonyms—*Phaestoma Douglasi*, *Clarkia unguiculata*. The following are a few of the names of varieties as sold by florists: *Alba*, *alba plena*, *carminea plena*, *carnea plena*, *Purple King*, *rosea plena*, *Salmon Queen*, *splendens flore-pleno*, *violacea plena*, &c.

C. PULCHELLA.—This (see engraving) is a fine showy annual of the most variable form, and in the

variety *integripetala* very interesting. Douglas also sent home the seeds of this plant from the north-western regions of America. The plant flowered for the first time in the society's gardens, Chiswick. It has been more prolific in varieties than *C. elegans*, many of them being of the most wonderful form and colouring, and all beautiful and attractive. Amongst the varieties are *carnea*, *fimbriata alba*, *alba flore pleno*, *rosea flore-pleno*, *grandiflora*, *integripetala*, *integripetala compacta*, *limbata*, *kermesina plena*, *alba plena*, *rubra plena*, *marginata*, *Mrs. Langtry*, *nana*, and *nana alba*; other varieties are *marginata plena*, *pulcherrima*, &c. *C. rhomboidalis* is not so desirable as either the above. *C. Xantiana* I have not yet seen. D. K.

KITCHEN GARDEN.

LATE PEAS.

THERE are few, if any, more popular kinds of vegetables than Peas, and no matter how plentiful these may have been during the height of the season, a few late dishes are invariably much appreciated. In some gardens and districts it is possible to have them in October and during part of November without much trouble, but in the majority of cases a great difficulty is experienced in effecting a good start, and in others of preserving the crops from small birds and early frosts. The greatest enemies to late Peas are mildew, tomtits, and frost, and in spite of much painstaking, it often happens that from one or the other, or all combined, a complete failure is the result. These drawbacks, however, do not deter the energetic gardener from annually attempting to secure a few late dishes, and it not unfrequently happens that those who have the greatest difficulties to contend with are the most successful in the end.

Of the many varieties tried for these late crops it is doubtful if there is any to equal the well-known *Ne Plus Ultra*, which, although weak at the outset and really possessing a robust constitution, is one of the most continuous bearing. *Emperor of the Marrows* and *British Queen* are also tall growers and good mildew-resisters, and these not unfrequently continue productive till cut down by severe frosts. The best of the medium height varieties for the late crops are *Latest of All*, *Sturdy*, *Veitch's Perfection*, and *Walker's Perpetual Bearer*—the last-named being very like *Veitch's Perfection* in all respects. In the more northern districts any of the foregoing, sown not later than the first week in June, ought to yield late crops, and it is useless, as a rule, to sow them much later, but in warmer localities they may well be sown from the beginning to the middle of June. We have succeeded well with *Ne Plus Ultra* and *Sturdy* sown as late as the last week in June, but this has never been the case after either a very hot summer or the other extreme.

The advice is often given to sow the second early and the earliest varieties for producing very late crops, but very few succeed in their efforts with these. Mildew is the greatest enemy to the second early *Marrows*, while nearly all the round-seeded or such as *First Crop*, *Earliest of All*, and *Sangster's No. 1* form very weakly growth and yield only light crops of wretchedly small pods. The most noteworthy exception will be found in *William I.*, especially when new seed of it is sown. In favourable seasons this variety will have ripened seed by the end of June, and if this is sown about the first week in July there is a possibility of the strong seedlings eventually yielding a fairly heavy crop. If seed can be saved or procured of either *William Hurst*,

Chelsea Gem, or *American Wonder* and sown early in July, this might also be the means of obtaining one or two late dishes. As neither of these when sown late grow to more than 12 inches in height they can be more readily protected from frosts, and it is advisable therefore to grow them extensively in addition to the tall or moderately tall varieties tried. The pigmies might survive when the giants were destroyed by early frosts.

It is a curious and somewhat inexplicable fact that late Peas often succeed admirably on the wide ridges between the late rows of Celery. If the space can be afforded, the trenches ought to be lined out not less than 6 feet apart, and a good dressing of solid manure dug in where the row of Peas is to be grown before the soil is thrown out from the trenches. The heavy mulching, for that is what it amounts to, of the latter serves to well enclose the moisture and keeps the ground cool about the Peas, this probably being one of the principal causes of the success attending the practice. If this plan is not adopted, a somewhat high position must be assigned the late rows of Peas and a deep and rich root-run afforded. I recommend high ground, especially in low-lying localities, for the simple reason that these often escape frosts when tender vegetables growing in lower positions are cut down. The additional warmth of the soil late in the season also acts beneficially, and it may be this is another point in favour of the ridges. For this and other reasons a naturally deep or winter-trenched, free-working ground is preferable to either Celery-like trenches or newly-dug lumpy ground. The trenches are apt to become wet and cold in the autumn, while lumpy ground does not suit any crop of Peas, and is certainly the worst that can be assigned late rows. In all warm districts the early Potatoes can be cleared off the borders in time for the ground to be cropped with dwarf Peas, and if my advice is taken a good breadth will be sown, as a few short rows only are of little service. In order to have several good dishes from these miniature varieties fully two quarts of seed should be sown thinly in drills drawn 15 inches, or even less, apart. Nor are a few short rows of *William I.* or any other medium height variety of much service, as the pods are never very plentiful, and fill very slowly in the autumn.

As before hinted, a strong growth at the outset is a distinct gain. If, therefore, the ground is at all dry it should be moistened prior to thinly sowing the seed, and the latter ought to be covered with not less than 2 inches of fine soil. During the first two months the plants should never be dry at the roots, and on the other hand must not be frequently saturated with cold pump, spring or town water. A weekly soaking of warm pond or soft water and an early mulching of strawy manure best suit Peas generally and late rows in particular, and if liquid manure is applied this should be done after the ground has been previously moistened with clear water. Thus treated there is much less likelihood of mildew seriously affecting the plants, but on the contrary they will grow and branch vigorously, premature cropping being thereby avoided.

In many instances if the late varieties sown about the end of May or early in June were more liberally treated these would continue bearing until frosts intervene. In the first place they must be grown rather thinly and kept from cropping prematurely, as just advised. They also ought to have good tall stakes or sufficiently high to prevent the haulm from breaking down, and the earliest formed pods

should either be removed before they fill or as fast as they are moderately well filled. Thus favoured there will be no early check to the growth of the haulm, and in the month of October and the early part of November a few good dishes would most probably be available. We have the greatest difficulty in preserving late Peas from the tits, and sparrows are also troublesome. The former have to be caught in small spring traps and the latter scared with the gun.

W. IGGULDEN.

CULTURE OF LETTUCE.

LETTUCE will do well in any fairly good garden soil inclining to be light rather than heavy in texture. For early and late plantings a warm and rather dry situation is preferable to a cool, moist one, but for summer and early autumn Lettuces these conditions should be reversed. If the ground is not naturally rich, it should be liberally dressed with well-decomposed manure, digging it into the ground a good spit deep some time before setting the plants in it, although very good results can and are annually secured by planting the ground the same day it is dug.

SEED SOWING.—About the third week in January the first sowing, consisting of the Paris White Cos and Grand Admiral (Cabbage Lettuce), should be made in a pit or frame placed on a hotbed in which there is sufficient bottom-heat to start the seed, and afterwards to keep the plants growing steadily until they can be pricked out under some old garden lights in a sunny border. The soil in the lights, including 3 inches or 4 inches thick of light soil on the top, should be within 2 inches or 3 inches of the glass to ensure a sturdy growth in the young plants. Where the pit or frame accommodation is not to be had, the seed should be sown under an old sash or hand-light in a warm corner out of doors about the middle or end of February. The plants resulting from this sowing will make a good succession to the autumn-raised ones. A second sowing should be made the last week in March, and a third the middle of April. This time, in addition to the varieties mentioned, White Heart (Cos) and Favourite (Cabbage) should be sown on a border having a west aspect. The second week in May, first and last weeks in June, and again in the middle of July, small successional sowings should be made. The last two sowings should consist of such sterling varieties as Paris White Cos, Improved Black-seeded Bath Cos, Favourite, and Marvel (red-edged Cabbage). The plants from these sowings will come in for use in autumn and early winter. The last sowing to produce plants for use in heated and cool pits in January, February, and March, and in warm borders out of doors in April, May, and the first and second weeks in June, should be made from the middle to the 25th of August. The former date will be none too soon in the northern parts of the kingdom, and the latter date will be time in the south. Improved Black-seeded Bath Cos, Hick's Hardy White Cos, and Hammer-smith Hardy Green Cabbage are the best varieties for this sowing.

PRICKING OUT AND TRANSPLANTING.—In every case these operations should be carried out before the plants become crowded in the seed-beds. The plants should be dibbled out in a south or west border, in rows 4 inches apart, and at the same distance from plant to plant in the rows, and watered to settle the soil about the roots. If the plants can be shaded for a few days from sunshine they will the more readily re-establish themselves, and these operations should be performed in dull, showery weather. If the ground is ready by the time the young plants are fit for pricking out, they may be pricked out at once in rows 12 inches apart and at the same distance in the rows, giving water at the roots to settle the soil about them. Previous to planting, a surface-dressing of fresh soot should be given. Capital Lettuces may and are annually grown on Celery ridges during the interval of forming the trenches and the earthing up of the Celery plants.

Where the ground is plentiful, there can be no

question about the finest and most solid specimens of Lettuces being obtained by sowing the seed very thinly—say 3 inches apart, in drills about 1 inch deep and 12 inches asunder, the ground having been prepared beforehand in the usual way. Thus grown, and afterwards attended to with water, the plants never experience the slightest check. In due time they should be thinned out—first at 6 inches and subsequently at 12 inches in the rows. In case blanks should occur while the plants are small, and if necessary to extend the plantations, the thinnings may be transplanted in the usual way. The plants resulting from seed sown in the end of June and the middle of July will, as already stated, come in for use in autumn and early winter. Towards the end of October, and before the Lettuces are injured by frost, they should be taken up carefully with good balls of soil, and be planted 3 inches or 4 inches apart in a cool pit or frame, placed on a south border from which frost and heavy rains can be kept out, putting the plants as deep in the soil as they were before and giving water to settle the soil about the roots. Take care in doing so to avoid wetting the plants, especially the centre or heart-leaves.

In the absence of frost and heavy rains these plants should have an abundance of fresh air given them according to the weather. The great enemy to be guarded against in the preservation of Lettuces is damp. The plants raised from seed sown in August should in due time be pricked out, those in slightly heated pits at 6 inches every way from plant to plant, drawing every other plant for early use before they touch, giving 3 inches between the plants in cool pits and in warm and somewhat dry borders out of doors. The plants in cold pits and out of doors must be protected from the effects of frost by shutters, Fern, &c. Slugs, which are frequently troublesome to Lettuce plants thus grown, should be hunted up and destroyed, afterwards laying occasionally a mixture of fresh soot and lime between the plants and the wall, fence or edging as a means of warding them off. As early in February or March as the nature of the weather permits put some of the autumn-raised plants in a nice rich piece of ground having a south or west aspect, and if possible sheltered from the north and east by a wall or fence of some kind. In planting thus early in the season level the soil well up round the stems of the plants so as to prevent lodgment of water about their collars. In making plantations during the summer it will be an advantage to the plants to leave a slight depression round their collars for the reception of water. The plants put out early should have a few Spruce or other boughs stuck in the ground between the rows as a protection from frosts and cutting winds for a week or ten days until they become re-established. Successional plantings should be made every three weeks from March to the middle of August.

AFTER TREATMENT.—This consists in keeping the plants moist at the roots in every stage of their growth. A free use should be made of the Dutch hoe between the plants with a view to accelerating growth as well as keeping them free from weeds.

BLANCHING THE HEADS.—In order to get as great a portion of the leaves of the individual heads of Lettuce as white and crisp as possible, recourse should be had to tying up the leaves, but not too tightly, with bands of matting when the heads have nearly attained to their full size. As the leaves of the Cos Lettuce are self-folding, they do not, as a rule, require tying up, although by doing so the process of blanching is more effectually completed. The tying up should be performed when the leaves are quite dry. The Cabbage Lettuces generally require to be tied up to become thoroughly blanched. One band of matting, which should be tied within a couple of inches of the top of the heads, is ample for each Lettuce.

SAVING SEED.—The autumn-raised plants are the best to save seed from, selecting the finest and truest specimens of the respective varieties for this purpose. Those that heart quickly, but show least disposition to send up their flower-spikes are to

be preferred. In order to keep the varieties true only one kind should be seeded in any one garden at the same time. The plants should be tied to sticks to prevent them being injured by the wind. The seed which ripens first on the plants is the best. It will retain its vitality for three or four years if properly ripened.

INSECTS.—The Lettuce is subject to the attacks of various insects. These include the caterpillars of the garden swift (*Hepialus lupulinus*), of the heart and dart moth (*Agrotis exclamatoris*), of the common dart moth (*A. segetum*), and the maggots of the spotted crane fly (*Tipula maculosa*), and they quickly make their presence known by the havoc which they work among the roots of the plants. Wireworms, too, are sometimes very troublesome by eating the roots as well as the stems. Occasionally the leaves of the Lettuce are attacked by the caterpillar of the Cabbage moth (*Mamestra brassicae*), and the maggots of the Lettuce fly (*Anthomyia lactuca*) prove destructive to the seed crop by eating the seeds. The best remedy that I know of for the riddance of the above-named depredators is to well surface-dress the ground with fresh soot immediately before planting, scratching it into the soil with the rake. A few annual dressings of this powerful fertiliser will rid the ground so dressed of all insects, and a slight sprinkling of a mixture of lime and soot over the seedling plants before they come into flower and while the leaves are damp will make short work of the Lettuce fly.

H. W. WARD.

KITCHEN GARDEN NOTES.

MUSHROOMS IN HOT WEATHER.

FRESH Mushrooms are always esteemed in the kitchen, but in hot weather are rarely forthcoming. High temperatures and a dry atmosphere are frequent causes of failure in the winter, and the former are principally responsible for an early collapse in the summer. Open sheds are not suitable for growing Mushrooms in hot weather, nor are they often obtained from ordinary Mushroom houses. The majority of Mushroom houses have slated or tiled roofs, and in many instances have no ceilings. During the hottest part of the day the sun shines fiercely on these and naturally unduly raises the temperature for several hours. Thatched roofs are the best for all weathers, and the least that can be done at the present time is to either cover the roofs with mats or heavily coat them over with limewash. Mushroom houses ought to be as hermetically closed against warm air as an ice house, and if they do not seem refreshingly cool when entered at this time of year they are not suited to the production of Mushrooms. By far the best produce, however, is to be had now from the ridge-shaped open-air beds. If these, even if located in a sunny position, are covered with straw litter a foot in depth, the beds may be kept comparatively cool in the hottest weather. Just now we are frequently gathering fine, juicy, pink-gilled Mushrooms from an open-air bed spawned late last autumn, and there is every prospect of successional gatherings for another three weeks. Old beds in either houses or the open air should not be too quickly broken up. If on examination the manure is very moist and much decayed, it is useless to retain the beds any longer; but if the manure appears to be overrun with fine thread-like roots, a thorough moistening may be all that is needed to bring up a plentiful crop of Mushrooms to the surface. It is of no avail to merely damp the surface. A mass of dry soil and manure needs watering frequently before it becomes properly moistened, and if the water used is rather strongly impregnated with salt, this will have both a cooling and fertilising effect on the beds. Some prefer to lightly cover a bed with fresh stable litter prior to watering, but we find open-air beds vary considerably, some parts, perhaps, being quite dry and others moist enough. Only the dry places should be watered, this being repeated for two or three days in succession, and the litter covering at once returned each time. All the old beds, whether under cover or not, ought to be heavily covered with litter, this enclosing the moisture as well as excluding heat,

but newly-formed beds ought to be in a shady or naturally cool position and not covered in for a time, or otherwise the manure will most probably become overheated and be spoilt. On no account should the old stumps be left in a bed to spread corruption all round in a few hours. Large clusters when about half-grown ought to be pulled out roots and all, and isolated Mushrooms twisted out of the beds. When the old roots are scooped or drawn out of the beds, it not unfrequently happens that fresh clusters spring up very close to the holes thus made.

CELERIAC.

Small samples of this Turnip-rooted Celery are of little value, and the aim, therefore, should be to grow them as large as possible. If not already done, the plants ought to be pricked out on a shallow bed of manure with a facing of fine soil disposed on a hard bottom, or exactly as the ordinary Celery is prepared for planting, and if the plants are covered with a frame they more quickly become ready for transplanting. Early Cauliflowers can usually be cleared off in time for the ground to be occupied by Celeriac, and unless the site was very freely manured for the former, a liberal dressing of manure ought to be forked into the surface in preference to burying it deeply. A lumpy or heavy soil is unsuited to this crop. When the plants touch each other in the bed where pricked out they ought to be put out where they are to grow, any further delay being unwise. Each should be cut out with a good square of soil and roots attached, and all side shoots or suckers neatly trimmed off. Plant quite on the surface 18 inches apart each way and keep well watered till well established. In a dry season Celeriac requires to be watered as often as the Celery in the trenches, and ought to receive a mulching of short manure. It should be remembered that the base or Turnip-like root only is eatable, and this must therefore be kept cleared of all side shoots, and not moulded over in any way till fully grown. In France Celeriac is more generally grown than in this country, but there are a few English establishments where it is appreciated both for cooking and serving as a vegetable and also for soups. The roots can be kept as late as May, and are thus available for six months or longer each season.

PLANTING CELERY.

It cannot be too often pointed out for the benefit of the inexperienced how unwise it is to leave Celery plants crowded in either the seed bed or where they have been pricked out. When sturdy well-rooted plants are transferred to the trenches, they seem to experience no ill effects from the removal, and this no matter how hot and dry the weather may be. Much drawn or leggy plants, on the contrary, quickly fall about the trenches, and are a long time before they recommence active growth. The experienced gardener prepares his trenches early, it may be months before they are required for the Celery, and while the manure and soil are becoming sweetened and otherwise well prepared for the reception of the plants, the ridges between the trenches are closely cropped with kidney Beans, Lettuces, Radishes, and not unfrequently Peas are also grown between more widely disposed trenches. The trenches being ready, the first favourable opportunity is taken of putting out the plants. Showery weather is to be preferred for the operation, and thousands of plants might be put out in a day, but when all is in readiness we do not wait for rain and thereby risk spoiling the plants. Before the plants are disturbed a good watering should be given, and all may then be cut out each with not less than 4 inches square of soil and roots, this coming cleanly off the hard bottom. All should be cleared of suckers and dead leaves, and carefully carried to the trenches as required. If there is a good depth of soil in the trench, or should the manure forked in be well decayed, the quickest and best way is to open rather wide drills in the trench with a broad hoe, the plants being set in this and the soil levelled and well pressed about them with the hands or with a trowel. When a single row only is grown in a trench, the plants may be put out 8 inches apart, at

which distance they will grow to a serviceable size, but if required extra fine or fit for exhibition, they must be allowed 12 inches. If the trenches are 18 inches wide, these being intended for a double row of plants, the plants should be disposed 12 inches apart each way, while trenches 5 feet wide will hold four rows of plants. The Celery ought to be planted in straight lines across the bed and not less than 12 inches apart each way; unless so arranged, that is to say, planted in squares, it will be very difficult to mould the plants up properly. All should be well watered in, and if given overhead waterings in the evenings of hot days and occasional soakings, the plants will grow rapidly and strongly. Soot freely dusted over and about the plants acts as a fertiliser, and also serves to keep away both slugs and the Celery fly.

YOUNG CARROTS.

This season, owing to repeated failures and late or repeated sowings in consequence, there will in many instances be less need to make the usual sowing in June. Where, however, the April sowings did not fail from any cause, the thinnings will soon be too large to suit the tastes of those who require a constant supply of tender young roots, and another sowing ought, therefore, to be made at once. The preference should be given to one of the stump-rooted varieties, notably, Nantes Horn, and this ought to be sown on rather light ground in drills 9 inches apart. If the plants are lightly thinned where at all thick and kept clear of weeds, a good supply of roots should be obtained early in the autumn, and a good bed would last all the winter. When quite small roots only are desired another sowing must be made in July and again in a frame early in August, the small French Horn being the variety mostly preferred by first-class cooks. These small Carrots are so much in demand at some large establishments as to necessitate the use of quite a series of frames in the summer and autumn as well as the winter and early spring months.

VARIOUS.

Slugs have a great partiality for quite small seedling Globe Artichokes and Cardoons, and this season we have been obliged to raise a number in pots under glass to make good the blanks caused by those pests. If the Artichokes are given good room the plants will produce fine heads in August or September; therefore thin out to not less than 15 inches apart in the rows or shallow trench in which they were sown. Any raised in pots must be planted early, or they become badly root-bound and do not attain a serviceable size the same season. Old plants are producing fine heads rather earlier than usual, and these are much appreciated. Many of the old stools pushed up more suckers than usual, and those who neglected to thin these to three or four in number will have but few good heads. Artichokes are naturally gross feeders, and are, therefore, much benefited by liberal supplies of liquid manure and a rich mulching. Potatoes on warm borders in early localities are now fit for use, and as they are cleared off, the ground should be cleaned, levelled, and the surface made fine. Strawberries, late Kidney Beans, salading, or late Broccoli and Cauliflowers can be sown or planted in close succession. Potatoes generally have come through the ground evenly, but on heavy soils the haulm is not strong. Those sets planted with one strong sprout attached have done much the best. It is advisable to thin out their shoots where very numerous, and if not too quickly moulded up they will gain in strength more rapidly. Cauliflowers should be watched closely, as a few hours' exposure to full sunshine soon discolours the hearts, and caterpillars must also be caught. The lower leaves may be snapped off and placed over the advancing hearts, or, better still, the blanching be effected by tying the leaves together over the centres. Liquid manure, or some kind of special manure, washed in greatly assists in the development of fine close hearts. A few hours spent in surface hoeing now, or on a bright day, may save several days' unsatisfactory labour later on. The whole of the clear ground should be stirred, whether weeds are seen

or not, and weeds in the rows of seedling plants drawn out. W. I.

SHORT NOTES.—KITCHEN.

Tomato Horsford's Prelude is one of the finest varieties for pot culture. It bears freely, and the fruits are of good colour, size, and flavour. It is one of the kinds largely cultivated in the Chiswick Gardens of the Royal Horticultural Society.

Savoys.—In many cases Savoys are sown, planted, and matured too early. I have known them to be hard in the head in August, and very generally so in September, when it would have been much better for the cultivator if they had not attained this condition until November; but by that time many of the earliest begin to split and spoil, and as a winter vegetable they are then useless. No cares for Savoys so long as Kidney Beans, Peas, and other choice vegetables are obtainable, and they ought only to be grown for winter supply, and if secured from November until April they will be found most useful.—J. MUIR.

Cucumbers.—It would be very interesting to know the history of the best Cucumbers in ordinary cultivation. Thus we constantly hear that Telegraph is the best frame variety, and out of myriads of crosses that have been made from time to time nine-tenths of the progeny seem to revert to the Telegraph again. Is Telegraph a really *bona fide* distinct kind after all? If seed of all the kinds or assumed kinds in cultivation could be obtained and grown, no doubt we should find that a large majority would be of the Telegraph strain. Smooth Cucumbers seem to have ousted the old Black Spine varieties, of which Blue Gown is such a fine type. A very smooth, handsome, but rather short green Cucumber is Royal Windsor, that seems traceable back to Hedsor Prolific or Masters' Prolific, although greatly inferior. I crossed Royal Windsor with Tender and True two years since and obtained a wonderful cropper with handsome fruits of medium length, but last season was an unfavourable one for cold frame grown Cucumbers.—A. D.

TREES AND SHRUBS.

MAGNOLIAS.

AMONG trees which bloom here during the last days of April and in early May, none compare in the magnificence and profusion of flowers with those species and varieties of Magnolia which produce them in advance of the appearance of the leaves. They are all natives of China and of Japan, and all belong to or are derived from three species. Most of these plants have been known in this country for many years, and their perfect hardiness and adaptability to the climate of Eastern America have been abundantly demonstrated. They grow rapidly under proper conditions, and begin to produce their marvellous flowers when only a few feet high. They are not seen here, however, as often as might be expected, and, relatively, they are probably less frequently planted than they were thirty or forty years ago. As no one ever sees a good plant of Magnolia conspicua in full bloom without being filled with admiration and the desire to possess such a wonderful object, their comparative rarity in American gardens can only be explained by the facts that all these plants are rather difficult to transplant, unless it is done at the right time, and that they are fastidious about soil and require clean and constant cultivation until they are fully established. The secret of transplanting Magnolias successfully consists in doing it as the leaves are opening; that is, in the case of these Asiatic species, just after the flowers have fallen. Magnolias have large, fleshy roots, which decay rapidly when they are cut or bruised, and do not, therefore, recover easily from transplanting unless the plants are moved at a time when they are in active growth, and so in a condition

to make new root-growth rapidly. Magnolias moved early, while the roots are dormant, often suffer seriously or do not start to grow again, so that by many people they are considered difficult trees to transplant, while in reality they are not, if the peculiar character of their roots is considered, more difficult to manage than other trees. They all dread drought, and do best in peaty soil. Drainage does not appear essential and fine plants are developed in positions where the ground is saturated with water during several months of the year, and where it is never completely dry during periods of protracted drought. Such constant moisture is not, however, necessary to them, and very fine specimens may be seen growing in good, ordinary garden soil. They love the same treatment as the Rhododendrons—a soil of peat, leaf-mould, sand, and turfy loam deep enough to prevent dryness at the roots, and an open situation in the full sun, that the flowering wood may be thoroughly ripened. The ground about them should be kept clean and well cultivated for a few years after planting, and abundant space be allowed for the free lateral development of the lower branches. It is now known—thanks to the intelligence of an American horticulturist—that all of the Chinese Magnolias grow more rapidly and make larger and more shapely plants if they are grafted on some one of the strong-growing American species. *M. acuminata* and *M. tripetala* are used for this purpose in American nurseries, and each is preferred by different cultivators. Only plants grafted upon one of these species should be bought or planted, as they are unquestionably better than any others. These Magnolias are naturally shapely plants, and they suffer from crowding. Indeed, their proper use is as single specimen plants, isolated upon the lawn or rising from the midst of broad masses of Rhododendrons, whose dark green foliage makes a proper setting for the blooming, but leafless Magnolias. The foliage, when it does appear, is rather heavy; the outline of the plants is bushy and compact, and they do not contrast well with other trees if brought into immediate connection with them.

MAGNOLIA STELLATA.

The earliest to flower is this little shrubby Magnolia (the *M. Halleana* of some American gardens), the last introduced into our gardens, and still very rare. It has been so often described in these columns that further mention of it is unnecessary beyond the bare facts that it is perfectly hardy, that it flowers here soon after the middle of April, and that it is one of the most beautiful and desirable shrubs of recent introduction.

MAGNOLIA CONSPICUA

follows *M. stellata* in time of blooming, its flowers opening here in ordinary seasons about the 1st of May. This is the handsomest of the whole series in flower, and the most desirable, except that here in New England the flowering period is sometimes cut short by the north-east rain-storms, which often arrive simultaneously with the flowers; and that in climates where spring frosts prevail these early flowers are destroyed. *M. conspicua* is a shapely, round-headed tree, capable of reaching a height of 50 feet or more under favourable conditions. It is low-branched, the main branches dividing in many tortuous, branching divisions. The bark of the stem and of the main branches is smooth and ashy grey; that of the young branches is chestnut-brown. The flower-buds, which are formed during the summer, are large, and protected during winter by thick, woolly, stipular sheaths. The flowers, with petaloid sepals, are pure creamy white and pleasantly fragrant;

they are cup-shaped, 4 inches or 5 inches deep, with obovate, mucronate sepals and petals, 2 inches broad, and red stamens. They are produced in the greatest profusion, and quite cover the trees as with a white sheet. They are quickly followed by the leaves, which are obovate, contracted into a short stout point, 3 inches or 4 inches long, downy when young on the lower surface, ultimately thick and deep dark green. The fruit is slender, often contorted, and 2 inches or 3 inches long. It is produced here abundantly.

M. conspicua is a native of China, where it seems to be widely distributed from the neighbourhood of Peking to Shanghai, and probably also of Japan, where it is very generally cultivated. It is the Yulan of the Chinese and of European gardens, and the *M. Yulan* of Desfontaines and some other botanists. An interesting account of this tree may be found in the "Memoires concernant l'Histoire des Sciences des Chinois," written by the early French missionaries at Peking (iii., 441), from which it appears that the Yulan was cultivated under the dynasty of Tang in 627, and has since been always a favourite in the gardens of the Imperial palaces and of the temples, and that young plants are used for the decorations of the Imperial apartments in winter. It is the symbol of candour and of beauty, and a powder prepared from the green fruit is used to alleviate bronchial affections. *M. conspicua* was introduced into Europe as early as 1779, but it was much later before its beauty was appreciated and it became common in cultivation there. There seems to be no record of its earliest introduction into the gardens of the United States, and if there are any very large plants in the country they will be found probably near some of the large cities of the middle or South Atlantic States. The best in the north are in the city of Newburg, where very fine symmetrical specimens may be seen, planted no doubt by Downing, or propagated in the nurseries which he early established there, and from which many good plants were sent into the gardens of this country.

MAGNOLIA OBOVATA.

Thunberg, who was in Japan from 1773 to 1779, discovered there this shrubby Magnolia, with slightly obovate or acuminate leaves, precocious, fragrant flowers, with very small yellow or yellow-green, narrowly acuminate sepals and large acuminate petals, deep purple on the exterior, and creamy white on the interior face. This is variously known also as *M. purpurea*, *M. discolor*, and *M. denudata*. It was introduced into Europe a few years after its discovery. It is a hardy shrub, once a great favourite in gardens, although now much less commonly seen than formerly, having given way to that race of hybrids of which it is one of the parents.

HYBRID MAGNOLIAS.

The first of these hybrids dates from 1826. It sprang from a seed of a *M. conspicua* in the garden of *M. Soulange-Bodin*, of Fremont, in France, of which the flowers had been fertilised with the pollen of *M. obovata*. Whether this hybrid was the result of chance or of intention is doubtful. Loudon ("Arboretum," i., 278) speaks confidently of "accidental fecundation," but in the elaborate account of this hybrid, to which is joined the earliest figure, published in the "Annales de la Société d'Horticulture de Paris" (i., 90), it is expressly stated that *M. Soulange* intentionally hybridised the flowers of *M. conspicua* with pollen of *M. obovata*. It is now known as *M. Soulangeana*, and is almost intermediate between the two parents, except in

habit, which is arborescent, and not different from that of *M. conspicua*. The leaves are intermediate in size and narrowly obovate, with the point of those of *M. conspicua*. The flowers are also intermediate in size, with smaller sepals than occur on those of *M. conspicua*, although still petaloid, and the sepals and petals are streaked, especially towards the base, with purple. This plant, although far less beautiful in the colour of its flowers than *M. conspicua*, has the advantage of blooming a week or ten days later, and, therefore, at a time when storms and frosts are less liable to injure the flowers. It is as hardy as either of its parents, and produces fertile seeds.

A number of other hybrids between these species appeared in Europe about the same time as *M. Soulangeana*, differing in the amount and in the shade of purple of the flowers, and especially in the size and shape of the sepals. *Magnolia Alexandrina* and *M. speciosa*, according to Karl Koch, originated in the garden of *M. Cels*, a famous French patron of botany and horticulture, and *M. Nortbertiana*, another hybrid, in that of *Soulange-Bodin*. The plant which grows here under the last name is remarkable for its small greenish white acute sepals, hardly larger than those of *M. obovata*. The flowers are only faintly marked with purple, are small, 3 inches to 3½ inches deep, and are the last to appear, being fully a week later than those of *M. Soulangeana*, and between two or three weeks later than those of *M. conspicua*. The trees are as free-growing as the others and equally hardy. Whether this is the variety originally distributed as *M. Nortbertiana* it is impossible to say, or to satisfactorily distinguish any of the various forms of these hybrids except the original *M. Soulangeana*. They vary little among themselves; descriptions, when they can be found, are not reliable, and there are no coloured figures which can be depended upon to refer to. Certain forms are known traditionally in certain nurseries or gardens under certain names, but such traditions are always misleading, and it seems hopeless, at least with the information available in this country, to do otherwise than call all forms with purple and white flowers varieties of *M. Soulangeana*, and drop the other names.

A hybrid of more recent appearance and of doubtful origin is in some respects the most interesting of the whole series. This is the plant known in gardens as *M. Lenné*. Van Houtte, who published a coloured plate of the flowers twenty years ago, took it for granted that it was a hybrid between *M. conspicua* and *M. obovata*. He states, without further explanation, that it originated accidentally in Lombardy, where it was discovered by the nursery gardener, Turf, of Erfurt, who introduced it into Germany, naming it in honour of Lenné, the Royal Garden Inspector at Berlin. The origin of this plant is not as apparent as that of *M. Soulangeana*, however; that is, it is not as clearly intermediate in characters between its two supposed parents. It is shrubby rather than arborescent in habit, with wide-spreading stems branching from the ground. The branchlets are much smaller than those of the other Magnolias of this class; the leaves are larger than those of the other species, they are broadly ovate or sometimes slightly obovate and pointed at the summit, but quite destitute of the short contracted point found in those of *M. conspicua* and of *M. Soulangeana*. The flowers are the largest of the series, 3½ inches to 4 inches deep, with coloured petaloid obovate sepals about one-half the size of the petals, which are broadly obovate, rounded at the extremities, fully 4 inches across, deep dark purple over the whole

of the exterior surface, and pure snowy-white in the interior. The anthers are deep and the anthers paler purple. The flowers are deliciously fragrant, and the fruit and seeds, which are produced in profusion, are larger than those of either of the supposed parents. *M. Lenné* might very well pass for a very robust, large-flowered variety of *M. obovata* were it not for the petaloid sepals and the broadly obovate petals, which point to the blood of *M. conspicua* and a probable hybrid—a solution which, however, is not altogether satisfactory.

M. gracilis of gardens I have never seen, but, judged by the figure in Hooker's "*Paradisus Londinensis*" (t. lxxxvii.), is nothing more than a slender form of *M. obovata*.

MAGNOLIA CAMPBELLI.

The handsomest of the *Magnolias* with precocious flowers, and the finest of the genus, with the exception perhaps of the evergreen *M. grandiflora* of our southern forests, is *M. Campbelli*, a large forest tree, peculiar to the mountain valleys of Sikkim and Bhotan, at elevations of 8000 feet to 10,000 feet. The flowers are white or rose-coloured and 8 inches or 10 inches across. This species is apparently difficult to manage, although it has been cultivated for many years in different parts of Europe. It has flowered in a garden near Cork, in Ireland, where this tree is fairly hardy, but in Northern Italy it has so far, I believe, failed to produce flowers, and I have not heard of it blooming elsewhere. It is hardly probable that it has been introduced into the United States, although, owing to the more humid summer climate, it might be expected to flourish in some parts of the Gulf States perhaps better than in Southern Europe.—C. S. S., in *Garden and Forest*.

Early clipping of Quick hedges.—Many persons make a mistake in not paying sufficient attention to the clipping of Quick hedges at an early date. Much depends upon the manner in which a Quick hedge is managed during the season of its growth. To form the thickest and consequently the best hedge, at least three times during the year the new growth should be cut. In this manner additional growth is made by the breaking back of the young shoots, and as every growth adds to the thickness of the hedge the treatment must be correct, as an increase of shoots is the one object in view.

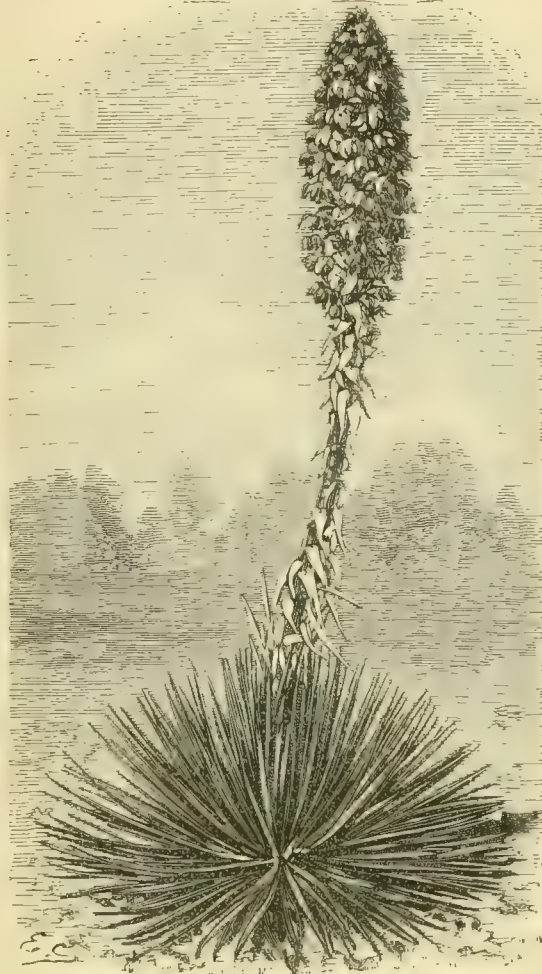
***Ceanothus divaricatus*.**—Growing at the base of the dwelling-house here on a southern aspect is a plant of this *Ceanothus* which has reached a height of 30 feet, and covers a space about 20 feet wide. Pruning of the shoots has not been done severely, but a rather loose growth has been encouraged. The leading growths have all been kept fastened to the wall as they progressed, and at the base branches 3 feet long have been allowed to extend. At times these have been cut in for the sake of convenience, but it is here where the fewest flowers are to be seen, while the points of the leading branches are completely covered with blossom, so much so that it is only with difficulty that the leaves can be seen. Grown in this manner, this *Ceanothus* is a charming plant for covering a large space in a short time.—SOUTH HANTS.

The Snowdrop Tree (*Halesia tetraptera*).—A specimen of this is remarkably pretty when every twig is thickly studded with its drooping bell-shaped blossoms; but, unfortunately, they do not retain their beauty long. The Snowdrop Tree seems to delight in a cool moist soil, and of not too shallow a nature, as in dry gravelly spots it is never met with in a flourishing condition. It is a native of Carolina and Virginia, and is said to grow on the banks of rivers, so that its liking for a moist spot is fully accounted for. In the United States it is also known as the Silver Bell Tree. There are two or three other species of *Halesia* and the pretty

flowering Japanese shrub, formerly known as *Pterostyrax hispidum*, is now included in the genus *Halesia*. Its cultural requirements are about the same as the one above mentioned, as in dry soils it is never seen to advantage.—T.

YUCCA WHIPPLEI.

THIRTY years have elapsed since the veteran botanist Torrey described in the year 1858 the fine plant which forms the subject of the present article. Botanists were at once struck with its peculiar aspect, the short glaucous leaves being disposed in a rosette, more like the foliage of a *Litsea* than that of a true *Yucca*, and the inflorescence being disproportionately large for the foliage, the leaves also being finely, but distinctly



Yucca Whipplei.

toothed—an unusual feature in the genus. These points of difference even appeared to Engelmann to afford sufficient grounds for forming a special section or sub-genus under the name of "*Hespero-yucca*," while he included all the other species under the term "*Eu-yucca*." *Yucca Whipplei* then became better known, and it was ascertained that it was distributed here and there in the territory of Arizona, as well as on the mountains of California, near the Pacific coast. So much was known about it in 1870. Three years later Professor W. H. Bremer, of the Californian State Survey, completed the notes which had been already taken by Dr. Engelmann, who was then enabled to publish a complete description of the genus *Yucca*.

Soon after this living plants were introduced

at New York, and then some were sent to Europe where they flowered in 1876 with Mr. Peacock in England, and also at Haarlem in Holland with Messrs. Krelage, to whom they had been consigned under the name of *Yucca californica*. Grown subsequently in the south of France, in a warm and dry climate resembling that of their native California, fine, fully-developed plants of *Y. Whipplei* might be seen in flower along the coast of the Mediterranean. We have already described and figured one magnificent noble-flowered form which originated in the Jardin d'Acclimatation at Hyères. The species is rather tender for the more northerly parts of France, but seems to suffer more from moisture than from cold. In England Canon Ellacombe did not succeed in keeping it alive out of doors. At Lacroix, in Touraine, it has grown pretty well with us for the last four or five years, but has never flowered. The accompanying illustration was taken from a plant growing at Hyères, where, as everywhere else in the south of France, it flourishes in perfection.—*Revue Horticole*.

Snowy Mespilus (*Mespilus grandiflora*).—This must be included among the most select trees for a lawn, as in such a position it forms a tree that reaches a height of 20 feet or thereabouts, with a roundish, yet somewhat spreading head, and in some individuals the branches sweep the turf. The large, oblong-shaped leaves are of a deep green tint, and serve as a setting to the white blossoms, which are as much as 2 inches in diameter. They are usually solitary, and before dropping become flushed with pink. When first expanded and the blooms are still pure white, the brightly-coloured anthers stand out conspicuously from the rest of the flower. Though the blossoms are so large the fruits are comparatively small, and cannot be eaten in the same way as those of the common Medlar (*Mespilus germanica*). The large flowered Medlar has been known in this country throughout the present century, but, except in a few old-fashioned gardens, it is now rarely or never met with. According to Loudon, its native country is not known, but it is now, I believe, generally regarded as a native of the Caucasian region. Besides the specific name of *grandiflora*, it is also as frequently known as *Mespilus Smithi*, and is by some regarded as a *Crataegus*.—T.

***Piptanthus nepalensis*.**—It may interest your correspondent "T." perhaps to know that this handsome *Laburnum* flowers well and ripens its fruit perfectly in this district (Lower Annandale) every year. I have known it for a good many years, certainly for at least fifteen, and it has been perfectly hardy, undergoing the severe winters within that period without suffering in the least, and in both districts unprotected even by a wall. In one case it was at the south-east end of a greenhouse, and in another at the end of a low greenhouse looking westward, and exposed thoroughly to all winds excepting the east, and that only partly.—R. B. M., *Annan, N.B.*

White Kerria (*Rhodotypos kerrioides*).—This *Rhodotypos* is well named, for it bears such a striking resemblance to the old *Keria japonica*, that when out of bloom it is very easy at first sight to mistake the one for the other. The blossoms, however, are very different, for those of the *Rhodotypos* are a good deal like single white Roses. The *Rhodotypos* will succeed in light sandy soils better than many other shrubs, and is, besides, perfectly hardy. Under favourable conditions, in the open ground it forms a much-branched bush that reaches

a height of about 6 feet. Some bushes of it here are now thickly studded with the conspicuous white blossoms, and unless the weather is very hot and dry, a succession will be kept up for some time. It is a native of Japan, and is there cultivated to a considerable extent in gardens. Seeds are often ripened from which young plants can be readily raised, and cuttings are by no means difficult to root. They may be either formed of the young growing shoots, taken during the summer months and put in a close frame, or the mature growth can be selected and inserted in a sheltered border.—H. P.

FLOWER GARDEN.

NOTES ON HERBACEOUS PLANTS.

THERE are two or three things which must be uppermost in the minds of all growers of herbaceous plants, at least if their experience is at all similar to my own, and with some with whom I have had intercourse I find that it is so. One is the terrible plague of slugs and snails, the other is the effects of the drought of 1887. With regard to the first, I have not for many years experienced anything like it. I suppose the cold, wet July of last year helped to increase these pests. No place affords them greater opportunities than the rockery or alpine garden; the stones gave them a sure resting place; they ensconce themselves under these, while the smaller members of the family, gifted with the boldness and boundless capacity of youth, simply go into the earth so as to be ready for an onslaught. And what tempting morsels the grower of herbaceous and alpine plants sets before them, although it is some time before he discovers their special tastes. Why, for instance, will they simply annihilate the white variety of *Dictamnus Fraxinella* and leave untouched the purple one? Why will they travel past any number of *Delphiniums* if only they can sniff in the distance a plant of *D. Belladonna*? And then you may grow all sorts of Tulips in your garden, early, late, florists' varieties and species, but these are all comparatively safe; but try *Tulipa Greigi*, and you will deserve the everlasting thanks of the slug family, for they will settle down upon it and not give you the chance of seeing even the ghost of a bloom. One stands helpless almost before these devastators. On one night off a small group of *Puschkinia* we took twenty-three, and the next night eight, while all over the garden they swarm. Soot, lime, pepper seem utterly useless, and hand-picking the only resource, yet this is neither a pleasant nor an easy matter; still, I believe it to be the only way of getting rid of them.

The second matter which may well be described as a burning question is the effect of the drought of 1887, although many thought that its injurious effects were not sufficiently realised, but I think we are finding it out now. I have already alluded to the total disappearance of some clumps of *Orange Lilies*. I have now to record my nearly the same with regard to *Lilium davuricum*, *Sappho*, and incomparable, of which I have large clumps on my border. The bulbs were of enormous size, and as they were never disturbed, the clump increased in size every year, and formed a very showy and attractive object. But now, alas! all the large bulbs have perished, and all that remains is a collection of small bulbs which send up stems having a few leaves only. I suppose that the larger bulbs, requiring a good deal of moisture, succumbed, while the smaller ones survived. I shall leave them as they are, and perhaps in time I may have my colony re-established. I am also constantly finding labels without plants, and I am induced to think that the cause of disappearance is the same.

I cannot write of anything very novel, as some of your correspondents do, but only draw attention to those which have done well with me and afforded me much pleasure when the gardens of my neighbours were wildernesses waiting for the putting out of bedding plants, which in some eyes is regarded as the only pretty style of gardening. As a lady said of my own, "I heard it was a beautiful garden, but I call it a very ugly one;" or as a friend said of a celebrated herbaceous and alpine garden in the Isle of Wight, "Beautiful! why it was like a churchyard with its gravestones (labels) in all directions." I have been greatly pleased with

CORYDALIS NOBILIS, certainly, as far as I know, the most beautiful of all the Fumitories. My plant of it flowered well, and certainly commends itself to one's esteem, and rightly claims its place as noble amongst all its congeners, with its yellow flowers and chocolate spot in the centre of each; while the upper portion of the whorl of flowers has a slightly greenish tinge. My plant of it is in the border, where it seems to be making itself at home.

FRITILLARIA PALLIDIFLORA I received from Messrs. Ant. Roozen & Sons, Overveen, Haarlem. I have not met with it before, nor do I find any mention of it in English catalogues, yet it seems to be a variety or species well worthy of cultivation. One would say it was somewhat midway between the Crown Imperial and the common Snake's-head Lily or the native *Fritillaria* of our Oxfordshire and other meadows. It is about 18 inches high, has broad reflexed leaves of a glaucous hue, while the flowers are pendent bells of a pretty creamy-yellow colour. It seems to be strong, and I hope will succeed well where I have planted it on the rockery.

PHLOX STELLARIA is another plant which I do not think is sufficiently well known or grown, yet it is a very graceful and valuable species. The habit of the plant is drooping. The foliage is somewhat like that of *P. pilosa*, and is covered with a profuse number of white flowers with a lilac tinge. It comes into flower a little after the vernal *Phloxes*, and when placed on some upper part of the rockery, where it can fall over a good-sized stone, has a pleasing effect.

SEEDLING ERYTHRONIUMS.—I received three of these from M. Ant. Roozen, but as yet do not see anything remarkable about them, but as it is the first year, I forbear passing any judgment upon them. They did not, however, seem to be very distinct.

PULMONARIA ARVERNENSIS.—This has again proved itself to be a valuable border plant, flowering freely, and producing its bright blue flowers early in the season.

DAPHNE BLAGAYANA.—A most desirable addition to this sweet-scented class of dwarf shrubs. It and *D. Cneorum* are worthy of a place on any rockery; the flowers on first opening are creamy-white, but change to pure white after a few days. It is most sweetly scented.

ANEMONE PALMATA ALBA.—I have been greatly charmed by this very pretty Anemone. The foliage is so neat and lies so close to the ground, while the pure white flowers with their yellow stamens stand up well above the foliage, and from their stout substance last some time in flower.

ARNEBIA ECHIOIDES.—I can second all that has been said in praise of this beautiful plant. It does well almost anywhere, and its curious and bright coloured flowers are very attractive.

AUBRIETIA LEICHTLINI.—I have a small plant of this, at least what the slugs have left me, and I am hopeful that it will bear out the character ascribed to it and the award it has received from the Royal Horticultural Society, but I confess I stand somewhat in doubt of it. I have a large plant of the Belvoir variety, given to me years ago by Mr. Ingram, and on comparing the flowers one seemed to me to have as much rose colour on it as the other, but this may be owing to the one being well established and the other only a small plant, but it has always struck me that the Belvoir variety

was in all respects a great improvement on the ordinary type.

PARROT TULIPS.—I quite agree with what your correspondent "S." says of the beauty and quaintness of these Tulips. I have never grown them until lately, and have been greatly pleased with their quaint, weird look and their gorgeous colouring. Those exhibited by Mr. Walker at the last dinner of the Horticultural Club show clearly that it is quite possible to grow bulbs in England which will give flowers equal to imported bulbs, and even when not lifted (as he recommends us to do) they form fine clumps of showy flowers; but no bulbs lift better, and there is this great advantage in pursuing this plan that the space can be occupied by summer flowering plants, Stocks, Asters, &c., thus keeping the borders gay, and for this purpose come in also at an important juncture the *Gesneriana* Tulips. There is a sort of hiatus when the spring bulbs, *Narcissi*, *Scillas*, early Tulips, &c., are over, and the *Delphiniums*, *Pyrethrums*, and others have not begun to show colour, then a few clumps of these brilliant coloured flowers give a great character to the border, and are, therefore, well deserving of a place, relieving it from the too much greenery that prevails at that time. DELTA.

HARDY ROCK PLANTS.

I HAVE not had time to continue my notes on these plants in answer to "Inquirer," and which I began on page 368. Having been recently in several places where good plants are grown, I have noted a few which charmed me much. *Arenaria balearica* (the Corsican Sand-wort), which covers the whole surface of the stones with closely set leaves, and which just now is ablaze with its tiny flowers, only requires to be planted in the ground at various parts in close proximity to the rocks and it will soon spread over them. It is simply invaluable. A capital companion to the last-named plant is *Linaria hepaticifolia*, which also completely covers the stonework, and is now beautiful with its lilac flowers, whilst for a lovely blue commend me to *Lithospermum prostratum*, which also makes an excellent subject for a mixed border, its lovely gentian-blue flowers being very effective; but for beautiful effect it should be planted so as to fall over a boulder in the full sun. It loves a deep, rich sandy soil, and must be well drained. Amongst white flowers now in season, what can be more beautiful than the American white Wood Lily (*Trillium grandiflorum*)? It loves shelter and shade and good peaty or leafy soil, and this same position is well suited to the beautiful Japanese Primrose (*Primula japonica*), which since its novelty and high price have passed away is now becoming conspicuous as an outdoor spring bloomer, and in the dells of a rock garden it is quite at home. In similar positions also various species of *Trollius* are now exceedingly beautiful, such kinds as *T. europæus*, with its rich golden yellow balls of flower, and *T. asiaticus*, of a bronzy yellow, being at the present time in splendid condition. *Dodecatheon splendens* is also another beautiful plant, which I saw in one place. It has bright carmine flowers, which are yellow at the base. Associated with this plant were grand clumps of the *Moccasin Flower* (*Cypripedium spectabile*), which may be considered one of the most beautiful of the species yet introduced to cultivation. *Papaver nudicaule* grows anywhere and everywhere on the rockery if its seeds are sown broadcast. I saw this plant some years ago flowering well in Russia three weeks after the snow had disappeared, and although there it grows well, with us it is apt to die out, and the best plan therefore is to annually throw a pinch of seed about in spaces where it is required. *Aubrietia purpurea*, violacea, and several other kinds are now superb, and are suitable for any position on a rockery, except a wet one. As these plants vary considerably from seed, variety may be obtained by scattering this about. If, however, any required form is to be propagated, do not trust to this, but propagate from cuttings or divisions. *Gentiana hispanica* is a beautiful yellow-flowered shrub, which looks well upon the top of a bold jutting rock, and it also makes a fine border shrub. This I

saw recently in good condition at one of the London suburban railway stations. The various Phloxes, including *P. subulata*, *P. divaricata*, and the white *P. Nelsoni*, are also beautiful plants, their growth draping the rocks with verdure, and just now also with beautiful flowers. The lovely *Gentiana verna* is also now flowering beautifully. It loves a well-drained spot in which are to be found a strong loamy and sandy soil, but although it requires abundance of water during the summer months, I think those of my friends whom I see growing it in partial swamps will very soon lose it. It is not this plant which likes its roots so thoroughly saturated with moisture; it is *G. bavarica*, which is really as beautiful, and which should be planted in such positions. I will at a future time record some of the lovely rock plants in season, and others may also assist in enlightening "Inquirer."

W. H. G.

NOTES ON HARDY PLANTS.

Saponaria ocymoides.—As regards the latest improved variety, I think one may usefully refer again to its superb colour-quality. Growing by the side of a pan of *Lychnis Lagascea*, the flowers distinctly show more brilliance, and surely this is saying a great deal; there is more carmine in it. Then the variety is as free as the type and quite as hardy. If, however, there are slugs in the garden, there is danger of the whole plant being destroyed. I have now had three or four improved forms, and this last is distinctly the best.

Mertensia virginica and sibirica, I believe, have been and still are pretty generally confounded, but the present time offers a favourable chance of correctly identifying and labelling them. *Sibirica* will still be growing and flowering, and at last reach, perhaps, 2 feet or more in height. *Virginica* will now have sere flower-stems, each a foot or so long. In fact, *virginica* much more quickly runs the course of its yearly growth than *sibirica*, and in every way is a smaller and less vigorous plant. Another curious proof or test of identity is that when the two are grown side by side slugs never touch the taller and commoner kind, but would eat every morsel of *virginica* unless looked after. I daresay this is partly owing to the earlier decaying condition of *virginica*, a condition of foliage slugs are partial to, but all the same, at a fixed date like the latter end of May, this slug evidence proves something on the point.

Scabiosa caucasica.—Those who have things doing well without any effort to make them do so should learn to be thankful, for we often find that certain plants prosper without care; whereas under other garden conditions hardly any pains will render the same plant happy. I noticed in THE GARDEN columns a short time ago that several readers experienced difficulties with this plant. Here for many years it had flowered grandly without giving the least trouble. On re-arranging the borders I dug it all up and moved it only a short distance from its former place, with the result that even with coaxing and some protection it has all died. Except very young plants that have not reached the woody root state, it is not one of the best to transplant. I have, however, been successful in dividing clumps during the summer time. I slipped off the youngest green offsets without wood, and set them fully exposed and in light soil, and they grew into good plants by the autumn. Those wishing to establish this fine *Scabiosa* could not do better than set similar material now or strong plants from pots.

Anemone sulphurea.—During winter I received a number of collected plants of flowering strength, and they are now in bloom, though the plants are but very dwarf. Doubtless the colour will be somewhat affected by the recent removal, and I think I may also add that when they have become well established this climate will affect them more, and possibly in an opposite direction in regard to flower colour. Be this as it may, the present flowers are very bright and much varied—from sulphur to yellow—of a bright hue corresponding to that of *Trollius napellifolius*. This variety

of colour is common among the plants in their native alpine meadows, but I have often heard it said that the flowers have a tendency to grow paler in England.

Two tall brilliant flowers.—For the months of April, May and early June something tall of a brilliant scarlet or crimson colour seems desirable as a distant garden object. For such a purpose I would suggest for their timeliness and succession *Tulipa fulgens*, which comes in at the latter end of April, lasts the most of May, and grows 3 feet high, and *Papaver bracteatum*, which also grows 3 feet high and lasts until the end of June, at least in Yorkshire. Should there be any doubt about the succession, it would be well to plant close by *Tulipa Gesneriana*. It does not grow so tall as *fulgens*, but the fiery scarlet flowers are very bold and handsome, being somewhat tumbler-shaped and nearly as large. The flowers of *T. fulgens* when expanded in sunshine are 7 inches across. It is well known that these typical forms of Tulips include the most brilliant colours. These remarks as to the timeliness of the flowers apply to bulbs that flower at their own season when left in the ground from year to year, or, if lifted, put back directly, the offsets having been removed.

Aubrietias.—We have lately heard something about fine varieties having distinct colours compared with those of the older kinds. I believe I am not saying too much when I promise that shortly we shall hear of many distinct varieties. It seems that quite a new type is coming into cultivation; the main features are larger and brighter flowers and also much bigger foliage, approaching that of the common *Arabis*, as seen under hungry conditions. Some of these varieties I have tested for hardiness.

Delphiniums.—Everybody is agreed as to the fine qualities of the tall florists' varieties, but I believe that they are not so much grown as otherwise they would be but for the difficulty of keeping them presentable with a moderate amount of care in the less sheltered gardens. They become broken and ungainly with very little wind when making their rapid growth, and the way in which we often see them staked renders them even more unrepresentable. An armful of stems bundled and tied to one or two stakes is enough to disfigure any border. So far as I know, there is but one method of growing these tall plants and staking them neatly, and that is to stake them early like Dahlias, only using more and thinner sticks to each plant. The specimens have then a bolder and more natural effect, and when the spikes of bloom begin to develop it is a very easy matter to cut away the sticks at such lengths that they do not give an unusual stiffness to the flowers. So staked the sticks are scarcely seen. True, where many Delphiniums are grown, this would imply a great amount of labour, but it would be better to grow fewer specimens properly cared for than many straggling and bundled up.

Anthericum (Chrysobactron) Hookeri.—This is a very charming plant, and but seldom met with in collections of hardy flowers. When, however, it becomes better known it must surely claim more attention generally. For a bit of really good yellow the distinct hue of this plant commends itself to everybody, and otherwise the plant, having bronzy green foliage, richly contrasts with other surrounding foliage. Grown on rockwork in clumps it is a most pleasing object. There it flowers well at little more than half the stature it attains in the moister border. In either case, however, it should have a deep root-run of soil. It increases slowly from offsets compared with other *Anthericums*, but it is easily raised from seed, freely produced, though the seedlings seldom bloom until the fourth year.

J. WOOD.

Woodville, Kirkstall.

Daphne Cneorum.—This is one of the sweetest and most desirable of all hardy plants, as the perfume it exhales quite scents the air with sweet odours, and the masses of lovely pink trusses of flowers make quite a show. The situation where this pretty free-flowering *Daphne* looks best is on rockwork or raised ground, as its habit is naturally

trailing and spreading, and on elevated positions it grows with great freedom. The soil that appears most suitable for it is that which is sharp, the plants we have being in road-scrappings, peat and loam. In this mixture they do extremely well, some of them being from 3 feet to 4 feet across. When we wish to increase our stock we layer by burying the stems of the side shoots, and in a year they root, and in the spring they are taken off and replanted.—S. D.

WATER LILIES.

THERE are no plants perhaps which can be cultivated in the United States with less trouble and with more pleasure than Water Lilies; and certainly no plants create more admiration when they are seen in perfection.

The natural conditions here are peculiarly favourable to them. Shallow ponds with muddy bottoms, in which the burning rays of our summer sun raise and maintain the temperature of the water to almost tropical heat, are common in many parts of the country. Our native Water Lilies flourish in such ponds, which may be made the home, too, of numerous hardy exotic species, and in which gorgeous tropical varieties may be set to flower during the summer months. Tropical Water Lilies are grown in heated tanks, too, under glass in some gardens; and they are often grown in out-of-door tanks, which can be heated by pipes from the greenhouse boiler if the tenderest species or very early flowers are wanted. Some of the finest varieties can be as successfully grown in a tub of water sunk in a city yard as in the most elaborately constructed and heated tank; and tubs of these plants plunged in the basins of fountains make the most appropriate and by far the most beautiful ornaments which can be used in such situations. Water Lilies are plants for the poor as well as for the rich, and their decorative capabilities are almost limitless. The number of species with handsome flowers is already large, and as several species hybridise freely, it is probable that we cannot form an idea even yet of the beauty which intelligent cultivation will develop in these plants.

The true Water Lilies (*Nymphæa*) may be divided into two classes: those which expand their flowers in the morning, closing them in the afternoon, and those which bloom only at night. Among those of the first class, none is more lovely than the common fragrant white Lily of the Eastern States (*N. odorata*). Its pure white, deliciously fragrant flowers are not surpassed in delicacy and in real beauty by any of the more highly coloured and showier flowers of the Tropics. This plant is very easily established in muddy, shallow ponds by simply pushing bits of the root down into the mud, and it is one of the best Water Lilies to grow in a tub, where if planted in very rich soil it will produce an abundance of flowers all summer long. In the autumn the water should be turned off and the tub stored in a cellar or pit out of the reach of hard freezing. There is a pink-flowered variety of the common Water Lily found in a pond in the town of Sandwich, in Massachusetts. The flowers are much esteemed and sell for high prices, although really far less beautiful than the white ones. It is as easily cultivated as the typical plant; and when transplanted into other ponds it still produces its pink flowers. *Nymphæa tuberosa*, a native of the region from Western New York to the Mississippi, where it inhabits shallow ponds and sluggish streams, is a handsome species with tuber-bearing roots, large bold leaves and white flowers, each sometimes 10 inches across. The flowers are quite devoid of odour, however, and although this is a very hardy, free-growing plant, soon spreading over large areas, it has not the charm and will never supersede its humbler Eastern rival. The yellow-flowered Water Lily of Florida is hardy too at the north, and will flower abundantly if a warm situation and deep soil are selected for it. It is not a very showy plant, however, and the interest which it excites lies in the pale yellow colour of the flowers (an unusual colour in Water Lilies) rather than in their beauty, and in its history. For years it was only known by the picture joined to one of the plates in

Audubon's "Birds of America," while its existence was doubted and denied. This sketch was made by the lamented naturalist, Leitner, one of the first victims of the Seminole war, and it is only within recent years that it was made known to botanists through the exertions of our associate, Mrs. Treat, by whom and by Mr. Curtiss it was introduced into cultivation. An interesting article from Mrs. Treat's pen, in which the finding of *N. flava* is described, was published with illustrations in *Harper's Magazine*, vol. lv., p. 365.

The European Water Lily (*N. alba*) is hardy in the Northern States, as are its varieties *N. alba candidissima* and *rosea*. The first of these varieties is the most beautiful of the European Water Lilies. It has large, pure white flowers, with more waxy petals than our common Water Lily, and when grown under favourable conditions of soil and temperature it produces its flowers during a longer period. They are quite odourless, however, and these plants will probably never be cultivated here except by persons who desire to form a general collection. More attractive is the dwarf Water Lily of China and Siberia (*N. pygmaea*), a hardy plant with miniature fragrant white flowers, which remain open only during the afternoon.

The number of tropical Water Lilies is large. A few of them can be grown in the Northern States in artificially heated tanks only, but some of the finest flower freely in shallow ponds if they are started in heat and then transplanted into large boxes or tubs of rich soil, which should be plunged, when the water has become warmed by the sun, without disturbing the roots. Many of these too make excellent tub plants, producing flowers profusely through August and September.

The Victoria Regia, first cousin of the *Nymphaeas*, the great Water Lily of the Amazon, although generally grown under glass outside the Tropics, will, if treated as an annual and started in early spring in heat, flower at the north in an open heated tank, and produce its enormous leaves and great white flowers in luxuriant profusion. In the Southern States it needs no artificial heat to develop its beauties, and we may expect to see, when it is better known, the sluggish streams of Florida and Louisiana become splendid by the presence of this, the noblest of all aquatic plants.

Among tender Water Lilies which flower by day by far the best known in our gardens is the blue-flowered species from the Cape of Good Hope, *N. scutifolia*. It is a handsome plant, with bright blue flowers, and is very easily cultivated. In gardens it is sometimes confounded with *N. cærulea* or *N. cyanea*, synonyms of the tropical African *N. stellata*, which the ancient Egyptians prized so highly and so often engraved on their monuments. Another blue-flowered Water Lily, which is probably only a variety of this last, is known in gardens as *N. zanzibarensis*; it has larger and darker flowers, and is one of the finest and very best of all the Water Lilies in cultivation. Varieties are known with darker and with lighter flowers.

Among tender Water Lilies which flower at night are *N. Lotus*, an Old World tropical species, with large, pure white or sometimes red flowers (*N. rubra*). It is the Lotus sacred to Isis, and famous among the Egyptians, who, in spite of its sacred character, made bread from its seeds and dried roots. It is one of the best of the tropical species cultivated in Europe, and one of the handsomest. It is a parent of many hybrids, of which the most showy and the best known is *N. Devoniensis*, one of the triumphs of English horticulture, and hardly surpassed in the brilliant colour of its large flowers by those of any other Water Lily. *N. rubra* and *N. dentata*, now considered forms of *N. Lotus*, although quite distinct from a garden point of view, are exceedingly attractive plants, and this is true of the Jamaica Water Lily (*N. amplax*), with its yellow or yellow-white flowers. There are many more of the true Water Lilies in the Tropics, but it is unnecessary to enumerate them here.

But the *Nymphaeas* are not the only aquatic plants with attractive foliage and handsome flowers, and no collection of these plants will be complete without their near relatives, the *Nelumbiums*, the

Sacred or Water Beans, with their broad, circular leaves, borne above the water on tall, stout petioles, and great, fragrant flowers standing high above the leaves. There are two species, the yellow *Nelumbium* (*N. luteum*), a native of our Western and Southern States, and now naturalised in a few places in the East, notably in the Connecticut River below Hartford, and in the Delaware below Philadelphia, and in New Jersey. The American *Nelumbium* has handsome yellow flowers, sometimes 10 inches across, and farinaceous tubers, which, like the seeds, are edible, and once furnished to the North American Indians an important article of food. The second species, *N. speciosum*, is a native of India. From time immemorial it has been looked upon as the emblem of fertility, and has been cultivated by the Egyptians and all the people of the East. It is the Egyptian Bean of Pythagoras and the Sacred Lotus of India. The lovely delicate white, sweet-scented flowers, tipped with pink, which in one variety are pure white, stand high above the pale green leaves, and are not surpassed in beauty by those of any other plant. It is easily cultivated, and the fact that it has already become thoroughly naturalised in one pond at least in New Jersey excites the hope that this fine plant will some day be as much at home in the waters of the Middle and Southern States as it is in those of China and Japan. At the North it should receive the treatment necessary to ensure the blooming of the hardier of the tender *Nymphaeas*, although its more vigorous growth and rambling habit demand a separate compartment when it is grown in a tank with other plants, which otherwise it would soon exterminate.

The list of aquatic plants with handsome flowers and foliage is not by any means confined to the *Nymphaeas* and the *Nelumbiums*, but enough has been said, perhaps, to draw attention to the pleasure which may be derived from the cultivation of this class of plants which are within the reach of anyone who can afford a tub of water and a piece of sunny ground large enough to hold it.—*Garden and Forest*.

CARNATIONS.

If "A. H." had been content to sing the praises of the handsome Carnations that have come under his especial notice without going out of his way to disparage other flowers, the best examples of which he appears to ignore, I should have had the satisfaction of being in complete agreement with him.

I had the pleasure last summer of seeing the fine collection to which he refers, and willingly bear testimony to the beauty of the flowers and the vigorous and handsome growth of the plants. The scarlets were particularly good, and the two purples lately figured, M. Bergendi and Mlle. Roussel, were admirable flowers. The planting in groups of a sort was very effective, and afforded a fine example of the capabilities of the Carnation where space can be given to do justice to it in this way.

When, however, "A. H." says that French self Carnations are far before anything of the kind we have in England, and that French Carnation raisers are far ahead of their English brethren, I am unable, with the knowledge I have of English Carnations, to agree with him. We have a great wealth of self Carnations of English raising of surprising variety of tint and of fine form.

"A. H." makes a remarkable statement with regard to selfs raised by seed from flakes and bizarres when he says, "such self forms are rarely reliable or of very great merit." Does "A. H." mean by this that selfs of flake and bizarre parentage fail to retain their self character and hark back to flakes and bizarres? Have instances of this come within "A. H.'s" observation, or can he give one authenticated case of this sort—e.g., of a Dominie Sampson, crimson self, going Japhet-like in search of his father, Edward Adams, s. b.; of a Neptune, purple self, being harlequined into a John Keet, rose flake; of a Dora, crimson self, masquerading as a Mayor of Nottingham, purple flake, &c.? Can he give, in fact, any instance of a self Carnation—a seedling from flake, bizarre, or Picotee—varying from its native self character?

In the meantime I can assure "A. H." that the selfs raised from the flakes and bizarres as well as those from the Picotees are of the very highest merit; witness such flowers as Florizel (deep crimson), Imperator (bright purple), Joe Willett (scarlet), Mrs. Dodwell and Wm. Harding (salmon), Gladys, Mrs. Price, Mrs. George, Maud, Hermione (shades from delicate flesh pink to rich rose), and scores of others.

The notion that my friend Dodwell "perpetuates" gems of this sort only as an "after-thought" is a very droll one, and will amuse him highly.

M. ROWAN.

FLOWER GARDEN NOTES.

PYRETHRUMS.—These plants in regard to the great range of colour have no equal amongst hardy perennials. This, coupled with the fact of their easy culture, renders them worthy of a place in every garden. The double varieties in moderately good soil grow as large as medium-sized China Asters; indeed, many of the flowers bear a close resemblance to Asters and last quite as long in flower. Personally I give preference to the single-flowered section; the range of colour is just as varied, and the flowers are more elegant and last longer. There is an immense number of named varieties in commerce, and, of course, those desirous of having the very best varieties with which to begin their cultivation should purchase these rather than risk their luck with seedlings, though generally these come fairly good. Our stock is almost entirely made up of seedlings of our own raising from purchased seeds, and I wish for no better results.

PEONIES.—Our two dozen varieties of herbaceous Peonies, double and single, are indeed so grand and the perfume of many so sweet, that it makes one marvel that they are not more generally grown. Until five or six years ago the only varieties common to gardens were the old double red and double pink, but now many beautiful kinds are being cultivated. As illustrating how well they grow and flower when treated as ordinary border flowers, I may mention the fact that our first purchase consisted of thirty-six plants, so called, but in reality only particles of roots, and yet the second season after planting they had grown so well as to bear from a dozen to a couple of dozen flowers each. The range of colour consists of every hue from the purest white to the deepest crimson. The form of flower of the Anemone-flowered varieties is, I think, unique; next to these I prefer the singles, which may be described as in shape like huge single Poppies, except that the centres of most are a perfect ball of gold-coloured anthers; all are richly perfumed. For vase decoration with their own foliage they are very effective, and stand for days without renewal.

AQUILEGIAS (Columbines).—The present is the season for these, and they can hold their own against both the preceding. In the variety glandulosa we have the most perfect type of flower, the colour rich deep blue contrasted with the purest white. A group of plants of this variety in full blossom is a beautiful sight. The golden coloured variety chrysantha is also very handsome, and grows much more freely than glandulosa, and continues flowering a longer time. On this account alone it deserves to be placed on an equality. The cærulea hybrids, the result of crossing chrysantha and cærulea, comprise a most varied strain, and though a small percentage of plants raised from seeds of this section turns out poor, the great bulk are generally so good as to make us indifferent to the risk there is in raising seedlings. There being now such numbers of better species and varieties, the old type of Columbine, *Aquilegia vulgaris*, should be discarded as unworthy of cultivation.

IRIS GERMANICA.—I send you a collection of cut flowers of these. They are now in their fullest beauty. Some of the flowers are so chaste and elegant that it would be a close race between them for the first position with some varieties of *Cattleya*. They are, at any rate, equal to these in delicate markings and clearness of colours, and if to these qualities could be added that of long-lasting, why

then, of course, it would be so much the worse for the Cattleyas. All the varieties of this section have broad stout foliage, that naturally helps to display the flowers to the best advantage. They, however, vary in habit, some being dwarf and dense, and others long with flower-spikes to match. I notice that, as a rule, the former flowers the freest and the spikes are evenly developed, and therefore look better in a mass than do the taller and uneven flower-spikes of the latter. Any description of soil or position suits the plants, provided there is either a great depth of soil, or, lacking that, copious supplies of water in dry weather. Propagation is effected by division of roots at any time between September and April.

HEMEROCALLIS (Day Lilies).—If desired to give the name of hardy perennials having plenty of fine flowers and foliage, *Hemeroallis* would be amongst the number. The plants are graceful, of a distinct habit of growth, and the long, massive, beautiful light green foliage comes up early and dies off late. All of them are effective when used for furnishing flower borders. They are just now quite a feature in the herbaceous garden, notwithstanding the number of other good flowers. The old golden-yellow variety, *H. flava*, is still as good as any. The double-flowered *H. disticha*, a deep bronzy colour, is my next favourite; then *fulva*; and, last, *Thunbergi*.

BEDDING PLANTS.—As regards weather, it has suited bedding plants perfectly, and all have started into growth well. In order to get them to fill out the beds quickly, flowers and flower-buds should for a week or two be kept pinched off, and pegging down of any requiring it should be done as early as convenient. Do not water till obliged, then do it thoroughly; dribblets only end in drawing the roots to the surface, which perish as soon as drought sets in. W. W.

SOME JUNE FLOWERS IN SURREY.

CISTUS FORMOSUS.—For a dry, sandy soil no plant is better than this at the present time. A patch of about 7 square yards, in a space cleared for *Cistus* in a dry, healthy place, fully exposed to the sun, is a beautiful sight just now.

EURYBIA STELLULATA, neatest of rock shrubs, is now a sheet of white. For the upper parts of rockeries of moderate size it is much to be recommended; the small foliage is pretty at all times, and when it is smothered with bloom this shrubby *Aster* is one of the most ornamental of plants.

IRIS TECTORUM, generally a shy plant to flower, does well in our dry sand, fully exposed to the sun. With its pale yellow-green leaves and flowers of bright blue-purple it is striking among the many *Irises* now in flower.

PAPAVER PYRENAICUM is a choice and beautiful rock plant not common in gardens, with blue-green leaves and flowers of a red-orange or a flame-copper colour.

CAMPANULA PULLA is a modest beauty, quite indispensable in the rock garden, a tiny plant with flowers, important for its size, of the richest purple, looking as if shaded with black.

HEUCHERA RICHARDSONI, always a beautiful leaf plant, is unusually fine this year. Every flower-stalk is cut out as soon as it appears, to give all the strength of the plant to the satin-like leaves, whose red-bronze and dull green colouring makes the plant doubly valuable both for its own sake and as a becoming foil to bright flowers of suitable colouring.

SCOTCH BRIERS do so well in poor soil and are now so beautiful that they partly make up for the difficulty of growing the many good *Roses* that need a better soil. When replanted they seem to take slowly, but after a year or two run underground and grow up in thickets. The white is much the strongest, and care should be taken where the other colours are grown with it that it should not over-run the weaker reds and yellows.

West Surrey.

G. J.

The Siberian Iris and its varieties.—This is the most beautiful *Iris* of the week. There is a bed of it and two or three of its varieties in the Royal Horticultural Gardens at Chiswick, where we may mention there is a rich series of the barbata

type now in their fullest perfection. The *Iris sibirica* was blooming magnificently last week, notwithstanding the hot, dry soil and open position. The plant loves best a rich damp soil, but sunshine is essential. It is a pity more do not naturalise an *Iris* that is as graceful as any *Grass*, and sends up wand-like stems on which are poised flowers of the richest colour. The type grows about 3 feet high, so does the variety *lactea*, which is a lovely form and just as free as the parent. It makes a splendid tuft of rich green *Grass* foliage, from amongst which rise the tall spikes of flowers. These are about the same size as those of *sibirica* and milk-white, except the falls, which are light brown and veined at the base. Quite different to this and not more than half the height is *acuta*, which has rigid, spear-like foliage; a great contrast to the wavy tufts of the others. The flowers are also smaller and paler. It is a good variety, we should think, for edging a large bed or planting in small clumps, but it should not be planted to the same extent as the type. *Grandiflora* scarcely justifies its name. It is not very far removed from *sibirica*, but has slightly broader leaves of a richer green and flowers of about the same size; the standards and limb are of a deeper shade of blue. In every garden worthy of the name *I. sibirica* should be at its best, and if only two kinds are wanted, there are none better than the type and the variety *lactea*.

ALPINE AURICULAS.

"W. P. C." (THE GARDEN, May 25, p. 491) says, "It is a great point that these are left alone by the hybridist." "The hybridists will drive us mad," said the late Dr. Lindley when he was shown the first hybrid *Orchid*; but the hybridists continued their work, and the result has been the production of many beautiful *Orchids* for the adornment of our hot-houses, and the production of most exquisite cut flowers for our dwelling-houses. The hybridists are at work with the alpine *Auriculas*, and probably "W. P. C." has to thank the hybridist for the handfuls of flowers with their piquant perfume he was able to cut in his garden. Whence came these flowers? They are not native wildlings. "W. P. C." owes a debt of gratitude to the hybridist for the beautiful flowers he has in his garden, and this being the case it is surely futile to say that they are left alone by the hybridist. *Primula pubescens*, which is supposed to be the progenitor of the alpine *Auricula*, was introduced into cultivation by Clusius nearly 300 years ago, and this plant, as Professor Kerner has pointed out, is a natural hybrid between *Primula Auricula* and *P. hirsuta*; he found it growing with its two parents in the year 1867 in the Gschnitzthal. Surely we may do for our instruction and amusement what the insects have taught us to do by their chance fertilisation of alpine *Auriculas* and other plants.

All the beautiful alpine *Auriculas* exhibited at the *Auricula* show and to be found in our gardens have been produced by cross-fertilisation, and we who knew the *Auricula* twenty or even ten years ago can but marvel at the wonderful results that have been obtained. The seedlings raised are not all beautiful or worth preserving as garden plants, but if "W. P. C." is an admirer of beautiful *Auriculas*, he must admit that there is more real pleasure in raising seedlings from hybridised flowers than there is in cultivating the same old varieties over and over again as the years go by. I always remember a remark of the late Mr. John Keynes, of Salisbury, who was a most enthusiastic cultivator of beautiful garden forms of *Auriculas*, *Pinks*, *Carnations*, *Dahlias*, &c. It was this, that the great charm of his garden would be lost to him if he had not the flowering of any seedlings to anticipate. Few distinct and good garden plants can be raised unless a well-directed system of hybridisation can be carried out. No intelligent cultivator trusts to self-fertilisation; he selects his seed and pollen-bearing parents with an eye to colour, form, and other properties in the flowers, and a vigorous, yet good habit in the plants. J. DOUGLAS.

Doronicum plantagineum excelsum.—This is one of the most useful herbaceous plants we have. It attains a height of 3 feet and is perfectly

hardy. It is very bushy in form, and every shoot produces one or more bright yellow, single, Daisy-like flowers at the apex. They are very attractive on the plant, exceedingly useful for cutting, and as the plant is in full bloom from April until May, its value cannot be over-estimated. I have lately seen some fine specimens in villa gardens, and find them succeed everywhere.—J. MUIR.

Damage to Tulip flowers.—There are few hardy bulbous flowers that suffer from hail, heavy rains, and the depredations of birds more than those of the *Tulip*. Mr. Walker makes mention of the destructiveness of hail, rooks, and partridges to the heavy cup-shaped blooms, and last spring when in the Whitton grounds this was most plainly seen. The marks of hail had disfigured many of the blooms of the early Dutch varieties, and the rooks and partridges had pecked at the flowers so as to quite destroy their usefulness for market. In the collection of blooms staged recently at the Drill Hall, Victoria Street, half of the flowers were battered terribly by hail—a few quite spoilt. It is strange the predilection shown by birds for certain flowers. In the case of the *Tulip*, it is the rook and partridge that appear the principal offenders, and it is a common thing to see the London sparrow making a wreck of the lines and beds of yellow *Crocuses*, leaving the white, purple, and other coloured varieties untouched. There are many good points in Mr. Walker's paper, and it teaches us one great fact—that the cultivation of the *Tulip* in England is just as possible as that of the *Daffodil*, of which there are many broad acres at Whitton and Ham.

ORCHIDS.

W. H. GOWER.

CALYPSO BOREALIS.

I HAVE received from Côté St. Antoine, near Montreal, a bloom of this exquisite gem amongst terrestrial *Orchids*, and as it is such a desirable and pretty plant, I cannot do better than devote a few words to it, as it is really deserving the attention of everyone who grows these beautiful little plants. It was in the early years of the present century that it was first introduced to this country, and it is now upwards of thirty years ago since I saw the plant in a living state. At that time I had a large collection of the terrestrial kinds under my care, but I do not recollect much of the details of the flowers, so that my description of *Calypso borealis* must be taken from the dried example before me, which is a very fine one, and larger, I think, than usual. One, however, cannot be definite after so many years. The tuber is small, and bears a single cordate light green leaf; the peduncle is enclosed in large sheathing bracts, and in the specimen before me it is 3 inches high, upon the top of which is borne a single flower, which is calceolate in shape, and which induced Linnaeus to name it *Cypripedium bulbosum*. The sepals and petals are nearly equal, white, faintly suffused with flesh colour; lip large, white, the edges reflexed, conspicuously and beautifully marked with lines of rosy purple. It has a yellow crest on the disc furnished with a tuft of yellow hairs. The cultivation of this species is not difficult. It enjoys a somewhat boggy situation; indeed, the position in which it used to grow with me was with a large collection of *Osmundas* in a shady corner in the woods. The plant in question was planted in a mixture of peat, loam, and vegetable mould, and I noted that the plants which grew close to the side of the rockwork appeared the strongest, as if they liked to feel the stony sides of the bed in which they were planted.

The following note from Mr. J. B. Goode, Côté St. Antoine, near Montreal, accompanied the flowers of the *Calypso* referred to above:—

I have enclosed you a bloom of *Calypso bore-*

alis, which it was thought safer to press, the distance being too great to send it in a fresh state. The one sent formed part of a group of sixteen, which were brought last year by me from a solitary district lying some 500 miles to the north-east of Montreal. This diminutive and lovely species of the Orchid family is becoming very scarce in Canada, and it may interest you especially if you see it for the first time. The roots are bulbous and the flowers slightly and pleasantly scented.

Dendrobium polyphelebium.—From the Ardarrach collection come flowers of this kind, about which there would appear to be some doubt. Prof. Reichenbach thought it to be a natural hybrid, and no one living was better able to draw a conclusion than he. Unfortunately, he has gone from amongst us, and who shall say what this plant is? The sepals and petals are rosy purple; lip much deeper, being of a rosy mauve, anterior portion covered with a short tomentum, the basal part transversely streaked with lines of crimson; it well deserves attention, be it species or hybrid. It comes from Burmah.

Cattleya Reineckiana.—This appears to me to be a form of *C. Mossiae*, and a most beautiful one it is. It was recently flowering in Sir Trevor Lawrence's collection. It is now about twenty years ago since I first saw this plant (then without a name) in the fine collection of Mr. Julius Sichel at Timperley, in Cheshire, and I believe it still continues rare. The flowers are large, each nearly 7 inches across; sepals and petals pure white; lip large and beautifully frilled on the anterior lobe, where the colour is rich mauve; the throat deep yellow, through which run numerous deep purple veins. It is one of the most charming of all the coloured varieties of *C. Mossiae*.—G.

Dendrobium superbum.—A flower of this fine species comes from Mr. Bream, gardener to Miss Edwards, Fern Bank, Wandsworth Common. He says, "I send you a flower of a blue *Dendrobium* from Hong-Kong." Neither of these statements are, however, correct, for the colour is rosy lilac with deep red blotches on the lip, and the species comes from the Isle of Luzon, in the Philippine group. It is a beautiful species, less grown than it used to be, which we think arises from the strong odour of Turkey Rhubarb which pervades its flowers, but which are not disagreeable hanging in the house. Magnificent examples of this used to be seen in the gardens of Orchid growers, and it is a *Dendrobe* which we highly commend to their attention as a basket plant.

Cattleya Brymeriana.—Some years ago this beautiful plant was imported by the Messrs. Low, of Clapton, and named by the late Professor Reichenbach in honour of Mr. Brymer, who has a famous collection of Orchids at Dorchester. At that time it was supposed to be a natural hybrid, and so I see it is classed by the Messrs. Veitch, but as Mr. Sander has imported and has in bloom exactly the same form as the original plant, I am inclined to doubt its hybrid origin. Be that as it may, however, it is a superb Orchid. It is a somewhat dwarf plant, bearing a pair of leaves upon its stout, club-shaped pseudo-bulbs. The flowers are borne several together on the scape, and are each some 5 inches across; sepals and petals spreading, rosy-purple with a few white stripes; the lip is long and tubular, the front lobe broad, of a deep purplish-magenta, passing into lilac at the base of the side lobes. The whole tubular portion of the lip is of a rich deep orange-yellow colour which extends to the base. It is one of the most superb forms in this numerous and beautiful genus. —G.

Epidendrum paytense.—This is a very pretty species, reminding one much of the beautiful *E. rhizophorum* in the colour and shape of its flowers. Its growth, however, is quite distinct. The stems are slender, terete, erect, and destitute of the numerous white roots, which are such a distinguishing feature in *E. rhizophorum*. The sepals and petals are rich vermilion-scarlet, the lip deep orange dotted with the same deep colour as the sepals. It is a cool house plant from New Grenada, and deserves general

cultivation for its rich and rare blossoms. This beautiful species I noted recently in Mr. William's nursery, Upper Holloway.—W.

ORCHIDS AT MR. BULL'S, CHELSEA.

FOR some years past Mr. Bull at Chelsea has set apart the months of May, June, and July for a display of Orchids in bloom at his nursery in the King's Road, and in a large span-roofed house the plants are arranged, the fading kinds being from time to time renewed from the other houses in which the plants are grown. I have had the pleasure for several years to visit this show more than once in the season, and at the end of May I paid it a visit for the first time in 1889, and I must say that the display this year far excels that of any former season, and well deserves a visit from every lover of plants, be they Orchid growers or not. The plants are arranged with exquisite taste, and the colours are elegantly disposed and diversified, and not set down in lumps, which I regret to see is the prevailing taste in our national garden at Kew, where good taste should be taught to the young men who are to become our future gardeners, instead of the bad state of things which now prevails. I venture to assert that few ladies and gentlemen would endure their conservatories so arranged, which resembles the very worst form of the old bedding-out system. The plants in Mr. Bull's conservatory at the present moment are arranged in the highest form of excellence; every foot of its space is replete with interest and elegance. The thousands of flowers now in their beauty are truly marvellous, and far beyond the limits of my space to describe in detail; there are *Odontoglossums* in great variety and numbers, gorgeous *Cattleyas* and *Lælias* innumerable, and indeed nearly every kind of Orchid whose blooming season is now. Amongst the most striking features was a very large quantity of *Oncidium macranthum*, its large rich yellow flowers being very handsome and showy. The charming *O. Marshallianum*, with its large, rich golden yellow flowers, the branching spikes being very effective. *O. concolor* is an exquisite plant here in great abundance, as also are some very fine varieties of the showy *O. curtum*, and the old but very beautiful *O. leucochilum*, which is not a characteristic plant, as the yellow, which is such a prevailing colour in the genus, is here changed to white, the spikes being long and much branched. The massive and grand *Cymbidium Lowianum* is also to be found in quantity, amongst them being some very highly coloured forms. *C. eburneum*, whose large flowers charm from the purity of their white sepals and petals, is also well represented. *Anguloa Ruckeri* and *A. Clowesi* were numerous; their large, Tulip-shaped flowers, if not possessing elegance, are, nevertheless, very showy. *Odontoglossums* were almost endless; the vexillariums were superb; *O. crispum* in great variety, *Pescatorei*, *Halli*, as also the beautiful *Cervantesi decorum*, *maculatum*, and *nebulosum pardinum* were also conspicuous. *O. maculatum* and *nebulosum pardinum* were superb, the first for the great length of its spikes bearing many flowers, and the latter for the purity of its flowers and its distinct spotting. The brilliant flowers of *Epidendrum vitellinum* form a lovely contrast with light coloured flowers. *Cypripediums* were represented by numerous kinds; foremost amongst these may be noted *bellatulum*; its large tessellated leaves and large and broad flowers, which are for the most part of a white or creamy-white flushed with rose, profusely spotted and blotched with purplish-cinnamon, render it by far the most superb of the *niveum* section. It is an old proverb that "familiarity breeds contempt," and something of the same sort of feeling appears to be rising in the minds of the fastidious with this plant, I suppose because it grows well and flowers freely and does not require so much care and attention as the typical plants of the section to which it belongs. *Angraecum Scottianum* is another plant to be seen here in much finer condition than I have seen it before, and I think when this plant becomes larger it will prove to be a finer species than we have ever dreamed of; its flowers are large and long-spurred, the lip being broad and of the purest white. A. Sanderi-

anum proves what a beautiful species it is, with its long, pendent, many-flowered raceme of pure white blooms. These and many other kinds in abundance go to make up one of the grandest shows of Orchid blooms in London. W. H. G.

SHORT NOTES.—ORCHIDS.

Aerides Lobbi is a handsome Moulmein species, bearing a slender raceme of bright rose-coloured flowers. It is certainly a most desirable kind. A small plant in a basket was recently in bloom at Kew.

Dendrobium Draconis.—This is a distinct species from Moulmein with wax-white flowers, except for the vermilion markings on the throat of the lip. It is evergreen, the stems, each about 1 foot high, being distinctly embellished with dark hairs. We noticed it recently in bloom in the Kew collection.

Lælia pumila.—This beautiful and somewhat misunderstood dwarf-growing species was recently flowering with Sir Trevor Lawrence, and a superb old plant it is. The flower is large and flat; the sepals and petals are thick and fleshy in texture, rich, deep rosy purple; the lip is large, the side lobes being of a rich deep crimson colour. It is a superb form.—W. H. G.

Cœlogyne ochracea.—This is a strikingly handsome Orchid when in the form of a large specimen smothered with the white flowers. They are quite pure, except for the two horse-shoe shaped blotches on the disc, these being rich yellow, margined with orange. They have a fragrance resembling that of Orange blossom, and just as sweet and rich. It is one of our choicest introductions from North India.

Dendrobium Parishii.—This is a free-blooming species from Moulmein, and commemorates the intrepid collector, the Rev. Mr. Parish. It has stems about 18 inches or 2 feet long and distinctly coloured flowers, which are borne in twos or threes. They are rose-purple, the lip deep purple-lake in the upper half the lower portion being of a much lighter shade and downy. It was in flower recently at Kew.

Dendrobium mutabile.—This is a Java species introduced about the year 1844, and therefore not new to our gardens. It is the same as *D. triadenium*, the pseudo-bulbs upright, slender, and erect, terminating in dense clusters of small flowers, which vary from white to pink; hence, we presume, the term *mutabile*. They are borne on the old pseudo-bulbs. It is growing at Kew in a basket in the warmest house.

Vanda cœrulescens Boxalli is now flowering beautifully in Messrs. Low's nursery at Clapton. It is a charming plant, and worthily commemorates one of the most energetic plant collectors ever sent out by this firm, and whom I believe and hope is still living. In habit of growth and flower it resembles the type, but the blooms are white and soft blue or lilac. It is one of the dwarf forms of this genus, which cannot be too highly recommended.—W.

Orchis maculata dying off.—Can any reader of THE GARDEN tell me what can be the matter with some plants that I have of a large-flowering variety of *Orchis maculata*? For several years it did splendidly. I have had spikes of flower 13 inches in length. About the flowering time the leaves get brown, and in a very short time the plant is completely dead. I have tried it in different positions and with different soils, but all in vain. Several people in this neighbourhood have completely lost it. I shall be glad to know what may be the probable cause.—JOHN HARPER, Annick Lodge Gardens, Dreeghorn.

A successor to Professor Reichenbach.—I regret much the cause which has led England to be wiped out of all participation in our late professor's herbarium. We want a successor, and who is it to be? In the first place, we want a man who has a good knowledge of Orchids and what has been done with Orchids for some time past, and he must have a good knowledge of the Latin language, in order that we may be saved from the horrible names that appear to becoming the fashion. He should reside in London, in order that he may be in a central position, and he must be no partisan, but be equally ready to work for everyone alike. I think this is a grand opportunity for the Royal Horticultural Society. If the society either cannot or will not help, then Orchid growers should

form themselves into a society, and make the best Orchid man they can find their life president.—W. H. G.

* * If the Horticultural Society ever does its own work, it will have a good deal to do before appointing a botanical professor. In past days able botanists were glad to help the society, as no doubt they will be in future. If Orchids deserve a special professor at the hands of a horticultural society, other families of no less beautiful plants would probably be thought equally worthy of a professor. The Orchid men are apt to think there is not much else in the world.—ED.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 11.

THERE was a comparatively small meeting of the Royal Horticultural Society at the Drill Hall, Victoria Street, on Tuesday, as is usually the case the day after a bank holiday. Groups of hardy flowers from Messrs. Kelway and Son, Langport; Messrs. Barr and Son, Covent Garden; and Messrs. Paul and Son, Cheshunt, made up the chief features of the show.

FIRST-CLASS CERTIFICATES were given as under:—

VERBASCUM OLYMPICUM.—One of the finest specimens we have seen of this noble Mullein was exhibited by Mr. W. H. Loder, High Beeches, Crawley. It is a magnificent hardy border plant, tall in growth, often reaching quite 6 feet in height, and with luxuriant, broad, woolly leaves, arranged in a rosulate way, so as to give this *Verbascum* great dignity of aspect. From this bed of foliage rises a splendid spike of flowers, branched in candelabra fashion, and each individual bloom about as large as a penny, rich shining yellow in colour, except the orange-scarlet anthers. Those who wish for a hardy plant to stand by itself with a suitable background could scarcely have a more picturesque or showy flower. It is comparatively rare in gardens.

ROSE SOUVENIR DE S. A. PRINCE.—This is a pure white sport from *Souvenir d'un Ami*, and thoroughly deserves a first-class certificate. The finely-shaped flowers are as pure as those of the lovely *Niphetos*, and might at first glance be taken for those of that Rose, but closer acquaintance reveals a distinct resemblance in shape and general character to the flowers of the parent, and the foliage is also that of the type. This is a great advantage, as the rich, glossy, luxuriant leaves of *Souvenir d'un Ami* are not the least of its many charms. Mr. G. Prince, Oxford, the exhibitor, can be congratulated upon having fixed so pure and desirable a sport.

AWARDS OF MERIT went to Messrs. Kelway and Son, Langport, for the following *Delphiniums*, all with spikes of great robustness, well flowered, and exceptionally handsome. *Regalia*, individual flowers very large, rich blue, shaded with bronzy red; *Orbit*, deep blue, white centre; *Faust*, white in the centre, rich violet, shaded dingy rose; and *Arditi*, very rich blue-purple. Also for double-flowered *Pyrethrum* *Pericles*, the colour bright yellow, deeper centre, a compact and distinct variety; and for *Pæonies* *Prince Christian*, a beautiful double flower, full French white centre, and excellent guard florets; and *Princess Irene*, a lovely variety, French white centre, and bold handsome guard petals of a peculiarly beautiful rose tint.

FUCHSIA DOROTHY FRY.—At a time when *Fuchsias* were in full fashion this would have been thought much of. It is one of the best of Mr. Fry's seedlings, the flowers of considerable substance, large, of good proportions, and with long white corolla; the sepals rich crimson.

TUBEROUS BEGONIA MRS. CHAMBERLAIN.—A beautiful single variety; the flowers large, broad, well proportioned, and a charming mixture of white and rose, the rose colouring suffusing the upper half of the bloom. From Messrs. J. Laing and Sons, Forest Hill.

Hardy flowers were contributed by a few of the

leading trade growers, and had suffered considerably from the recent rains and storms. Messrs. Kelway & Son, of Langport, received a silver-gilt medal for a magnificent display of *Pæonies*, *Pyrethrums*, and other flowers in season, this bank of bloom filling one side of the Drill Hall. Amongst the *Pæonies* were such beautiful kinds as *Aglaia*, a rich crimson single type; *Mercury*, rose; *Florentine*, pink; and *Calliphon*, rose; all single varieties, and when well exhibited these are exceptionally handsome. Of the double kinds the very finest were *Agenorina*, French white centre and pink-shaded outer segments; *Baroness Schröder*, dense centre, fine pink guard petals; *Prince George*, crimson-purple; *Lutea variegata*, yellow-white guard petals; *Miss Salway*, pale yellow; *Maria Kelway*, rose; and *Lady F. Bramwell*, rose, very sweet. The *Pyrethrums* from this firm are always worth seeing, especially such double varieties as *Empress Queen*, bluish; *Magician*, finely quilled, rose; *King Oscar*, crimson; *Virgo*, white, yellow centre; *Ormonde*, bright crimson; *Leonard Kelway*, rose; *Florentine*, lilac tinted; and *Aphrodite*, double white. *Delphiniums* were well shown, the finest being those described in the list of certificated plants. Besides the flowers above mentioned was a series of *Iris*. A very fine collection of cut hardy flowers also came from Messrs. Barr & Son, Covent Garden. There were many uncommon things, such as the beautiful *Iris Boissieri*, which has very rich violet-purple erect standards, the limb shaded with a reddish tint, save a conspicuous central line of purple; the lip of the falls very deep blue, veined with a still richer shade and brightened by a shining yellow signal that runs into the throat. A choice flower is *Amaryllis formosissima glauca*, which has brighter flowers than the type, and also worth noting were the bunches of *Iris orientalis*, *spuria*, *juncæa*, *sibirica* and *barbata* types. Also in this collection were good flowers of the violet and white-flowered *Griffinia hyacinthina*, *Cyclobothra pulchella*, *Allium oreophyllum*, *Ononis rotundifolia*, *Scilla peruviana*, and *Anemone fulgens*. A pretty *Ixia* shown was *Lady of the Lake*, a purple-rose coloured flower, and a curious *Richardia* was named *hastata*; it has a small yellow spathe, richly blotched at the base on the inside with deep brown, almost black. The best of the double *Pæonies* shown by this firm were *The Queen*, rich carmine; *Belle Douaisienne*, centre petals white, outer ones rose; *Adelaide de Lache*, bright shining rose; and *Mme. Boucharet aine*, deep crimson. A silver medal was awarded.

A fine series of single and double *Pyrethrums* and *Pæonies* came from Messrs. Paul and Son, Old Nurseries, Cheshunt, and also finely finished flowers of *Rose Lady Mary Fitzwilliam*. A very beautiful blue-coloured *Delphinium* named *Pierre Joigneaux* was also exhibited, and pot plants of the lovely Paul's single white *Rose*, the flowers large, white and sweet. Well-grown *Orange* plants came from the same firm. A bronze medal was given.

There were many miscellaneous things, but nothing of great importance. Mr. Such, Maidenhead, had flowers of well-known border perennials and masses of a fine seedling white *Pink* named *Mont Blanc*. Mr. J. Lansdell, gardener to Mr. T. Brooks, Barkby Hall, Leicester, exhibited three seedling *Crassulas*, one almost white, another deep pink. Messrs. J. Laing and Sons had besides the *Begonia* certificated and described two other kinds, namely, *Miss French*, double lemon-coloured variety, and *Lady Goldsmid*, rich shining carmine. Mr. F. Ross brought from the Pendell Court Gardens *Dendrobium clavatum*, a bright orange-flowered *Assam* species; *D. Farmeri*, the flowers showing a pronounced lilac-purple tint; *Rhododendron calophyllum*, a beautiful *Bhotan* kind with comparatively large pure white flowers; and the old, but none too well-known *Orange-ball Tree*, *Buddleia globosa*. Mr. R. Dean, Ealing, exhibited hybrid *Pinks*, *Aquilegias*, variously and beautifully coloured, splendid spikes of the *Giant White Brompton Stock*, and a plant of *Musk Cloth of Gold*, a dwarf, compact variety, the flowers rich yellow. Mr. G. Fry, Lewisham, had a few flowers of a *Pansy* named *Reine d'Or*, a pretty variety, the colour old gold,

shaded rich brown, and with deeply coloured central blotches.

Orchids comprised principally a splendidly grown batch of *Epidendrum vitellinum majus*, from Mr. B. Searing, gardener to Mr. C. J. Partington, Heaton House, Cheshunt. The plants were full of bloom, and made a brilliant display of orange-scarlet colouring. Some of the racemes had from seventeen to twenty blooms on each. Mr. Searing was especially commended for the admirable culture of the specimens. Mr. Cummins, gardener to Mr. Smee, The Grange, Wallington, sent a variety of *Cattleya Mossiæ*, named *A. H. Smee*, the sepals and petals rose-lilac; lip fringed, and coloured in and near the throat with gold, chestnut-brown, and rich lilac; also *C. Mendeli* var. *Hackbridgensis*, the flowers small, sepals white and narrow, petals rich rose flushed with rose-lilac at the apex; lip very deep self purple-crimson. A well-flowered plant of *C. Mossiæ* came from Mr. T. A. Glover, gardener to Mr. Ellis, Manor Park Gardens, Wallington. The most striking feature of the flower is the rich, finely coloured lip, deep gold, pencilled with rich purple in the front, and shading off to nearly white at the margin.

One of the most charming exhibits of the meeting was the collection of cut *Rose* blooms from Mr. George Prince, of Oxford. *Comtesse de Nadailac* appeared in its fullest beauty; it is a lovely *Rose* of tender colouring, a delightful mixture of rose and shining coppery yellow. Not less beautiful is *Princess of Wales*, a very distinct flower, the petals broad and varying in colour from rose to yellow. Mr. Prince also had exquisite blooms of the clear yellow-coloured *Amazon*, *Princess Beatrice*, a lovely variety, which we never tire of seeing; *The Bride*, *Catherine Mermet*, *Souvenir d'Elise Vardon*, and *La Boule d'Or*.

FRUIT comprised seedling Melons from Mr. C. Ross, Welford Park, Newbury, and Mr. J. Doughty, Angley Park Gardens, Cranbrook, and Strawberries from the Royal Horticultural Gardens, Chiswick. A *Cucumber* named *Stapley's Wonder* came from Mr. Stapley, Abbey Wood, and Mr. Dean sent samples of *The Queen Onion*. A *Lettuce* named *Buttercup* was shown by Mr. Benary, Erfurt, Germany; it is a *Cabbage* variety, with broad leaves of a distinct yellowish tint.

In the course of the afternoon a lecture on Orchids was given by Mr. H. J. Veitch.

Gardeners' Orphan Fund.—At a committee meeting held on the 7th inst., Mr. G. Deal in the chair, the secretary reported the following receipts: From Mr. Whillans, gardener to His Grace the Duke of Marlborough, £73, from the opening of the gardens at Blenheim Palace on May 22 and 23; £14 16s. 10d. from Mr. D. T. Fish, from the opening of the gardens at Hardwicke House, Bury St. Edmunds, on May 30; £9 5s. collected by card by Mr. Crawford, Coddington Hall Gardens, Newark; and £200 4s. 6d. as the nett result of the Covent Garden Fête. A letter was submitted from Mr. Bourne, stating that His Grace the Duke of Bedford proposed to make a donation of £500 to the capital fund of this charity. Votes of thanks were accorded to the Duke of Bedford, the Duke of Marlborough, Mr. Fish, and Mr. Crawford for their generous aid, and to the Baroness Burdett-Coutts, Mr. Assbee, the market standholders, Mr. Dickson, and others for their interest and labours in connection with the Covent Garden Fête.

Narcissi not flowering (*Victim*).—Impossible to say unless we know something of the soil they are growing in.

Names of plants.—*G. T. Daly*.—1, *Prunus* sp.; 2, *Celastrus scandens*; 3, *Coprosma Lawsoniana aurea*. —*John Dinnick*.—1, *Crataegus coccinea*; 2, *Cytisus purpureus*. —*Mrs. Lonsdale*.—*Orchis bitolia*. —*G. G.*—1 and 2, both *Phyteuma Schenckeri*, one weaker in growth than the other; 3, *Potentilla rupestris*. —*Tabor*.—*Epidendrum fragrans*. —*Cocker and Sons*.—1, *Fraxinus ornus*; 2, *Ruscus hypoglossum*; 3, *Limnathes grandiflora*, fine form of *L. Douglasii*. —*L. H. L.*.—*Gravillea robusta*. —*H. E.*.—Forms of the Chinese *Arbor-vitæ*; the flowering *Currant* (*Ribes rubrum*) is quite hardy. —*W. P. P.*.—*Saxifraga pyramidalis*.

WOODS & FORESTS.

GROWTH OF CALIFORNIAN NATIVE TREES.

TO-DAY I visited the farm of Mrs. John Proctor, an English lady living in the Santa Clara Valley, about two miles from the Bay and the same distance from the foothills. She has been a very remarkable cultivator of our native trees and flowers, and her late husband aided her in making collections. She showed me three trees which she had raised from seed, and whose measurements seem to me to deserve record. The first is a California Live Oak (*Quercus Agricola*). The acorn was planted in 1860; the tree is therefore twenty-nine years old. I measured it at 4 feet from the ground, and it was 10 feet 3 inches in circumference. The tree is a superb specimen, with a trunk of about 8 feet in height to the branches, and a broad, massive, spreading crown. With my long observation of our native trees, I should have guessed the age of this tree at forty years instead of twenty-nine.

The second tree was a *Pinus insignis*. The seed was sown in 1864 in a box, and transplanted the next season. This tree girths exactly 13 feet at 4 feet from the ground, and is, as three of us estimated, 75 feet in height. This did not surprise me as much as the Oak, but it seems to me worth the memorandum.

The third tree is a California Black Walnut, which grows much more rapidly than the Black Walnut of the Atlantic States, but is of less timber value. This tree is thirty years old from the seed, and is said to be the largest one in the valley. It girths 10 feet 5 inches at a height of 4 feet, and is 10 feet to the lower branch, and about 60 feet in height altogether.

These three trees have grown without unusual care or irrigation. They were simply planted and let alone. There are also many fine Redwoods, Douglas Spruces, and other native Conifers of about equal age. Mrs. Proctor, the owner of the farm, was born in Lancashire. Her maiden name was Blacow, and the family have many connections in that county, some of them, I understand, in horticultural pursuits.

CHARLES HOWARD SHINN.

Niles, Alameda Co., California.

Planting exposed situations.—Those who live in high and exposed situations have difficulties to contend with in forming plantations of which people who live in sheltered valleys and in the low lands know nothing. Low-lying districts undoubtedly experience the severest frosts which are bad enough, but they are a moderate evil compared with persistent and cold winds, which starve and retard vegetation more than all other causes put together; and I speak from considerable experience in the matter. I am acquainted with parks situated many hundreds of feet above the level of the sea, where the effects of exposure on the one hand and shelter on the other are strikingly contrasted. In some of these instances the demesne may fitly be compared to a circle planted in concentric rings; the outer circle, being most exposed, is stunted and poor; the next is better; and, as we approach the centre, the trees improve both in height, girth and luxuriance, the result simply of the shelter afforded by the other outer rings, which break the force of the blast. On one high-lying estate, exposed to the north and north-west winds, it is found that such trees as Wellingtonias and some of the more tender Conifers positively refuse to grow anywhere but in the sheltered glades of the woods. Planted in the open park they will not thrive. The Wellingtonias were protected for the first few years by close palings some 5 feet high; and, nursed in this way, they made

densely furnished little trees; but as soon as they reared their tops above the line of shelter their disfigurement began, and the attempt to grow them had to be discontinued. In the low country, however, not many miles away, and on the same formation, the same Conifers thrive amazingly. Much disappointment would be avoided if, in planting exposed sites, suitable subjects only were selected; for although all specimens are affected more or less by exposure, there are many trees and shrubs that will thrive tolerably well if they get a favourable start.—F.

ACCLIMATION OF TREES.

SURELY Mr. J. B. Webster is wrong in using the term acclimation for the mere planting of the Larch in this country. The Larch is a perfectly hardy tree, growing naturally along the highest mountains in Europe. One might as well talk of the acclimation of a piece of granite. Then all this talk about the constitution and hardiness of the tree being improved is nonsense. How can such things be improved beyond the native type, which is that of a noble tree? Large phrases as the "doctrine of acclimation" can only confuse the reader. There may be disease, there may be many conditions which influence growth, but using any but necessary and clearly understood terms is a bar to the understanding of these questions.—L. E.

—For years I have held that any attempts to render trees harder than Nature made them must necessarily prove, and have proved, abortive. On no subject has more sheer nonsense been said or written than on acclimation. It has also been so mixed up with the questions of altitude and exposure, as to have been credited with results to which it had no legitimate claim. Beginning by coddling almost every product of tropical or semi-tropical climes, and discovering by experience how many of them from high altitudes thrive much better in the open in our temperate climate, all such facts were duly placed to the credit of acclimation, the fact being that cultivators, by accident or fuller knowledge, had discovered the natural climate of such plants, and placed them in it, and then marvelled greatly at their doing better in it than in the unnatural one in which they had attempted to grow them under glass or through extra coddling.

Carefully trace the natural environments and scan the primary habitats of acclimatised plants and trees, and the natural hardiness or tenderness is determined by Nature and unalterable by the art or wisdom of man. Lying as it were at the very bases of plant distribution over the surface of the globe, the hardiness or tenderness of plants is placed beyond our control, and this seems to apply to plants of all sorts as well as trees. Among Roses, for example, it has never been proved that the common China or any other fairly well defined species, such as the Banksian, is one iota more hardy to-day than on the date of its introduction. The same is equally true among such herbaceous or tuberous plants as Dahlias or Potatoes. Amid the number of seedlings from either we look in vain for one more frost-proof. But no; there seems no difference in their hardiness however much they differ in all other respects.—CALEDONICUS.

White deal.—Some of the best white deals come from Christiania, but those from the other Norwegian ports are not to be relied on, being apt to warp and split in drying. Large quantities, however, of these inferior shipments are used for such common purposes as making packing-cases, &c. The best Russian white deals, &c., are shipped from Omega. Petersburg white deal, though generally finer and closer in the grain, is given to shrinking and swelling according to the state of the atmosphere. Riga, which is about the most southerly port from which considerable shipments of deals are made, sends white deals only into the market; they are, however, considered to be inferior to Narva and Petersburg white deals, being coarser and more open-grained than either. In white deal the sapwood can hardly be distinguished from the

heart-wood; whereas a lot of yellow deals may readily be recognised by the sapwood, which more or less discolours the edges of most of the deals. The annual rings in white deal are not so marked or red coloured as in yellow deal, while the knots are much harder to cut with a knife, and very liable to become loose. It is not so durable as yellow deal, especially under exposure to the weather, but it is much used for inside work, such as cap doors and floors, not exposed to great wear-and-tear. It is nice clean wood for tops of dressers and common tables, as also for shelves, but, on account of its liability to warp, should not be cut too thin—not under an inch, if possible.—A.

A PLAGUE OF CATERPILLARS.

MANY of the Oak and Ash trees in the woods on this estate are badly infested by caterpillars, but hundreds of starlings are evidently feasting on them, and on the whole we have good reason to be thankful the plague is no worse. Compared with the Long-leat estate we are highly favoured. Quite recently on driving through some of those beautiful roads for which Longleat is famous it was only too apparent how badly the trees are being damaged by caterpillars. Large trees are almost bare of leaves, and whole breadths present a scorched appearance, more of the wood than leaves being seen. Hundreds of young Ash trees are quite stripped of leaves, and the Hazels, Elms and Limes are also much eaten. The caterpillars are the most numerous in the heart of the woods, those trees fringing the woods or which are surrounded by Grass land being beautifully clothed with leaves. From this it would appear that thin planting or a free system of thinning out has a deterrent effect upon the breeding of these destructive caterpillars. These pests are hatched from eggs of the Oak leaf roller moth, these being attached during the autumn previous to the branches of the trees. Whether the shelter afforded by the trees in the centre of groves or woods is most favourable to the wintering of the eggs, the hatching process or the well-being of either the caterpillars, chrysalids or moths in their various stages of development, I am unable to determine. Nor after all, is this of any importance, as when once the trees are affected there is no possible remedy. Birds, including cuckoos, starlings, house sparrows, chaffinches, robins, rooks, jackdaws, wrens, woodpeckers and a few other kinds, are undoubtedly the natural enemies of the caterpillar, but these also have their natural enemies, as in spite of the greater part of them being at perfect liberty to increase to any extent, they do not appear to multiply very rapidly. Probably if some of them did they would become a greater scourge than the caterpillars, as they would be with us always; whereas the latter are only very destructive every few years. If I remember rightly the last noteworthy visitation of caterpillars was in 1882, and since then the trees have not been much interfered with. The majority of the trees infested by caterpillars in that year made a fairly good midsummer growth, and apparently were not so much checked in growth as anticipated at the time. It might be possible to clear comparatively small trees of caterpillars with the aid of either an engine or syringe and soapy water, but as before stated there are few isolated specimens badly affected, and it is quite useless to attempt clearing forest trees.

Somerset.

W. I.

* * A great many Oak trees were entirely stripped of their leaves last year in the way referred to by "W. I." (see GARDEN, June 30, 1888).—ED.

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London: 87, Southampton Street, Strand, W.C.

No. 918. SATURDAY, June 22, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSE NOTES.

At last, after a long winter and a late spring, the Roses are showing bloom again, and the "glorious 1st of June"—this year a true summer's day of uninterrupted sunshine—is welcomed by a gathering of fine examples of *Maréchal Niel*, *Climbing Devoniensis*, *Mme. Bravy*, *Souvenir d'un Ami*, and *Marie Van Houtte* from plants growing on the walls. During the previous week presentable blooms of *Gloire de Dijon* had appeared on a west aspect, and early in the third week in May *Maréchal Niel* had been in evidence as the first Rose to flower of the usual garden varieties. For, of course, the thornless Rose (*Rosa alpina*) was actually the first Rose as usual to show bloom, almost before the month of May was a fortnight old, and was quickly followed by the pure white *R. spinosissima*, the very distinct *R. pulverulenta alba*, *R. kamtschatica*, and all the varieties of *R. rugosa*, demonstrating once more the desirability of growing these beautiful single Roses, if only for the sake of the earliness with which they flower.

Roses generally have of late greatly improved in appearance, but the growth is by no means as strong and as even as it should be. Still there will be a much greater display of bloom than at one time seemed credible, although the number of rough and faulty flowers will undoubtedly be very great. Whenever the plants are frost-bitten the inevitable result is the production of deformed flowers, either having green centres or altogether lacking their characteristic form, and, notwithstanding the absence this year of destructive late frosts, the Rose trees were so little able (after the absence of sunshine during 1888 to ripen their wood) to resist even the winter cold, that it was almost impossible at pruning time, in many parts of Surrey, Berks, and the west of England, to find shoots whose pith was not discoloured or even to cut below the stain. In the case of the short-wooded Roses, such as the *Baroness Rothschild* family, this was especially observable, and cutting dwarfs right down to the ground did not seem to find sound wood, while some standards were killed outright. Even where the wood when pruned seemed uninjured, the plants in many instances broke very weakly owing to the wood's lack of maturity, and innumerable summer Roses are making absolutely flowerless growth.

Anybody desirous of trying an autumnal Rose show should make the experiment this year, for a weak spring growth generally involves a great access of vigour later in the season, and there can be little doubt that in many gardens Roses will be at their best in September this year.

It looked at one time as though, in addition to lacking strength and character, the Roses would be very late, but this does not appear to be the case everywhere, for Mr. Frank Cant, of Colchester, writing on the 28th of May, mentions the cutting of several maiden blooms on the 25th of that month, or about a fortnight earlier than last year. Transplanted Roses usually bloom before established plants, and the second

week of June saw a few bits of bright colour amongst the Hybrid Perpetuals that were put in during the past winter, including *A. K. Williams*, *Crown Prince*, *Etienne Levet*, *Cannes la Coquette*, and the very beautiful *Suzanne-Marie Rodocanachi*. But the established plants will not be in flower for a long while, and this backward state not only characterises the older plants of Hybrid Perpetuals, but the summer Roses also, such as the *Mosses*, *Gallicas*, *Hybrid Chinas*, and so on. In the meantime, caterpillars and grubs of all kinds have been doing their best to prevent any Roses flowering at all, swarming in immense numbers and endless variety upon plants of every size and kind, and aphides, though not constituting the plague that they have been in some seasons, have been quite sufficiently numerous to keep the Rose grower busy in destroying them.

The absence of bloom on many of the summer-flowering Roses constitutes a great loss in the garden, especially in the case of the climbers. Thus *Rosa multiflora* has but a sprinkling of its normal mass of snowy flowers, and the new variety *grandiflora* shows no trace of bloom at all on either established or transplanted plants. The growth of these, as of most Roses, during 1888 was abundant, but pithy and lacking solidity, and a scanty display of blossom is the apparent result.

With the help of the Teas, however, and the single Roses not of climbing habit, the Rose garden is already gay and of daily increasing interest, for the Teas, in spite of having been in many cases cut down to the ground line, have already arisen again, and are among the first to flower.

Stock for *Maréchal Niel* in the open.—

In answer to the editorial inquiry, page 547, the flowers of the *Maréchal Niel* sent were all from the common Brier or Dog Rose stock from several plants worked at various heights. We have tried other stocks, and among them *Gloire de Dijon* and the *Banksian*, but, on the whole, prefer the common Brier for out-of-door use. We have also bloomed the *Maréchal* on its own roots in the open. Recent winters and the age of some of our finest specimens have rather reduced our stock just now, which we shall work up again this season. On the whole, our most useful *Maréchal Niels* in the open have been standards, preserved as such in open bed or border, producing welcome *Maréchals* at the most unexpected seasons, and of sizes so various as to do for button-holes or furnish a tea-saucer. Permit me to thank Mr. J. N. Curzon for his good news of the *Maréchal Niel* and *Cloth of Gold* in the open air, p. 546. Might I also invite my brother rosarians to say why the *Cloth of Gold* is so little grown and never shown now. The first inquiry may seem to answer the second, but it does not, for it is grown here and there still; and why is it not shown? It can hardly be that it is not good enough, and I would rather reserve my opinion.—D. T. F.

The best golden Rose.—Since I so strongly asserted the right of *Maréchal Niel* to this high place, I have been taken to task by several devotees of other golden beauties, notably *Cloth of Gold*, *Yellow Cabbage*, *Double Persian*, &c., of some of which very perfect specimens have been sent, notably from Mr. Gilbert, of High Park Gardens, Stamford. No doubt the *Yellow Cabbage* has the advantage for colour, and perhaps in some respects form, if it would only come in form, which it does not, as a rule. Taking the *Maréchal* for all in all, size, form, fragrance, and length and continuity of blossoming, I cannot place it second to any existing golden Rose; so with many thanks to kind friends, who by precept and example have tried to enlist me to a higher devotion to their favourites, I must still remain faithful to the *Maréchal*.—D. T. F.

A noble *Gloire de Dijon* Rose.—The finest *Gloire de Dijon* I have ever seen is now in full flower, and covering some 20 square feet of wall

upon the house of Mr. Baker at Baytham Irwill, Suffolk. From the ground to the roof there are flowers in the greatest profusion. I counted 400 expanded blooms, whilst hundreds had been cut, and innumerable buds were still showing. This noble specimen was planted about twenty years ago, and the roots have doubtless wandered far in a bed of rich loam, which the banks of the mill-stream show to be not less than 3 feet in depth. The Rose, I was assured, has scarcely any pruning beyond what is done by cutting the flowers. It often sends out from the base a strong shoot, which reaches the top of the wall (nearly 20 feet high) in one season. This young shoot is generally laid in and an old one cut out. I am sure it would be difficult to find upon a wall a Rose so well furnished from top to bottom as this.—A. H.

ROSE PROSPECTS.

THESE do not seem up to the average. What is the matter with them? One hardly knows or likes to tell. It is not the hectic flush of consumption that so often strikes pain and terror to our hearts in regard to not a few of our sweetest known Roses, and yet it is something akin to it—a sort of incomprehensible, indescribable weakness and lack of stamina; shoots are weaker, buds smaller and less full than usual; the petals seem fewer and of less substance than the average, and they open and fade in less time than usual. And yet the season has been admirable. May has been very kind to our Roses. She even laid aside her usual cold grips of frost and showers of hail, and assumed a midsummer warmth to help our Roses to do their very best and be their sweetest. But somehow the response has been disappointing. Some people have even ventured to hint that May was too kind and coaxing. Her 70° to 80° power of allurements was altogether too much for the Roses. It forced them to appear before they had time to dress or bedeck themselves at leisure; hence their unfurnished, unfinished appearance. It may have been so to some extent, and if so, we have no wish for another Rose reading of the old adage, "the more haste the less speed"—that is, the fewer perfect Roses.

Already, however, we have had almost all sorts of weather in June, and amongst them assuredly abundance of the rain that puts all things in tune; and who knows what the rains and the cold may have done or may yet do for the coming Roses? In fact, some would say that it is altogether premature to write of the quality of our Roses until after the great shows in July. But most of us would rather assess the character of our Rose harvests in the garden than on show tables, and, judging of the first fruits in the garden, the Roses are abnormally weak, and even the show blooms are not likely to reach to an average quality. The only Rose that I have noted fully up to its normal quality is *Gloire de Dijon*. The form this spring is more like the greater refinement of its autumnal blooms than the usual run of its early summer flowers.

Assuming the abnormally weak estate of our Roses, we have not far to search for the cause or causes. These were threefold: The paucity of sunshine and the consequent low temperature of last year; the excess of moisture, and as a consequence of these, the abnormally late growth of Roses. These three causes also combined their united forces to hinder Roses from ripening up to their usual standard of compactness and solidity. The winter of 1888-89 found our Rose wood soft and flabby instead of solid and hard, and hence the taints and signs of weakness and imperfection in our first-fruits of the Rose harvest.

Little can be gained in looking back, unless to reconcile us the better to the inevitable, and to brace our energies up the more bravely to set about preparing our Roses for future work. In a word, if they are weak, we must hasten to make them strong. There are two obvious means of doing this, and doing it at once. The first is to lighten their load, the second is to increase their supplies of food. A third service may also be rendered them—to keep them clear of insect and fungoid pests. The lightening of their loads is the most immediate assistance

we can render weakly Rose trees and bushes. It is astonishing how seldom this help is given. The weaker the Roses of not a few growers, the more greedily do they demand the uttermost farthing or modicum of strength out of them in the form of the last bud or flower. This is most improvident to the Rose grower as well as injurious to the Rose, for by the prompt sacrifice of a few wretched weaklings this season a rich harvest of perfect blooms may be gathered next year, or even this autumn in the case of Teas. Hence the policy as well as prompt success of the practice of removing all weakly blooms from weak-growing Roses. This cutting off the loss of strength may be done in an hour; whereas the conveyance of fresh strength through additional food may take weeks or months to accomplish. Fresh supplies of food do not always strengthen plants where nor when we wish them to do so. They may, for example, send Rose shoots into such long growths as to have them all unfurnished and immature for the winter; whereas the vital force or food diverted from blooms is converted into vigour of bud or branch on the instant. Nevertheless, fresh supplies of food may be given. The food should neither, however, be too strong nor too slow. Drainings from stables are an example of the first sort, pig or pigeon manure of the second to be avoided. The first might push the roots through their pungency, the second starve them through its inert obstinacy, and both keep the plants growing too late in the autumn. The danger of this is so imminent through over-feeding, that it is safer in seasons such as this threatens to be to obtain the additional strength needed in our Roses through the concentration of existing force than by any wholesale additions to it through heavy feeding or manuring of the roots. In pursuit of such concentration, all weakly shoots should be removed as well as small and worthless flowers. By such simple means, existing supplies of force and food will be compacted into smaller areas, and the increased heat and light of the sun will have fuller play in converting the vital forces of this year into the perfect Rose of 1890.

Of course, in this great work of preparing a perfect Rose harvest for next year, rosarians will see to it that the plants are not handicapped by fungoid or insect pests. Every leaf and shootlet enfeebled by the former, or punctured or consumed by the latter, is so many manufacturing forces paralysed or removed, and in proportion as either of these things are allowed to happen, there will be the fewer and the worse Roses again in 1890. D. T. F.

SHORT NOTES.—ROSES.

Rose W. A. Richardson.—Some young plants of this Rose have been evergreen, with really healthy and abundant foliage all the winter, and now are a mass of flower. I have not had the white Japan Rose so good as it is this year.—W. SHIRLEY, Fareham.

Variegated Rose.—Will you kindly give us your opinion of the enclosed? The Rose is a sport, and we have grown it for three years. It still keeps true, also those plants budded from it.—MESSRS. W. HANNAFORD AND SON, Teignmouth.

*** Very striking and pretty variegation, the value of which can only be fully judged upon the bush.—Ed.

Manure water for Roses.—A month ago the Roses in the open beds appeared later than usual, but since then they have had a free application of guano water once a week, and now they are more promising than I have ever seen them on the eve of their opening. I attribute much of their improved condition to the manure water, and where time and means will allow frequent applications of this will greatly benefit all Roses at the present time.—J. MCKE.

Chiswick Rose Conference.—Rosarians will, as a matter of course, not be behindhand in their contributions of H.P.'s, Teas, and Noisettes, as the season may permit, to the forthcoming show at Chiswick, on July 2 and 3. Such matters need no advocacy; but there is another department of the conference, one which may be made of a most interesting character, and for which we venture to solicit assistance. We extract from the official

programme the following details, italicising those to which we now desire to call special attention:—

The object of the conference is to get together as large and as representative a collection of Roses of all descriptions as possible; to form an exhibition of all subjects pertaining to the Rose, whether in its botanical, its horticultural, its literary, or its artistic aspects; and to bring together for the purposes of reciprocal information and fellowship all those interested in the Rose and its culture. To carry out these ends, the assistance of all lovers of the Rose is invited.

Species.—Any exhibits relating to the wild species of Rose, to single Roses, to peculiarities of structure, diseases, &c., will be welcome. Persons possessing species of Roses, if only single specimens, are requested to exhibit in this class. Dried specimens are also requested.

Miscellaneous.—Including books on the Rose, and on Rose culture; photographs, drawings, engravings, &c., of wild or cultivated Roses, &c.

Rose growers and others willing to assist the society in these respects are requested to communicate with Dr. Masters, at the gardens of the Royal Horticultural Society, Chiswick, W.

Single Roses.—Many of the single Roses are just now in full flower in the garden, as they come in before the Hybrid Perpetual and Tea-scented sections. One of the most beautiful of the rugosa class is Comte d'Eprenesnil, a semi-double Rose of a full rose-purple colour, the scent powerful and delicious. It has the glossy abundant foliage of the type, and is in all respects a charming garden Rose. At Broxbourne was a bush of the white-flowered pulverulenta and the crimson-coloured kamschatica. Coruscans is a good single Rose, the flower of a fine shade of pink; also worth a note were rugosa and its charming white variety, a flower of exquisite purity and beauty. A plant of Paul's single crimson and single white were in bloom, and of the two we prefer the white variety. It is a free-growing Rose, just the type of plant for covering a pillar, and has flowers very much like those of our common Dog Rose, white, and delicately scented. It appears to have a far stronger constitution than the single crimson kind.

Marechal Niel Rose out of doors.—I am very pleased to see that "D. T. F." (p. 521) agrees with growing this grand Rose out of doors. It can be made to grow and produce with comparatively little trouble even finer blooms in this position than in greenhouses. The finest blooms of this delightful Rose I have ever seen came from a plant on a south wall in Yorkshire. They were of magnificent colour; not that washed-out yellow one so often seen in flowers under glass. Seven years ago a standard plant of this Rose was planted at the base of the south wall of the mansion in a small prepared border, the surrounding soil being of a close heavy retentive nature. The plant grew vigorously and flowered freely, and has done the same every year since, although nothing has ever been done to its roots, except to supply them freely with water in a dry season. At the present time it has a splendid crop of blooms fully expanded, which, I am only sorry to say, will soon be past their best, as they have already been out some time. Nothing has been done to the plant in the way of pruning the shoots, the object being to get it to grow as tall as possible. At the same time, a specimen on its own roots was planted at the base of the back wall in the greenhouse, which is 12 feet high. The growths were trained up the wall and down the underside of the roof. They were very strong, as much as 28 feet being made in one season. Of course such growth as this did not fail to flower abundantly. The plants kept on in this condition for about four years, and without any warning died off from canker. We were left without Maréchal Niel inside, and although we have since tried others all have shared the same fate. But still, the one out of doors is evidence that Maréchal Niel is a Rose that will not only live there, but also flourish.—A.

—Your leader of the 8th inst. (p. 521) from "D. T. F." tells the truth to the letter respecting growing Maréchal Niel Rose outside, but he does not inform the readers of THE GARDEN where it

is to be seen resplendent in all its glory on outside walls. At Easton close here Maréchal Niel does beautifully, but I look upon the county of Norfolk as the home of outdoor Maréchal Niels. At Lyan they actually cover stables and bloom perfectly; at Denver (same county) the cottagers grow them trained to the walls of their dwellings; at Godalming, Surrey, they cover barns; and here at Stamford I have seen them at a Mr. Swan's in the very best condition. I admit, truly, deaths often occur, but by the timely planting of a few Rose stocks or Briers, a small stock of budded plants can always be at hand. I may note in conclusion that all kinds of Roses do really well in Norfolk.—R. G., Burghley.

—As regards the discussion about Maréchal Niel in the open air, an old plant on a south wall has given some very fine blooms this year. The tree, dwarf standard apparently, has been planted eight or ten years, possibly more, and is nearly smothered with Virginian Creeper and Clematis montana. Some of the richest coloured flowers are half hidden under the leaves of the Virginian Creeper, while an enormous rich yellow flower had wedged itself in so that it could not be picked with a stalk at all. The bud I enclose is a poor specimen compared with many I have picked this year.—W. SHIRLEY, Fareham.

AUSTRIAN BRIER AND PERSIAN YELLOW ROSES.

"J. C. C." (page 546), in his interesting note on these on walls, refers to the plants living longer when raised from suckers. Where any considerable stock of these Roses exists, they are generally grown on their own roots, and when so grown mostly produce a great many suckers. But they also live longer than most Roses as worked plants, and there are those who think they bloom more freely worked on the Dog Rose than on their own roots. There is assuredly a way of growing the Austrian Briers from suckers that does not promote their free blooming, viz., the treating the suckers like semi-annuals and running up fresh suckers for blooming every season. Quantities of bloom may occasionally be had on these after a hot dry summer, but, as a rule, these young shoots bloom but little, and the surest mode of ensuring a profusion of blossom is to develop age and size of stem or root-stock. The growth on such aged plants is mostly short and strong rather than long, and it is most pithily and truthfully described as all bloom.

These Roses are also often left far too severely crowded in plant and branchlet. It is no uncommon thing to meet with Persian Roses and Austrian Briers crowded almost as a copse of Willows. Under such untoward conditions for blooming it is little wonder if there are as many branches or leaves as blossoms. Possibly it is in regard to a proper thinning of the tops "J. C. C.'s" recommendation for the wall culture of these Roses would prove most effective. The wood having more heat and being fully exposed to light would, of course, be better ripened. In warm situations and on dry, hot soils, however, these Roses are often wonderfully free flowering, and form most striking objects in the landscape when allowed to run up into large, loose bushes or masses. They also make beautiful hedges where they thrive well.

The bronze or copper-coloured variety does not seem so hardy as the yellow Austrian Brier, and seems to be getting scarcer every year. This is much to be regretted, as we can hardly be said to have this rich colour reproduced in any of our Roses, excepting occasionally in William Allen Richardson or Fortune's Yellow, and such are but mere ghostly reproductions of rich, full copper-coloured Persians. These last produce uniquely rich effects in groups or fine sprawling masses by themselves, and also add a peculiar charm to the golden Briers or Persian Yellows when contrasted with them in the mode so vividly described by "J. C. C." or in other ways. Among these other ways a very simple and effective one is to bud a few of the contrasting colours on to the heads of either copper or yellow Austrian Briers. The charming double Harrison's and all the Persian Roses may also be budded on Austrian Brier heads, thus giving a richer variety

of form and colour in smaller areas, and producing much of the pleasing surprise of unexpected sports.

D. T. F.

NOTES OF THE WEEK.

The Bush Daisy (*Olearia*).—This comes from Glasnevin, densely clad with flowers. It is a hardy and valuable addition to our gardens.

Crinum amabile.—A noble head of this comes from the interesting borders at Glasnevin. The head is a good deal more than a foot in diameter. It is a superb hardy flower.

Malva campanulata.—This softly and prettily coloured Mallow comes to us from Glasnevin, where it grows freely. It is a pretty rock and bank plant, where it can be done well.

Pæonies and Irises from Heckfield.—Mr. Wildsmith, The Gardens, Heckfield Place, Hants, sends us a gathering of Peony and Iris flowers. The colours of the Pæonies, especially of the double varieties, are rich and varied.

Sidalcea candida is a malvaceous plant, and grows about 2½ feet high. It is very pretty just now in the garden, as the pure white flowers are at their best. The soil should be moist and loamy. There is no question as to the hardness of the plant.

Eurybia Gunni is one of the prettiest plants in the Broxbourne Nursery. A small specimen of it in a sunny, well-exposed position is a sheet of pure white star-like flowers, which almost completely hide the glaucous leaves. It is growing in ordinary soil.

Columbines from Leigham Court.—A rich gathering of *Aquilegia* flowers comes from Mr. E. Butts, Leigham Court Gardens. The strain is a good one, the flowers varied in colour and strong. A good selection of *Aquilegia* affords many delicate shades.

Brodiaea congesta is very beautiful just now in gardens. It is a liliaceous plant, the leaves long, slender, and above which rise the tall flower-stems, each bearing a small crowded raceme of pale violet-blue flowers. A good clump of it is very showy and elegant.

Linum perenne is very effective just now; the numerous intense blue flowers, unfortunately very fugitive, are charming while they last. We find this *Linum* useful for dry, sandy banks, where it thrives well. The poorer the soil the better apparently the plants flower.

The Georgian Fleabane (*Inula glandulosa*) was finely exhibited by Mr. T. S. Ware, of Tottenham, at the Royal Botanic Society. The flowers are yellow, large, and make a great show in borders. It is a native of the Caucasus, from whence it was introduced early in the present century.

Kniphofia natalensis, a new species, is now in flower at Kew; the leaves are very small compared with those of such species as *K. aloides*. The flowers are of much the same colour, but lax, and as seen now are interesting. It will probably not be hardy, and will require greenhouse treatment.

Lilium auratum in Victoria, Australia.—Mrs. Ellis Rowan sends us two photographs of *Lilium auratum* growing at Macedon, Victoria. One plant has a fasciated stem, carrying a head of 138 flowers, while the other photograph also represents a very fine specimen. Not only in this country, but also in Victoria this handsome Lily seems to do well.

Pentstemon diffusus, of which we gave a coloured figure in THE GARDEN, July 22, 1876 (p. 80), is very beautiful just now. It is one of the most useful plants we have, flowering so long before any of the others, and supplying us with a colour very scarce in the mixed border in June. It is a semi-shrubby variety and a very free bloomer, the flowers large, violet-purple. It will keep up a succession of bloom until the autumn. A native of rocky ravines near the Columbia River.

Lithospermum graminifolium is a choice gem of grassy growth. A tuft of it in the Broxbourne Nursery is blooming freely in a well-exposed sunny position. The soil is loam and the plants are surrounded with stones. This Gromwell is quite unlike *L. prostratum*. Its flowers are of the same intense brilliant blue, but bell-shaped, and borne in pendent clusters, which each surmount a stem from 4 inches to 7 inches or 8 inches high. It is a beautiful alpine flower.

Dianthus Grievei is a fine hybrid Pink that may now be seen on the Kew rockery. It is a cross between *D. alpinus* and the Sweet William (*Dianthus barbatus*). The hybrid shows its parentage well. The

flowers, which are rose and white in colour, remind one of those of the alpine Pink, but the growth and leafage are derived from the Sweet William. It grows freely and quickly, and is in every sense a good Pink for a rockery.

Genista Andreana is described as a new shrub, a coloured plate of which appeared in the *Revue Horticole* for August, 1886. It seems to be a remarkably bright, showy shrub, very free-blooming, and having flowers of a rich yellow and crimson shade.

The Rose walk at Kew is now one of the most delightful spots in the Royal Gardens. The kinds are principally Noisette, and the long, straggling shoots wreath the chains with growth, and at this season a multitude of flowers of various shades, individually of no particular beauty, but in the cluster exceptionally handsome and showy.

Dianthus neglectus is the prettiest alpine in bloom on the Kew rockery. There is a piece of it planted on a sunny prominence between stones, but a good depth of soil is given for the roots. Its rich rose flowers, which almost smother the growth, are intensified by the quiet grey colour of the rock. This delightful Pink came from South-west Europe in 1869.

Linum grandiflorum rubrum is a graceful annual with large flowers of the most brilliant crimson colour. It grows about 18 inches in height, and is one of the most beautiful flowers of its class in cultivation. Lines of it in the Broxbourne Nursery the other day made a distinct break away from the ordinary run of things.

Two beautiful Bellflowers are *Campanula glomerata dahurica* and *alba*. Both are blooming freely in the Epsom Nursery, and both are plants of considerable beauty. The first named has clusters of rich deep blue flowers, and is exceedingly free, the other having apparently a less vigorous constitution and smaller heads of white flowers.

Iris Mme. Chereau is one of the finest of the barbata section of *Iris*. It belongs to the *aphylla* group, and is one of the commonest flowers in its season in the London markets. Everyone who cares for garden Irises should have this. It has exceedingly handsome flowers, not large, but bold and white, beautifully frilled round the margin of both falls and standards with a distinct bluish shade.

A bed of the common Lilium umbellatum near the tropical Fern house in the Royal Gardens, Kew, is worth notice from visitors. The spikes of brilliantly coloured cup-shaped flowers rise from an undergrowth of *Berberis Darwini*. The contrast of the peculiarly rich crimson flowers of the Lily with the deep green leaves of the *Berberis* is unusually effective. Very few comparatively think of making such rich effects as this.

The Marsh Orchis (*O. latifolia*).—The handsomest hardy Orchid sent us this year is a finely coloured variety of this from Mr. Moore, Glasnevin. It is of a lovely plum-purple colour, and the spike is 6 inches long. We doubt if any tropical Orchid would produce a better effect than a good group of this. It cannot be a difficult plant to get in marshy places, and such a distinct Orchid certainly deserves cultivation.

Peruvian Lilies at Glasnevin.—Two very handsome heads of these distinct and precious summer flowers come from Mr. Moore, of the Glasnevin Botanic Gardens. We think they are not nearly so well represented in our gardens as they should be. The garden should be at its best when the climate is most enjoyable, and when we are a little beyond the mishaps of spring. These bloom just at the right time, and they deserve to be seen far more often than at present. The two kinds sent, named *Alstroemeria revoluta* and *Diayi*, appear to be mere forms of older kinds.

Potato Tree (*Solanum crispum*) is flowering well this season, and this handsome shrub is desirable in more ways than one. It is the only member of the genus sufficiently beautiful for open-air culture, and a plant that does well on a wall. In such a position it may be seen in the Royal Gardens, Kew, the plant covering a large space of wall with an abundance of rich green foliage, set off at this season by clusters of rich purple-blue flowers, enlivened by bright yellow anthers. It usually grows from about 12 feet to 14 feet in height and is quite hardy in southern counties, but further north would possibly require slight protection. A good specimen of it was also in full bloom

last week in the Broxbourne Nursery of Messrs. Paul and Son, and it is not an unsuitable plant for the rougher portions of the rockery, owing to its free, vigorous habit. It was introduced from Chili early in the present century, and is therefore not uncommon, though one would like to see more of such a distinct and certainly interesting plant.

Laurel-leaved Rock Rose (*Cistus laurifolius*) is very beautiful just now near the tropical Fern house in the Royal Gardens, Kew. There is a fine bed of it on the Grass, and the plants are making a luxuriant leafy growth, now studded with very large, pure white delicately beautiful flowers. Each of the frail petals has a blotch of deep lake-crimson colour near the base, and there is also a central ring of yellow, the stamens orange-coloured. It is a European species, having been introduced in 1731.

A new Poppy.—Enclosed I send a Poppy of the wild or umbrosom character, raised in my garden, which, so far as I am aware, is quite new and of considerable beauty. It is a red Poppy with a very distinct cross, black centre, edged with a delicate broad white band. It is a difficult flower to send in good condition, but I hope the fully opened flower and a bud ready to expand may convey some idea of it as it appears on the border.—T. H. ARCHER-HIND, *South Devon*.

* * A Poppy of fine colour and very much like umbrosom. It is worth preserving.—ED.

Polemonium Richardsoni is a beautiful hardy border plant now in full bloom. A mass of it in the Epsom Nursery of Mr. Morse was very fine the other day. The plants were flowering for the second time this year, and after this display is over another will take place in the autumn. Thus we have the plant in bloom more or less for several months. It will flourish in almost any soil or situation, and grows about 2 feet high; the foliage dense, rich green, and the lovely sky-blue flowers, enriched with golden anthers, are produced in large lax heads.

Rock Roses are amongst the gayest flowers of the garden, and it requires a very few of the varieties of our native *Helianthemum vulgare* to make patches of brilliant colour. Spreading clumps in the Broxbourne Nursery in the fullest exposure tell their worth, and at Kew in that portion of the gardens known as the "wilderness" there is a dry sloping bank, the surface covered with brick ends, over which the vigorous-growing Rock Roses delight to throw their woody growth, at this season studded with flowers. With a good selection of varieties we can have almost every shade of colour—salmon, rose, pure white, the richest orange-scarlet, yellow, and buff. There is many a hot dry border or sunny bank where few things can be made to grow that would be just the place for the Rock Roses, and it is very seldom that a good selection of varieties is to be seen in gardens. The type is a flower of exceeding richness. We have seldom seen it more beautiful than on the Epsom Downs, where it fringes the chalky banks with its golden flowers and makes bits of bright colour on the Grass.

Pansies in Yorkshire.—We have innumerable Pansies here without the least care on our part. Six years ago they were planted on a slope in the kitchen garden among the Rose trees. They seed freely, and every spring the old ones are thrown away and the seedlings are thinned out. They have taken possession of the walk adjacent, and also of a neighbouring wall, and they give to us and our visitors as much delight as anything in the garden. So sweet are they that the air is scented with them, and they are grown with about the same amount of trouble and time that would be wanted to grow a bed of Groundsel or Chickweed. A Pansy florist came two years ago and saw them, and abused them very much, yet a large mass of Pansies, bright in flower and of various shades, seems to me to be desirable. I send some blooms. We can cut large basketfuls every day, and never miss them, and our London friends appreciate them. The present season suits this northern climate admirably. I never saw the flowers so bright or plentiful, and we have not that appearance of being

burnt up of which I noticed the beginning recently during my visit south a short time ago.—G. H. C., *Brookfield*.

Passiflora Pfordti.—We are glad to learn that this barbarous name, which has been given by someone to a plant which Dr. Lindley knew and named *P. alato-cærulea*, is to be heard no more. It is a free grower, has large, trilobed, dark green leaves, and large flowers in which the characters of the two parents are combined, but the colour is a dull magenta. As a garden plant it is a long way behind many better-known Passion Flowers. It is in flower in the temperate house at Kew. It is a cross between *P. alata* and *cærulea*.

Clintonia Andrewsiana is a charming Liliad, its deep rosy blossoms, disposed in a loose umbel, being very characteristic. It is a desirable rock plant, and seems to do well in a partially shaded spot in moist peaty soil. The leaves, in close tufts, are each about a foot long and half as broad, dark green. A native of North America. *C. borealis* is almost too well known to require comment. The flowers are greenish-yellow, opening a fortnight earlier than those of the above species. The above Clintonias must not be confused with the annual Clintonias, which are now placed in Downingia, a genus of Lobeliads.

A good Columbine.—I send you a specimen of *Aquilegia* which I have grown for the last two years. The plants have been in full bloom for three or four weeks, and the blue is much lighter than at first. The plants have had no care bestowed on them. The one the specimen was taken from is growing under a large *Araucaria*. The flowers are certainly lovely when newly cut.—GEO. RIDDEL, *Leslie, Inch, Aberdeenshire*.

** The flowers sent (and very pretty they are) seem to us a form of the Rocky Mountain Blue Columbine (*Aquilegia cærulea*), one of the loveliest of mountain plants, but seldom seen in a true state in gardens. Hybrids from it are numerous.—ED.

Galax aphylla is one of the neatest rockery plants we have seen for a long time. It belongs to the Heath family, and is one of the plants found in company with *Shortia galacifolia*; indeed, we are told that the *Galax*, which is the stronger of the two, is fast crowding the *Shortia* out. The leaves of the *Galax* are round, evergreen, and tinted with the most beautiful shades of red and purple. In Carolina, where it grows wild, the leaves are so beautiful as to be gathered in the autumn and sent to the larger towns for decoration. The flowers are white, on a close, wand-like spike, and, when in quantity, are very effective. It thrives in any peaty or leafy soil, and will flower all the better for a little exposure.

Caterpillars.—The present year seems likely to be as memorable for the prevalence of caterpillars as the last. Already the leaves of trees, Limes especially, are sadly riddled by the pest, and in few places round London is the damage more evident than at Ashstead Park, near Epsom. The leaves of the Lime trees look as if riddled by shot; the common Hazel bushes are in no better plight, and this great wave of destruction seems to be attacking other trees without distinction of kind. Reports from Cheshire describe the fruit crops as a total failure in most parts through the caterpillars, Damson trees having suffered most severely. As far as we have seen at present, the Oaks are comparatively free, but how long they will remain so is doubtful.

Conophallus Titanum.—Amongst Aroids of gigantic proportions and interesting character, this is the most wonderful of all. At Kew it has been one of the most striking of the plants grown in the house where the Victoria Lily is cultivated, its enormous leaf and remarkable structure being almost phenomenal. It has been grown there since 1879, when a small tuber was received from Dr. Beccari, of Florence, who discovered it in Sumatra and brought home seeds of it. Weighed after its winter's rest this spring the tuber at Kew proved to be 57 lbs. It is now developing a huge inflorescence, and promises to realise all that was said of it by its discoverer. At present the inflorescence is 6½ feet high. The Kew authorities are to be

congratulated on being the first to flower this plant, which is as great an event in its way as was the flowering for the first time of the Victoria regia. Next week we hope to give the measurements of this flower after it has properly expanded. Meanwhile we advise all who have an opportunity to go and see this vegetable monster. In the same house another remarkable Aroid, viz., *Godwinia gigas*, is just unfolding its huge cobra-like leaf. This plant also flowered at Kew a few weeks ago. These big Aroids appear to be exceptionally well represented at Kew.

Watsonias.—Some pretty-flowered species of this old genus of Cape bulbs are now in bloom at Kew, and they suggest the question, How is it that these plants have not been favoured with a share of the attention which cultivators and plant breeders have devoted to *Gladioli*? Such species as *W. alatroides*, *W. humilis*, *W. meriana*, *W. rosea* and several others now flowering at Kew are quite distinct from all other bulbs and have considerable beauty both in shape and colour. The cultural requirements of *Watsonias* are similar to those of *Gladioli*.

Lathyrus rotundifolius.—The Everlasting Peas are valuable, for they give no trouble when once established and last a long time in beauty. One of the earliest and certainly not the least pretty is the above-named kind. By the first days of June its rosy purple flowers are open and they continue until August, at which time *L. latifolius* and the white variety are in flower, and will keep up the supply till late in autumn. *L. rotundifolius* needs no culture, for when once planted it will take care of itself. We have some in a little border supported by a low terrace wall, and though pretty here, it is still more so about the grounds. In one place upon the open lawn it clusters around the stem of a tree to which some shoots cling, whilst others trail around on the ground. Upon a dry bank it also seems quite at home.—A. H.

Puya Whytei.—The *Puyas* belong to that section of the Bromeliaceæ which is remarkable, as a rule, for the large size of the plants, the rigidity and very spinous character of the foliage, and for their rarity in gardens. But *P. Whytei* is an exception to this rule, its leaves being ornamental, the plant not more than 2 feet across, and flowers are now and again developed by plants of this size. An example in flower is now a conspicuous object in the succulent house at Kew. It has a stout spike 4 feet high, bearing numerous flowers over 2 inches long, something like those of a *Lapageria* in form, and of a shining metallic blue-green colour. The blooms are exceedingly beautiful, and quite unlike any other flowers in colour. This plant flowered at Kew several years ago. It has also bloomed out of doors in the south of England, and may be, therefore, recommended for gardens in the warmer parts of this country. On a rockery in a sunny position it would be a delightful plant, ornamental even when out of flower. Most of the *Puyas* are Chilean, some of them attaining gigantic proportions on sunny hills there. *P. lanuginosa*, another very striking plant, flowered in the same house at Kew last year.

A note from Fareham.—One would have said last summer was the worst possible, and that the effects of the continuous wet would have destroyed all hopes of fruit, &c. Yet I have never had a double Cherry tree so beautiful as it was the other day, nor so many Gooseberries nor Currants, nor such healthy looking Rose beds; while Daffodils, Tulips, and Anemones have all been good. Forced Hyacinths were poor. These were brought fresh from Holland. The Tulips and Anemones I have had some years. As regards late Tulips, they increase and flower here very satisfactorily. *Ixias* and Spanish Irises with a background of *Alstroemeria* are looking very bright. These, for the sake of the *Ixias* and other tender bulbs, I cover during frosty weather with frigi domo. I have a successful corner in hardy flowers as follows: Primroses and Daffodils, Columbines, Spiræas, Lilies, and autumn Anemones. It is in a good position, and hides up its own untidiness, i.e., the Columbines and Spiræas cover up dying Primrose and Daffodil leaves, and the Anemones take full possession of every-

thing in the autumn. They all receive a mulch in the beginning of December, and presently start off upon their round again. Iceland Poppies are beautiful just now; they seed themselves freely. This year many seedlings have come semi and some nearly completely double. So far, it does not seem an advantage. Are my Columbines true, viz., 1, *cærulea*; 2 and 3, *californica*; 4, *chrysantha*? They were all raised from seed and are pretty. No. 3, you will see, bears erect flowers. So does the Foxglove, from which I enclose a few flowers. I have never seen any like them before. Is there any species of this nature?—W. SHIRLEY, *Southwick Parsonage*.

** Your Columbines are so intercrossed that it is impossible to distinguish any species.—ED.

Primula suffrutescens.—This Californian *Primula* is certainly a welcome addition to our list of summer flowering alpine. It follows *P. Rusbyi*, and although it has hardly proved such a free flowerer, its fine habit and peculiarly interesting appearance single it out as a desirable plant. It is the only *Primula* I know with creeping woody stems which root as they run along, and if kept pegged down soon form a large mass. I believe it has proved quite hardy in many English gardens. My plants did not do so well as I expected, probably owing to the unusually wet summer of last year. Its flowers, produced in loose bunches, are not unlike those of *P. rosea*, and last for a considerable time in good condition. It may be increased to any extent by runners.—K.

SHRUBS IN FLOWER AT FOTA ISLAND.

BENTHAMIA FRAGIFERA.—Some time ago I stated that this shrub had made very fine growth in 1888, showing how much it enjoyed the extremely wet season, and, unlike many other half-hardy shrubs, it set numerous flower-buds, with the result that many trees here are now one mass of white flowers. Should we have a warm summer, we may expect a heavy crop of its very ornamental fruit, which is sometimes compared to that of the *Arbutus*. The fruit of the *Benthamia* is, however, twice as large as the largest berry of the *Arbutus* and not quite so dark. The berries have a bitter taste, and, consequently, the birds generally leave them until their store of more palatable fruits is eaten, and during some very mild winters they leave them entirely untouched.

FREMONTIA CALIFORNICA.—This very free-flowering shrub is now in bloom here. It has one good quality, viz., that of remaining in flower for several months, and its large yellow flowers are most attractive. It ripens its seed here, and it may also be increased by cuttings.

OZOTHAMNUS ROSMARINIFOLIUS.—This small-leaved shrub is now covered with its thousands of small white flowers, which are all on the upper sides of the branches, rendering them very useful for making wreaths, &c. So numerous and thickly arranged are the flowers that there is not room for a leaf between them. I find that it is a short-lived shrub, but to make up for this, it is a very free grower and easily propagated by putting cuttings of the current year's growth into sandy soil at the end of September, and keeping them shaded in bright weather in a close cold frame. It flowers in a small state, and would be most useful for pot cultivation.

CARPENTERIA CALIFORNICA.—This has opened its first flower for the season to-day. Too much cannot be said in favour of it, and all lovers of fine and rare flowering shrubs should find a place for this. The flowers are much like those of *Anemone japonica alba* both in size and colour, and are borne on the ends of the previous year's wood. Leaves about 4 inches long, lanceolate, light green on the upper side and underneath much lighter.

PHILESIA BUXIFOLIA.—This dwarf-growing shrub, which is hardy here, is now in flower. It is planted in a damp situation in rough peat, with a mixture of broken crocks and sand, which it seems to enjoy. It grows very slowly and throws out numerous suckers, by which the stock may readily be increased.

W. OSBORNE.

Fota, Cork, June 17.

STOVE AND GREENHOUSE.

THE PAPER REEDS.

To be accurate, this name should be used for only one species of *Cyperus*, viz., *C. antiquorum*, but there is no reason why it should not be applied to all the tall-stemmed species, as they also contain the pithy substance from which

with excellent effect for skirting pools or lakes, or for screening a swampy piece of ground. It is, however, rarely seen in gardens. In a wild state it is also rare, but it is easily propagated by division or from seeds.

The most useful and most generally grown of the exotic species is *C. alternifolius*, which we owe to Australia. It is everyone's plant, and thrives in a window in the densest part of

the ends of the stalks, cut off the leaves to within an inch of the base and stick what remains in sandy soil in a propagating frame. The variegated form, when well coloured, is a superb plant. It has, however, the unfortunate habit of turning green if the treatment is at all liberal. Like several other of those plants which have white variegation, poor soil, pure water, but plenty of it, and small pots are necessary to the permanence of the variegation. A well-coloured specimen of the variegated *Cyperus* cannot be surpassed as a table plant. *C. distans* is a garden name for *C. Meyenianus*, a plant which has taken the place of *C. alternifolius* in many gardens. It is larger in stature, coarser in habit, and retains its grassy foliage about the base of the taller mop-headed leaves. The colour is a deep black-green, and it keeps well under ordinary treatment. Hundreds of thousands of it are sold in London annually. It was first brought into prominent notice by Messrs. Hugh Low and Co., who had a good stock of it about six years ago, and who now grow thousands of it.

C. antiquorum, better known as Papyrus, the Sacred Reed or Bulrush of the Bible, is an old garden favourite. It likes tropical treatment, but thrives fairly well in a sunny position in a pond out of doors in the warmer parts of this country. In some parts of France it is a common feature among out-door plants. It is also grown in pots for sub-tropical bedding, a purpose for which it is well adapted. Although it revels in mud, it may be grown as a pot plant in the ordinary way. Division of the roots will soon yield a large stock of plants; but the quickest method is from seeds, which can be obtained from any large seed-dealer. From seeds sown in February large specimens can be obtained by the June following. Plants 6 feet high, with numerous leaves, and each in an 8-inch pot, may be got in this time if plenty of heat is used. In June they should be hardened off, preparatory to their being used out of doors during summer.

The historical interest of this plant is known to everyone. It is a native of Northern Africa, Palestine, &c., and was introduced into English gardens in 1802. In some parts of Africa it completely hides the swamps and rivers, its stems forming an almost impenetrable jungle 2 feet to 16 feet high. The papyri of the ancients were prepared from this plant by simply pulling off the green bark, slicing the pith, placing the slices side by side and saturating them with gummy water. They were then pressed, and when dried were ready for use. Examples of this paper bearing writing by Egyptians may be seen in the Kew museums.

W.

Herbaceous Calceolarias—There are many fine strains of herbaceous Calceolarias, and amongst the number that of Messrs. Cannell and Sons, of Swanley. This has the great merit of dwarfness coupled with a strong habit and extensive range of colouring. The house devoted to them was a short time since one blaze of colour, each plant having a dense, well-rounded head of bloom. The seed is sown in cold frames placed in a cool position near trees, and when sufficiently large the seedlings are pricked off into pans, and from thence transferred to 3-inch pots, in due time being potted on into those 5 inches across. The last shift is into 8-inch pots. It is essential throughout to maintain a cool, comparatively dry atmosphere, and scarcely any artificial heat is needed, and this only when the weather is damp to preserve the freshness and beauty of the flowers. There is unlimited variation in colour. The pure self yellows are amongst the brightest, and remarkably rich



Cyperus alternifolius, from a photograph sent by Mrs. R. Moss King, Ashcott Hill, Somerset.

paper was made by the Egyptians and others in ancient times.

Of the 700 named species of *Cyperus* known only very few have been brought into requisition as garden plants. Beginning with our own native, the Galingale (*C. longus*), we have in it a tall, graceful plant, which may be used

London almost as well as in the best appointed greenhouse. For furnishing of all kinds it has few equals among foliage plants. In a tropical house, where it can get plenty of water, it grows into a really handsome specimen in a marvellously short time. To propagate it one has only to take the small rosettes of leaves on

when this brilliant ground colour is spotted with mahogany. Maroon, purple, chestnut-brown, velvety crimson, soft sulphur, and creamy shades are all to be found in a good strain of herbaceous Calceolarias.

Combretum purpureum and **Ipomœa Horsfalliæ**.—In reference to Mr. Lynch's note about these two plants in THE GARDEN, June 8 (p. 526), I have been propagating for the trade for some years, but I have never seen a single plant of either obtained from a cutting. I cannot accept such statements without a proof being sent with it, and then I should want (but perhaps should not arrive at the truth) to know how many per cent. rooted. I have so frequently heard this assertion made respecting these two plants that I have made up my mind that those who talk of so increasing these species know very little of the habits and requirements of these two plants. Will any propagator in the trade kindly give a record in THE GARDEN of this operation of striking the above-named plants from cuttings being successful?—SCEPTICUS.

Hechtia argentea.—This is a plant that many would admire if they could only see it more often. There is a specimen in the Cactus house in the Royal Gardens, Kew, and it is quite different from anything there, its long, silvery leaves falling stiffly over the pot, and making a rich surface of bright colour. It is a Bromeliad, and the best of the six species that form the genus, though some would give *H. Ghiesbreghtii*, which it most closely resembles, the highest place. The flowers are described as white, small, in globose clusters; but as I have never seen them, I can give no information as to their beauty. A warm, dry atmosphere is apparently most suitable for it, and there are many warm greenhouses where such a plant could have a corner.—C.

Tuberous Begonia.—I enclose a flower-spike of a seedling tuberous Begonia, which is, I think, rather remarkable. Not of course for size, shape, or colour, but for the fact that the first flower, still on the stalk when sent, was fully opened on May 27, and the whole spike has been in flower for over a week. The plant maintained this characteristic all through last season when it was raised, and appears to retain it now it is a year old. At the present time there is another spike nearly fully open and a third just beginning to expand the first flower, besides others on side stalks just showing. Each spike has two male flowers and three female ones. From the spike sent, I, unfortunately, knocked off the first female flower two days ago.—W. SHIRLEY, *Furzeham*.

Planting out Callas.—There appears to be various opinions held as to the beneficial effects or otherwise of planting out Callas during the summer months. Having repeatedly tried both, I am averse to keeping Callas in pots, as not only are the plants considerably more trouble in watering, but they never make such strong crowns as they do with unlimited root room and a more regular supply of moisture. Objectors to the practice of planting them out aver that the plants suffer a great check in relifting and potting, but that depends on the way they are managed and treated; and if they do, that matters but little if the check is not too severe, as it does not affect their flowering, for with the strong, well-developed crowns turned-out plants are sure to have, the blooms must be there, and will issue forth in due time. The way to manage Callas is to turn out from their pots, and pull apart all those that are large, so as to reduce them to a desirable size. Before dividing them, however, it is advisable to have the ground ready, that there may be no delay in getting the plants in. It is a good plan to prepare a shallow trench, and manure it as is done for Celery. This gives every chance of affording the Callas plenty of moisture, as they may be flooded occasionally. The distance at which to place them in the trench depends on the size of the plants, but in a general way 18 inches to 2 feet is ample; and after the planting is effected, it is a good plan to mulch, which will shade the ground and help to maintain a uniform condition of moisture. By the end of September the Callas should be lifted, and any loose soil shaken away from the

roots, so as to reduce the ball to a size suitable for the pots the plants are to go into. The necessary filling in around should be done with fine rich mould, and to make sure of this not lying hollow, a heavy watering, which will carry the soil among the roots, where it will subside and be made use of at once, should be given. The best place for the plants immediately after potting is a deep pit where they can be stood, kept close and shaded for a fortnight or so, during which time they ought to be frequently syringed overhead.—S. D.

WORK IN PLANT HOUSES.

GREENHOUSE.—CAMELLIAS.—There are few plants so accommodating in respect to the time they can be induced to flower as Camellias. With a sufficient number of plants and the requisite judgment brought to bear in regulating their growth, the old white variety can be had in bloom for nine or ten months in the year. But it is only in the spring or summer, when the plants are growing, that much can be done to assist the flowering for another year. If once they are removed to cool quarters after the buds are set, little can afterwards be done to push them on. If anything in the shape of forcing is attempted, it is more than likely to end in the buds dropping off in quantities. Where it happens that the plants are wanted to flower considerably earlier than usual, all that is necessary to do is to keep them in the same house, with as much warmth as will keep the buds growing freely. By this means, plants that did not open their flowers before February in the past winter may be had in bloom in December. By following a like course a second year a similar advance in time can be secured. This process admits of being repeated until the plants bloom at the opposite time of the year to that which they have been accustomed to. In this way some of those who grow for Covent Garden Market have got a portion of their plants into an early habit of growing and blooming, so that they begin to flower regularly in July, and are followed by others in succession until the latter part of May. It may, however, be well to point out to anyone who adopts this course that it is necessary to be careful not to keep the plants too long where the buds will increase quickly in size, or they may open too early. If kept moving freely until the flowers show colour they will quickly expand, and nothing that can be done will prevent them doing so when they have reached this stage. Plants that bloomed late in the spring should be kept in the house in which they have made their growth until the buds are sufficiently advanced to enable them to come again at the time they are wanted. In the neighbourhood of large towns where the winter fogs are charged with smoky sulphurous vapours, it is better to keep Camellias where the buds will continue growing until they have attained a fair size before autumn. When the buds are large and prominent they are not so liable to drop off as when small and backward. Plants that flowered early, and now have their buds as forward as required should be moved into cool airy quarters. For want of a spare house in which to put the plants, where the lights could be open night and day from this time until autumn, Camellias are frequently turned out of doors where the soil gets soddened with thunder showers and worms find their way into the pots. If they must be put out, a slight frame-work, should be erected over them, on which hot-bed lights can be put temporarily, or a blind on a roller that can be run down when required should be provided. If this plan were adopted there would be fewer complaints of the buds dropping in winter.

CAMELLIAS PLANTED OUT.—It often happens that Camellias which have been grown in beds have to be transferred to pots or tubs. When the plants are strong and vigorous they can be moved in this way with little or no check to their flowering, provided they are taken up before the buds are too large. The right time for carrying out the work is just when the buds are beginning to form and the terminal leaves are about attaining their full size, but not yet hardened up. The plants should be lifted carefully. In potting make the

soil solid; light potting will not answer for Camellias. Fresh loam of good quality, consisting of about 5 inches or 6 inches of the top from an old pasture, which has been in a heap for six months, with some sand and a sprinkling of bone-dust, is the most lasting material. After potting, the plants should be kept in a moist growing temperature for about six weeks, in which time the roots will get well established, and the flower-buds will go on without feeling the removal. When Camellias that have been planted out are taken up and potted in spring the growth made during the ensuing summer is seldom more than half what it should be, and the plants generally fail to flower the season after.

WATERING CAMELLIAS.—When Camellias are planted out it sometimes happens that after thriving well for a time, making ample growth, and flowering freely, the plants begin to push fewer and shorter shoots, with a disposition to throw off more of the old leaves than they produce new ones. When matters take this turn it is always well to examine the bed which, more often than otherwise, will be found too dry a short distance below the surface, though the top, being sufficiently moist, gives no indication of the state the lower portion is in. When the bottom of a bed gets dry in this way no amount of water applied in the ordinary manner will moisten it. The only chance is to make a dam of earth about 6 inches deep all round the bed, or, what is better, dam the bed in portions, and keep the spaces filled up with water daily for a week or ten days.

CROTONS.—The long, narrow-leaved varieties are the best for table decoration, and the plants should be quite small for this purpose. From 9 inches to 12 inches high, exclusive of the pot, is as large as it is well to have them; everything with heavy massive leaves should be avoided. This necessitates frequent propagation to keep up the stock. Shoots with highly coloured leaves should be selected; the tops in lengths of about 6 inches are best. These should be put into 3-inch pots filled with sand. If confined under propagating glasses or in a cutting frame, they will strike in a few weeks, after which put them into 5-inch pots. Loam, with a little rotten manure and sand, is better than peat to grow them in. If kept in a brisk stove heat they will make nice plants before autumn.

PANDANUS VEITCHI AND **P. JAVANICUS VARIEGATUS** are both suitable for table use, and when too large for this purpose they come in well for standing in a living room. Here they will keep in good condition for the greater part of the summer, provided they are not placed too near an open window that will let too much of the outside air directly upon them. Suckers put in now will soon strike, and if well managed will make nice plants for use twelve months hence. All the suckers used should have a sufficient proportion of white colour in the leaves. If the suckers are too green they will most likely remain so. Remove a few of the bottom leaves, and let them lie for a day in the house before putting them in, so that the base may dry up a little. Put them singly into 4-inch or 5-inch pots, drained and filled with a mixture of loam and sand, and treat in respect to heat, moisture and shade in the way that Pine suckers are struck. The plants should be grown in a way that will keep the leaves short and stout. To have them in this condition, as soon as the suckers are well established they must be kept close to the glass. If there happens to be a shelf over a path, this will be a suitable place for them; failing this, they may be suspended from the roof by wires fixed round the pots. The foliage so treated will come better coloured and the plants through being robust will bear keeping cool better when they come to be used. The small-growing, green-leaved kinds of Pandanus, such as *P. elegantissimus*, *P. graminifolius*, and *P. Vandermeerschii*, can be increased and grown in the same way. These are remarkable for their gracefully curved leaves and elegant appearance.

CYPERUS.—The different kinds of Cyperus, including the green and the variegated forms of *C. alternifolius* and the green and the variegated *C.*

laxus, are increased by division of the crowns. The best time for propagating them is early in spring, before growth commences. But where the work has not been done, it is not yet too late, as there is still time enough for the plants to get established and make a fair amount of progress before winter. The plants are best broken up into single crowns, securing to each piece as many roots as possible and putting the crowns into pots large enough to hold them. A warm house or pit with a moderately close atmosphere and shade are necessary, but the crowns do not require a cutting frame or propagating glasses.

CUPANIA FILICIFOLIA.—This plant is much less grown than it deserves to be. It is one of the most elegant habited subjects in cultivation. Its ample Fern-like leaves give it an exceptionally graceful appearance. It is handsome in a small state, and equally so when it gets 6 feet or 8 feet high. It strikes from cuttings made of the young shoots when about 6 inches long. The cuttings, which should be taken off with a heel, are best put singly into small pots half filled with a mixture of loam and sand, the rest all sand. Treated in the ordinary way they will root readily. When sufficient roots are present, move the plants into 6-inch pots and grow them on in a warm stove temperature. This and other fine-leaved subjects of a like character are frequently kept during the early stages of their existence too dark, through an idea that because they are not wanted to flower there is no occasion to submit them to much light. This is a mistake, for the more light they get whilst young and their first leaves are in course of formation the more substance they have in them, and the longer they will retain their vitality. There should be no attempt at stopping the leading shoot, as, in common with all plants of a similar description, this *Cupania* looks best when confined to a single stem. To have the plants in good condition they must be kept free from insects, which if present soon disfigure the leaves. A daily use of the syringe will do much to prevent these pests being troublesome.

CALADIUM ARGYRITES.—This distinct looking plant can be used for decorations in so many ways that a good stock of it should be grown. It is one of the few things with variegated leaves that associate well with cut flowers. For this purpose it should be grown in quantity wherever there is much demand in this department. To ensure the leaves looking fresh and lasting well, the plants should be grown in 6-inch or 7-inch pots, as in these sizes it is easier to keep them close to the glass than when the specimens are large, and unless grown where they are fully exposed to the light the leaves flag when severed from the plants. The atmosphere of the house should not be too humid; this is best prevented by giving sufficient air.

T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Pimelea diosmæfolia makes a beautiful bushy specimen. It produces small heads of pale rose-pink flowers. Several plants of it were in full perfection a few days ago in the greenhouse at Kew.

Callistemon rigidus.—It is only at Kew that we hear of this plant making a gorgeous display once, sometimes twice, a year. There the specimen is an enormous one, and it is now bearing dozens of its large bottle-brush-like heads of scarlet and gold flowers. No plant could make a more beautiful display, and for large sunny conservatories there is no plant more worthy of its room than this.

Sempervivum dorame.—This is never likely to become popular in any sense, as it is an ungainly type from the Canaries, exhibiting more naked stem than fleshy leaves. But when in bloom a plant of this kind has a distinctive character. It produces a large head, composed of a multitude of yellow star-shaped flowers, the centre green. Individually they are of little account, but collectively make a considerable show. When grouped with other things of a similar nature, this class of *Sempervivum* introduces variety into the arrangement. We saw it at Kew flowering strongly in the Cactus house.

Bermuda Lilies.—The finest examples we have seen of the form of *Lilium longiflorum* known by this name are now in flower in the temperate house

and in No. 4 at Kew. The stems are from 5 feet to 6 feet high, clothed with dark green foliage, and each stem bears from five to eight flowers, large, of good substance, and pure white. It is supposed that the exceptional size of these plants and the number of flowers produced on each stem is the result of several years' cultivation in the island of Bermuda, where the conditions are so exceptionally favourable that a vigour almost abnormal is infused into the plant. After the first year here, deterioration, or rather a return to the ordinary character of this Lily, is observable. However, the Bermuda bulbs are cheap enough, and such plants as those at Kew are a full return for their cost, even if they never flower again. Has anyone worked out the history of the Bermuda Lilies?

CHRYSANTHEMUMS.

E. MOLYNEUX.

INSECT PESTS.

EARWIGS, I find, are troublesome at a very early stage this season. We have already found many ensconced snugly in the points of the shoots, coiled up in the tender leaves, and several points of the leading shoots have been eaten off; therefore a sharp look out must be kept for these intruders, as nothing but unceasing watching for them will rid the plants of this most troublesome pest. Beginners in *Chrysanthemum* cultivation, for whatever purpose the plants are needed, should be on the look-out for earwigs.

BLACK FLY is a pest which promises to be a source of annoyance to *Chrysanthemum* growers this season. If it be left to itself for ever so short a time in its early stages of attack, it will be all the more difficult to eradicate later on, and in consequence the plants will be all the more likely to be crippled in their growth. Never was the old adage "a stitch in time saves nine" better exemplified than in the case of the black fly and *Chrysanthemums*. An early application of a remedy may save much labour, annoyance, and result in much superior plants later on. The extreme points of the leaves are those which are first attacked, and are quickly curled up by the injury done to the tissues of the leaves, which never again become straightened, and consequently disfigure the plants. Not only does this fly spoil the appearance of the plants, but causes a check to growth, which must be avoided if the best results are to be expected in the production of high-class blooms either for exhibition or for home decoration. Tobacco powder is the best remedy I know of for black fly, if applied in time. In stubborn cases where the leaves are very much curled so that the powder cannot penetrate through every part, recourse must be had to dipping the points of the shoots in a strong solution of tobacco water. The best way of performing this operation is to place the liquid in a saucer, holding the vessel in the left hand, and with the right bending the point of the shoot into the saucer, thoroughly soaking every part of the affected branch. If done carefully no harm should happen to the points, but sometimes by bending them too short to get the leaves into the saucer the shoots, through being brittle consequent on their free growth at this time of the year, snap off. The best means of applying the powder is to hold the shoot firmly in the left hand, and with a distributor in the right one dust over the affected parts thoroughly, turning over the shoot and leaves as required, so that all parts may be properly covered with powder. This is best done in the evening, allowing the powder to remain on the plants all night, and in the morning the points

should be vigorously syringed, which will rid the plants of both powder and fly if the dose has been properly administered. The syringing of the plants can be much better performed if two persons take part in it, one to hold firm the shoots while the other applies the water with a hand syringe.

Another pest is the leaf-mining maggot, which is often troublesome in the spring, and especially during the present month when the plants are from 2 feet to 4 feet high. The maggot can easily be seen under the skin of the leaves where it secretes itself and quickly destroys the tissues. Hand-picking persistently followed is the only efficacious remedy I know. Either squeeze the part of the leaf where the maggot is seen, or pick it out with the point of a knife. Either through ignorance of the cause, or neglect to remove the evil, I once saw many plants with their foliage entirely spoilt quite 5 feet up the stems. Plants injured in this manner present but a sorry plight if only appearance is considered, but the check to growth surely must have been great by such an untimely denuding of the leaves the entire length of the stem; it was pitiable to see them. A few minutes' labour daily, at the proper time, would have freed the plants of the pest.

TREATMENT AFTER CUTTING DOWN.

If *Chrysanthemums* could have the protection of a cold frame after being cut down for a time, so much the better, as they will not require much water at the roots until new growth begins. Syringe the plants twice a day to assist the shoots starting into growth from the eyes below where the top of the plant was severed. As soon as the new growths are long enough to determine if they are perfect and the leading points not deformed, disbud the shoots to the number required, remembering that one bloom only to each branch should be allowed to remain. Three branches suffice for most large-flowering kinds, but the smaller flowering varieties, such as Mrs. G. Rundle and her progeny, may have six each. The soil in the pots should only be kept moist, as the plants are less liable to suffer from the stems bleeding at the place where they were cut down. When the new growths are well started, say 5 inches long, transfer the plants to the pots (9-inch ones) in which they are to bloom, presuming those they now occupy are 5½ inches across. Keep the plants rather closer for a few days after potting, then give abundance of air afterwards. When the roots have run freely into the new soil remove the plants to their summer quarters. Give plenty of space between each to prevent a weakly growth. At this stage the new shoots being brittle are easily snapped off by winds, so care should be taken to prevent these mishaps by placing a stake to each. Directly the pots are filled with roots stimulants may be applied, changing the kind occasionally and not forgetting the use of soot water. The plants should be regularly syringed in hot, dry weather in the evening and early morning. Mildew must be kept in check by applying the usual remedy—brown sulphur scattered on the parts affected. Keep a careful watch for the Celery fly or leaf maggot. Nothing but hand-picking will clear the leaves of this pest, which secretes itself between the two skins of each leaf and bores under the surface of each. From the middle to the end of August the bloom-buds will appear in nearly all cases, and the best blooms are obtained from these first formed buds after cutting down. In the case of the Queen family, it will in the majority of cases be early enough if the plants show their buds the first week in September, and the blooms will be of better quality than if the buds are formed during the middle of August.

Sometimes buds of this type will form during the first week in August, in which case it is too early to produce other than large rough blooms, which are much more likely to reflex their petals than in-

curve them. The remedy, then, is to rub out such buds in the south of England and around London and wait until the next one appears, which will be about the middle of September. In the northern counties the buds, as a rule, of this type will not show so soon as they do in the south. When this early bud has to be removed and the next one, which will be the terminal one, waited for, the plants will be a little taller owing to the extra growth. Such plants are suitable for the back parts of groups. The formation of the buds induces a lot of side shoots to form. When the buds are selected for flowering, remove all other buds and growth clustered around the point of each shoot, this early removal of superfluous growth assisting the development of the buds retained. The next important point is the housing of the plants. Those which formed their flower-buds late should be housed early along with the late-blooming kinds, such as Meg Merrilies, Boule d'Or, and Hero of Stoke Newington. As a guide, if the weather be dull and cold, about the 25th of September will be found a suitable date. Such plants have to make up for a loss of time owing to late bud-formation. Of course, in competition much depends upon having all varieties in flower at one time. If properly managed, varieties which form their buds the first week in August can be had in bloom at the same time as other sorts which do not set their buds for fully five weeks later. Some varieties require so much more time to unfold their florets than others. Directly the calyx splits and the petals show colour it is no good to leave the plants outside with the idea of retarding them, because they are rendered useless, as they are sure to be spoilt by the rains and moisture from heavy dews. The plants in any case should be under cover before frosts are likely to occur, or the flower-buds will receive a serious check by the points of the petals being blackened as they develop later on. Local circumstances must be taken into consideration, as early frosts are more prevalent in some localities than in others. Early-flowering sorts should have some temporary shelter given them, so that they may be retarded as much as possible until the middle of October. In this manner all varieties may be had in flower at the same date. The plants when housed should have a position as near to the glass as possible, giving sufficient space to prevent a loss of foliage. Ample ventilation in fine, dry weather should be accorded the plants, while in foggy, damp weather fire-heat night and day should be given to them, along with sufficient air to prevent mildew spreading and the petals damping off by keeping up a buoyant atmosphere. The shoots should be kept staked upright, preserving the flowers in the same direction as they expand, as a much better effect is obtained when the foliage and flowers face one way.

E. M.

Chrysanthemum Mrs. Alpheus Hardy.—Doubt has been expressed as to the origin of this Chrysanthemum, and some attempt made to reduce its worth as a superior flower by stating that it went a-begging until finally it was given away. To begin with, a young Japanese named Neisima, wanting to become a Christian, went on board an American vessel. He was brought to the notice of Mr. Hardy, who sent him to Andover and Amherst academies, where he was educated. This Mr. Neisima returned in due course to Japan as a missionary and sent to Mrs. Hardy as a token of his gratitude a box containing the roots of the Chrysanthemum in question. At that time no one knew or surmised what character of flower it might be. Mrs. Hardy gave them to a Boston seedsman, who divided the roots with another florist. Thus much for the plant being given away, but no bloom had been described or seen up to this time nor had anyone any idea what the outcome would be. When the plant flowered and showed such marked original character and beauty it was exhibited in Boston, where it was at once awarded the silver medal as the most beautiful flower of recent introduction. There were many attempts made to purchase the stock by conspicuous business men, and it was only after the payment of £300 that it was secured by its present possessors, a price never before given for any soft-

wooded plant in this country. This alone should be a proof of its intrinsic value. In the coming autumn we shall see further proof of its worth, as it will no doubt be exhibited at all the principal Chrysanthemum exhibitions.—FAIR PLAY.

FLOWER GARDEN.

SOME WILD FLOWERS IN SOUTH-WEST FRANCE.

REFERENCE in a recent number of THE GARDEN to a couple of plants, not always amenable to culture, tempts me to speak of them and one or two others which I lately saw in their native home. Coming by rail from Pau, my attention was arrested between Bayonne and Biarritz by a brilliant blue along the railway embankment. I could hardly believe my eyes that it was *Lithospermum prostratum*. But afterwards, especially in the neighbourhood of St. Jean de Luz, I found it literally the commonest wayside plant. I cannot say that it was ever on the level, but always more or less on a slope. I have seen it hanging over the edge of the cliff looking out over the wide Atlantic. But wherever it was, it was always fully exposed to the sun, and at certain times must have had abundant moisture, which, however, could never stop about it. I could never do justice by any description to the marvellous beauty of this plant when seen in livid patches of gentian blue covering its dense little green foliage. If anything could add to its charm it was supplied by the close proximity of a very dwarf-growing *Potentilla* covered with glittering white flowers. The two together, flourishing as they were, formed a sight to make owners of rockeries despair.

On the road to Vera, a small village in Spain, along the extremely picturesque course of the Bidassoa I noticed large breadths of lively pink. The Pyrenees there are not high, but it was beyond my climbing powers to get up to ascertain what it was. However, on another day I saw some of the same colour tolerably near the road, so I made a friend who was with me take off his coat and go up for some flowers. He brought me down an armful of that trouble to so many gardeners, the delicious *Daphne Cneorum*. You could have filled a cart with it and not have missed it.

On the same road another rather difficult plant, *Menziesia polifolia*, was growing and flowering abundantly, but I noticed that it was only on the granite, and occurred where the limestone commenced.

A handsome *Campanula* from 1 foot to 2 feet high arrested my attention. It was rather a solitary plant, and lifted its head as though in conscious superiority. It is against my principle to needlessly remove a plant, so I took but one, which I sent home. But in the ransacking by the post-office or custom-house people it was removed from the box.

To a lover of plants who has good use of his legs, I can recommend the neighbourhood of St. Jean de Luz as a happy hunting-ground.

F. T.

Pinks for edging.—Some of the paths in the pleasure grounds here are edged with flints, which can be obtained in great quantity in this neighbourhood. Our object in using this kind of edging is that we can plant various kinds of things as edgings to the paths. One of the best edgings is that formed of Pinks, which are planted alongside a winding path 50 yards long, the ground behind being covered with *Rhododendrons* of mixed colours. The foliage of these shrubs makes an excellent background to the Pinks. On the opposite side of the path is a flint wall 2 feet high covered with English Ivy, forming a dense growth and giving a rich contrast to the white bloom of the Pinks. The first to flower is the common white variety, followed next by a large pale pink variety heavily fringed. Then we have Mrs. Sinkins in abundance, which is perhaps the most useful of all. Then follow two dark-flowered kinds which are not only

showy, but the blooms are borne on stout stems which render them more useful for cutting; they are also very sweet. All the kinds are planted in batches of one sort together only, and by having a variety of kinds the flowering period is extended. In my opinion Pinks are far more effective when in a mass of one colour only than when indiscriminately mixed together several colours in one bunch. We find the plants die off after four years, and if left longer than that the row gets uneven, neither do those remaining flower with so much vigour. Besides, the Grass extends too far over the path. A stock of plants is best obtained by inserting strong cuttings in a cold frame, using sandy soil, at the end of September, and keeping them shaded from bright sun for a few days and close, not admitting much air. Here they should remain until the following April, giving an abundance of air on all favourable occasions. Remove the point of growth, which will induce the side shoots to push from the base of the plant. The ground they are to occupy should be deeply dug during the winter, some manure being added, which will assist a free growth and bloom. Choose showery weather for planting, which should be done at about 1 foot from plant to plant. After the flowering is past remove the old flower-stems.—E. M.

HARDY FLORISTS' FLOWERS.

THE AURICULA.—As I write these lines (June 1) the weather has changed again from cold winds to quite mild weather, and to-day the sun has had a powerful effect. Hot, dry weather does not suit the Auricula at all, and it is at this season that all our care is necessary to ensure the continued health of the plants. We keep the main bulk of the plants in the Auricula house in order that seeds may be saved from them, and as the house is well exposed to the sun it is best to shade a good deal when the sun shines directly upon them. The plants in frames in a shady position have been repotted, and all of them succeed best where the sun cannot shine upon them at all during the hottest part of the day. They do best when the frames in which they are grown are placed on the north side of a wall or some building. We have found it necessary to fumigate the frames as well as the house to kill green fly, which seems to attack most persistently those varieties which have least farina upon the leaves. The heavily mealed foliage does not seem to be very attractive to the aphid tribe. The plants must not have too much water at the roots now. They are getting into their season of rest now, when they make but little growth and do not absorb much moisture at the roots. Seedlings from seeds sown last year in July require generous treatment, and, like the small offsets, they cannot be said really to have a resting period until they reach to the full size of flowering plants, so that they are kept on growing freely all the summer, and most of them will flower well next year. It was a happy thought to plant out the best varieties of the alpine section in groups and colonies. When well placed in the borders or in the rock garden and densely furnished with their brilliant flowers they have an excellent effect. When the soil is good moderately heavy loam and the subsoil moist, they do better in a sunny than in a shaded place. The flowers of the alpine can stand a good deal of rough weather.

The choice flaked and bizarred Carnations and the beautifully edged Picotees grown in pots are pushing up their flowering stems very freely. They like an open position out of doors, and ours have also been exposed to high winds from north and east without the least injury. We did not take the plants out of the cold frames this year until the middle of May, and at that time some rich surface-dressing was placed on the top of the soil. Sticks were placed to the flower-stems and the plants were neatly arranged on a hard bottom of coal ashes that would be impervious to worms. The seedlings in the open ground to flower for the first time are always an interesting feature in our flower garden, but they did not make satisfactory progress last year. They passed through the winter fairly well, and have now rapidly improved. The plants are greatly benefited by the aid of some surface-

dressing, but we have been too busy to apply any this year. The young seedlings produced from seeds sown about the middle of April are yet in seed-pans, into which they have been pricked out. They are still partly protected by a frame, but as soon as they are strong enough they will be inured to the open air and be planted in rich soil early in July. We plant them after Tulips, Ranunculuses, and Anemones, or in any rich soil. Remove those plants under glass as soon as the flowers show colour. Perpetual-flowering varieties have been potted off from their cutting pots, or have been re-potted into larger-sized pots. As soon as these plants are well established they succeed better in a good position out of doors than under glass.

J. DOUGLAS.

Double white Hepatica.—I believe it is generally admitted that there is no double white Hepatica, though I am under the impression that I have heard of its being figured in some work. The

recommend your readers who may be curious in such matters to turn to the page in Martyn's life above cited, where will be found a remarkable change of *Hemerocallis flava* into *Hemerocallis flava*, which Professor Martyn communicated to the Linnean Society (see Trans. Linn. Soc. for 1790, vol. ii., p. 353). Miss Hawkins, I presume, was the daughter of Sir John Hawkins, Dr. Johnson's friend and biographer. It would be interesting to try the experiment above mentioned.—RICHARD HOOPER, *Upton Rectory, Didcot.*

FAIR MAIDS OF FRANCE.

FAIR MAIDS OF FRANCE, or Batchelor's Buttons, are the names under which this handsome plant may be found in nearly all cottage gardens. In the north especially amateurs have a great fancy for the *Ranunculus aconitifolius*, both single and double-flowered, and few gardens in which the owners take a pride will

the least of its recommendations. As a border or rock plant its qualities are well known; the snowy white numerous blossoms amongst the ample soft green foliage make it at once a conspicuous and interesting object. It seems a pity that more of this phase of gardening is not practised in this country. Around every mansion there are shrubberies, parks, and woods, and if these, instead of the eternal mass of evergreen undergrowth, were relieved with such plants as the cut represents, the gain in every way would be enormous, with much the same, or even less, trouble to the owner.

K.

NOBLE-LEAVED HARDY PLANTS.

THE note by "R. G." in THE GARDEN, June 8 (p. 522), upon *Gunnera manicata* at Treilissick, recalls to my mind a noble *Gunnera scabra* in the garden at Leonardslee. At this place there is, on a steep slope, a large woodland garden full of interest and beauty. Down in its lowest depths, where springs abound and the ground is entirely covered with Moss, where Royal and other Ferns luxuriate, a giant *Gunnera scabra*, 12 feet through, was growing. The plant had rich soil, abundance of moisture, and a situation where no winds could tear its massive leaves, which were 6 feet in diameter. But the Gunneras are not the only effective hardy plants. Whilst many have given a trial on a small or large scale to the system called subtropical gardening, which was to show beauty of form in the open air in summer by the use of very tender plants, few have done anything to create fine aspects of vegetation with plants quite as stately, yet perfectly hardy.

In large places about the grounds there occur many nooks, into which types of hardy vegetation of a stately and almost tropical character may be introduced. There are the great Cow Parsnips (*Heracleums*), with bold masses of handsome foliage and great spikes of flowers 6 feet to 10 feet high. One or two great groups of these in an open situation, but half surrounded by free branching native trees, would be a grand feature. This is, in fact, the only way of using these plants in gardens, as on no account must they be admitted to the borders, and even where they are, they will seed freely and need watching to see that they do not extend or increase too fast. The great Rhubarbs would here find a home, and with such noble and beautiful plants there could be no objection if it were necessary to give them a good start in life by some little preparation of the site, for success in this work mainly depends upon whether the subjects so treated start away well at once or are hampered and restricted. *Crambe cordifolia*, beautiful in its glaucous foliage as well as in its great panicles of white flowers, and the tall *Silphiums* would each make a distinct feature. The tall, yet gracefully arching shoots of the Knotweeds would contrast well with a tree of formal habit. All these plants are easily raised from seed, and they soon assume large dimensions.

A. H.



Fair Maids of France (*Ranunculus aconitifolius flore-pleno*).

following extract from the Rev. George Cornelius Gorham's "Life of Professor Thomas Martyn, of Cambridge" (London, 1830, p. 207), may be interesting. Professor Martyn is writing to Miss Hawkins in August, 1792 (?), and says, "Professor Bradley ('Philosophical Account of the Works of Nature,' p. 79) says that 'common plants often have the colour of their leaves and flowers changed, as the nature of the soil directs.' This we know, but he gives a remarkable instance, which one should like to verify. 'An instance of this was in some roots of the double blue Hepatica that were sent to Mr. Harrison, of Henley-upon-Thames, from Mr. Keys's garden in Tuttle Fields (Tothill Fields, Westminster), whose soil was so different from the ground they were planted in at Henley, that, when they came to blossom there, they produced white flowers, and were therefore returned back to their first station, where they retook the blue colour they had at first.' The soil about Henley is all chalk." I must not trespass upon your space, but I should

be found without a patch of it. This plant, of which there are few equals as regards general appearance, may be utilised in other ways besides in the flower border, for it may also be used as a semi-aquatic, and in the latter situation the luxuriance of its growth and the profuseness of its flowers render it very valuable. It does not thrive with too much water, and should be planted at least a yard from the edge of the lake or pond, the soil good, rich, rather light loam to which has been added plenty of leaf soil. In such positions it should be planted in large clumps. The habit of the plant is such that it requires no stakes, or anything likely to mar its natural beauty. In half-shady damp spots in the wood or pleasure-ground a trial should be made of Batchelor's Buttons. Its continuance in flower for such a long period is not

Lathræa clandestina.—I fear that Mr. A. D. Webster has been led to form a poor opinion of this plant by seeing the piece which was sent from Kew and shown at the meeting of the Royal Horticultural Society in the Drill Hall (April 23), for he has twice since alluded to the dull and dirty colour of the flowers as seen at that meeting. As some of his statements about this parasite may mislead readers of THE GARDEN, I should like to say that the flowers then at their best are of a beautiful violet colour, rather darker than those of Marie Louise Violet and not so dark as those of The Czar, but, unlike many flowers, they are not at their best in colour until they have attained full size. Judging from the appearance of those here at that time, I should say that the exhibit took place at least a fortnight too early, and that the flowers had been too much shaded, for I find that exposure deepens the colour. Again, so far from the flowers being "sparsely produced," they are set so thickly

all over the growth as to form a complete cluster, each flower touching its neighbour. The dwarfness of the plant may or may not be a defect, many beautiful things not having great stature, but let *L. squamaria* be what it may, it cannot carry its flowers more erect than *L. clandestina* does. I do not happen to know *L. squamaria* and accept all that Mr. Webster says in its favour; at the same time it would be well if he saw *L. clandestina* where it is thoroughly well established and at its best before forming an opinion as to its merits or demerits. *L. clandestina* is ripening seed freely here now.—J. C. TALLACK, *Livermere Park*.

FLORISTS' TULIPS AT THE TEMPLE SHOW.

DESPITE the many attractions at the Temple show, the three collections of florists' Tulips competing for the prizes offered by the Turner Memorial Fund found many admirers. Not a few visitors, recognising them as Tulips, wondered at the differences in colour and marking which distinguished them from the varieties they had seen in the parks and elsewhere. Altogether Mr. Samuel Barlow, Stakehill House, Manchester, had about eighty flowers, and though they had been brought all the way from Manchester, had stood for two days at the Temple show, and were taken back to Manchester again, Mr. Barlow was able to exhibit some of them again at the show of the Royal National Tulip Society, which opened yesterday at the Botanical Gardens, Manchester, in connection with the great Whitsun display of the Manchester Botanical and Horticultural Society. Mr. Barlow's leading flowers were of bizarres, feathered: Commander, Demosthenes, Ajax, Sir J. Paxton, a little inferior in marking, and General Grant, very bright; indeed, one of the most brilliantly coloured in this section. Of bizarres, flamed, Sir J. Paxton, really a grand bloom, which seemed to be as near perfection as one could desire to see it; Lord Stanley (Storer), William Lea, Sulphur, very fine; Dr. Hardy in excellent character; and a seedling from Dr. Hardy, very fine indeed, and which Mr. Barlow thinks will make one of the best feathered flowers in cultivation. Roses, feathered: Modesty and Heroine, the only two really good ones in the collection, both pure and exquisitely feathered; Annie McGregor, and Charmer. Roses, flamed: Mme. de St. Arnaud, a somewhat old variety, rather long in the petal, but brilliant in colour; Aglaia, Mabel, Mrs. Lomax, and Lady Sef-ton. The Rev. F. D. Horner has truthfully remarked that the roses are the "fairest and gentlest among Tulips, and as if by common consent to this, nearly all the varieties in the class bear feminine names." Of byblœmens, flamed, there were Bob Morley, new, in the way of Brown's *Salvator Rosa*, but better, and expected to prove one of the finest and most useful varieties in the section; Talisman, Walker's Duchess of Sutherland; Nimbus, finely marked; and Adonis. Byblœmens, feathered: Mrs. Cooper, finely feathered with a kind of claret-purple; Violet Aimable and Hepworth's William Parkinson. This class has the undesirable distinction of being the most difficult one of all in the matter of good flowers. The leading class in the schedule of prizes of the Royal National Tulip Society is for twelve rectified flowers, two of each class, and Tulip cultivators have felt the rigour of the strain in providing two dissimilar feathered byblœmens. The leading bizarre breeders were W. Wilson, Sir J. Paxton, Lord Delamere, Hepworth's Seedling, very fine, and other promising seedlings also. Roses, breeders: Miss Burdett Coutts, Lady C. Gordon, Annie McGregor, Mrs. Barlow, and Seedling Hepworth No. 6. Byblœmens, breeder: Alice Grey, Talisman, Glory of Stakehill, and Martin's 117. From this collection bizarre Sir J. Paxton was selected as the premier flamed Tulip, byblœmen Mrs. Cooper as the premier feathered Tulip, and byblœmen Glory of Stakehill as the premier breeder Tulip.

Messrs. Stuart, Mein and Allan, nurserymen, Kelso, were placed second with a collection of about sixty rectified flowers, very bright and pleasing to the eye, and fresh. But many of the blooms lacked that purity and refinement upon which the northern Tulip cultivator sets such store. The nomenclature of many of the varieties was of a

doubtful character. Mr. James Thurstan, Richmond Road, Cardiff, a well-known grower and raiser, had a collection of twenty-four rectified and twenty-four breeder flowers, but much faded, though every effort had been made to preserve them. These stands contained several fine and promising seedlings. Fred Morton, feathered bizarre, and Mrs. Richards, feathered byblœmen, promise to make very fine exhibition varieties. The breeders were nearly all seedlings raised by Mr. Thurstan; Tryphena and Mrs. Thurstan among the roses having high quality.

Mr. Barlow deserves a word of praise for the way in which he stages his flowers. They were all cut with two or three leaves to the stem, and this added greatly to the effectiveness of the collection.

R. D.

THE IRIS.

THE Iris is the flower of the season. It comprises a genus of about 100 species, most of them exceedingly beautiful, and presenting infinite variety not only in the habit of the plants, but also in the shape, size, and colour of the flowers. The genus is distributed over the north temperate regions, and not the least beautiful is our own British Water Flag (*I. Pseudacorus*), that lifts its yellow flowers above the Reeds and Rushes of English brooks, rivers, and ponds. From the time the bulbous *I. reticulata* sends up its violet-scented purple flowers in February until the last bloom of the Japanese *Kämpfer's* Iris has faded in August, there is a gay succession of bloom, as between these two months the majority of the hundred species, with their numerous varieties, come into flower. At this season it is the German Flag (*Iris germanica*) that forces itself upon our attention, and in every garden worthy of the name this hardy, vigorous, and easily grown herbaceous perennial is in its fullest glory. It is the finest of European Flags, and has several very striking varieties, a few of which we may note here.

Those who are interested in the Iris will find a rich selection of the germanica types in the Chiswick Gardens of the Royal Horticultural Society, where there are several beds devoted to this particular group. There is no mystery in the culture of the Iris, and especially of the tuberous-rooted kinds. The growth of the German Iris is remarkably vigorous, of a beautiful glaucous colour, against which the blue of the noble flowers appears richer than it really is. One named Purple King is a magnificent variety. The spikes of bloom are strong, and the flowers of a full purple colour. Major has very fine blue standards and purple falls—a rich contrast of two glowing shades. There are various uses to which the German Flag may be put. It is commonly left to itself in the border, where in time it forms bold handsome clumps; but those who have not used it as a margin to streams, lakes, or ponds should plant it there, not forgetting at the same time our own native yellow Iris, which delights in moisture. The bearded Iris (*Iris barbata*) has, for the sake of simplifying matters, been split up into several groups, the first of which is composed of germanica, the first to flower, and there are several others, each with a distinctive character, as *aphylla*, which comes after germanica, the flowers appearing early in June, followed by those of *amœna*, *neglecta*, *pallida*, *squalens*, and *variegata*. The two finest groups are germanica and *pallida*. Of the first, we have said sufficient; but *pallida* is just as noble—the colour ranging from lavender of the palest shade to rose-lilac. The type has standards of rich lavender hue, turning to a paler colour; the falls purple. Celeste is a beautiful variety, pale sky-blue; and other good kinds are the large-flowered and finely-coloured *dalmatica*, *delicata*, *Queen of May*, *rosy lilac*, the falls most deeply tinted; and the later blooming *Khedive*, *William Tell*, and *rubella*. A very beautiful bearded Flag Iris is *I. florentina*, the standards and falls almost white, but with a faint suffusion of lavender; and one worth growing is the primrose-coloured *flavescens*. *Florentina* has been remarkably fine this season, and it was one of the principal cut flowers at the recent fête in Covent Garden Market. It is an Iris all should grow, as it comes in before ger-

manica, and may be used for filling glasses and bowls in the house.

As regards the culture of all the above-mentioned types, there is little to be said, as they want but good loamy soil, a sunny position, and occasional transplanting. Those at Chiswick are planted in beds fully exposed to the sun, and receive but very little attention from one year to another, yet they flower with a vigour astonishing to those who are always tampering with their plants, killing them with kindness, under the impression that their constitutions are delicate and need special foods. If our hardy flowers were left more to themselves there would be fewer failures and more signal successes. We have brought the bearded Iris forward thus as it is the one now in season; but just before germanica throws up its first spike there is another group of very dwarf kinds, of which Iris *pumila* is the best representative; but those who care for this genus will certainly have *biflorus* and the beautiful *Chamæiris*. The two best are *I. p. atro-violacea* and *I. Chamæiris*. Both have flowers of the richest purple, especially the last-mentioned, and about half the size of those of the bearded Iris. *I. pumila* does not grow more than about 6 inches in height, and the flowers cluster amongst the tufted, slightly glaucous leaves. It is a native of Europe and Asia Minor, having been introduced to this country as far back as 1596. *Chamæiris* is not taller, and both make good kinds for edging large beds or forming small groups by themselves. If more are wanted, *I. obliensis* and the best of its varieties may be grown; but for most gardens those which we have especially noted will be found almost sufficient. As in the case of the German Flags, ordinary cultivation alone is necessary. Those at Chiswick are growing in a similar position and soil.

Before the *pumila* varieties in the cycle of Irises come the bulbous species and varieties, which are amongst the loveliest of spring flowers, and bloom with the nodding Snowdrop. Most of them hail from dry situations along the Mediterranean, Turkestan, Lebanon, &c. The beautiful violet-purple netted Iris, *I. reticulata*, and its varieties *sophe-nensis*, *Krelagei*, and *cyanea* are too well known to need description. A fine species from Lebanon, and introduced about 1873, is *I. Histrio*, which is nearly allied to the netted Iris, but without its sweet fragrance; but, in spite of this, it should be grown, as the pale lilac and blue colouring of the flowers is exceedingly delicate and charming. This and *cyanea*, the lovely sky-blue variety of *reticulata*, are two of the sweetest spring Flags. The Persian Iris, *I. persica*, is one of the finest of bulbous Irises and was grown as early as 1629, as it is mentioned by Parkinson. It blooms early in March, and sometimes before, and the flowers have a rich violet fragrance. They are sky-blue, the falls brightened by a yellow streak and a deep purple spot on each side of the base. An Iris that has made a small stir this season is *Rosenbachiana*, a charming species found recently by Regel on the mountains of East Buchar, Turkestan, at an elevation of from 6000 feet to 7000 feet. We have seen it several times this season, and also received blooms, from which there seems to be a considerable variation in the colouring of the flowers, some blue, others almost deep violet, and a few intermediate between these shades. *I. Kolpakowskiana*, an ally of the netted Iris, has falls of a violet-purple tint, the standards self pale lilac. It is also a native of Turkestan, and found abundantly in the fields near Wernage. There are other spring-flowering Irises, but these are the best, and all are hardy. The finest and most useful of all is the common netted Iris. This often sends its deliciously fragrant and richly-coloured flowers through the snow, and in the sunshine of a winter day is indescribably beautiful. It is largely used in the wild garden at Gunton Park, and is there proof against rabbits, although the Crocus stands not the slightest chance. It increases freely, is perfectly hardy, and, whether in the wild garden, the bed, border, or in pots, its flowers are always welcome.

June is the month for the Spanish Iris, which is followed closely by the English Iris, and thus the

succession, with the help of I. Kämpferi, is kept on until August. Of the Spanish and English sections there are many varieties, and the poorest are beautiful flowers—rich in colour, stately, and with an abundance of foliage. Both thrive best in a well-drained soil, and the bulbs should be planted early in September, and not in November and December, as is the practice with some. The English Iris has larger flowers than the Spanish, and in both the colours are rich and surprising, especially when a good selection of varieties is made. Flowering about the same time is the graceful Siberian Flag (*I. sibirica*), a beautiful Grass-like species, the blue flowers poised on slender stems, and appearing just above the narrow bending foliage. The type is the best, but the dwarf-growing *acuta*, minor, and the milky white *lactea* are choice varieties, which are worth having if a good selection is required.

The Kämpfer's Flag (*I. Kämpferi*) closes the Iris season. There is a great future before this species, if we may judge from its increased cultivation within the past two or three years. Last season it grew and flowered well. The year 1888 was essentially wet, and Kämpfer's Iris delights in moisture, no position suiting it better than by the side of a pond, river, stream, or lake, where its roots can find a good wet bottom to run in. In 1887 the plants presented a distinct contrast; the fierce sunshine and drought burnt up the leaves, and few flowered as they should do when the weather is more in their favour. There are many lakes and ponds in English gardens that might be fringed with the growth of this Flag, which is exceedingly graceful at all seasons, but essentially so when the flowers are fully open, showing their graceful curves, and folds, and bold outlines. The colours are varied, striking, and curious, some of the varieties having flowers mottled like a piece of mosaic; but these we condemn as weak, ineffective, and spotty, quite different to such conspicuously beautiful varieties as the pure white Princess Beatrice, in which the falls are of great width, the rose-lilac coloured Major Mason, or the purple Ayrshire. It is only the self-coloured or shaded flowers that should be selected, as others, especially when seen by the side of a stream, make but a poor show in comparison. There are also a few that have a tendency to double, and are regarded with favour by some; but they are simply ugly monstrosities, more to be despised even than the "spotty" flowers. This Iris is essentially Japanese; it is held in great esteem by them, as shown by the splendid varieties imported from that land of flowers. In the Japanese photographs Kämpfer's Iris is often depicted by running streams and ponds, fringing them, as we see our own native Bulrush in England. Seedling roots are largely imported every year, all of which have been first flowered before being sent over. It may be interesting to mention that with each imported batch comes also a coloured drawing of each flower, done on rice paper, so that those into whose hands they may fall will be able to tell the character of the varieties they receive.

There are many more species and varieties than have been mentioned here, but a brief review of this genus has been given to show its wealth of new and beautiful flowers. Some of the finest of all are the species such as *tingitana*, *ruthenica*, *iberica*, *susiana* and *aurea*, all requiring, to some extent, special culture, but well worth it from their great beauty and distinctness from any other flowers of the garden.—C., in *Field*.

Soot as a manure for Carnations.—Having to deal with a poor soil, I have had both last season and this to resort to the use of soot to make the plants grow. When judiciously used it is a very good substitute for farmyard manure. Last summer I gave two applications of soot to my Carnations, and I did not find them too much. It increased the quantity of Grass on weak growers considerably. All my stock, I should say, is grown in the open ground. This year I gave them a dressing about the middle of May. There is now every indication that they will not require any more assistance in the same direction, as the growth is thoroughly

satisfactory, much more so than it was at the same time last season, although the treatment in other respects has been the same. The way I apply the soot is to sprinkle it on the surface over the roots of the plants and then pick up the soil with a pointed stick to mix it with the earth; a gentle watering is then given. The quantity I use is a tablespoonful in a space 12 inches over or thereabouts. From observation I am satisfied that soot is a useful stimulant to promote growth, but it must not be given in excess, or it will do more harm than good by forcing the Grass into a long-jointed and weak condition. If there is already sufficient vigour in the Grass, the use of soot is not desirable. I also find that in the choicer kinds of Carnations it causes the colours to run, and robs the flowers of some of that refined character for which they are so remarkable.—J. C. C.

CARNATION PESTS.

LIKE all other good things and good people in this world, Carnations are beset with vile enemies. Disease they have practically none. There is "gout," as it is called, but I seldom get it among my plants, and Mr. Douglas says the same, but I have received gouty plants and have had beautiful healthy stock from them, showing the malady is simply the result of some mismanagement or accident. But there are the slugs, of course, the wireworm, the caterpillars, the spittle fly, and the maggot. Every one of these *chevaliers d'industrie* has his own way of working, and we know at once by outward and visible signs which is which. The slug you can trap by the very simple means of giving him something which, in his bestial opinion, is finer than Carnations—he prefers Cabbage leaves if you give him his choice. The wireworm is an undermining vagabond who has to be countermined, and as to potting soil we do it by carefully examining it. It is not often that I lose a plant by wireworm, though all the soil I use is the top spit in which they abound. In the open ground they must be watched for, and when a plant is seen to be attacked not a moment must be lost in searching for the murderer or murderers. The caterpillar is an awful customer, but, like the British infantry, there are not many of him. He goes straight for the bud; nothing else will content him. I have spent hours looking for two or three of these demons who had disbudded my plants in this unauthorised manner, and, despite all their cunning in hiding, caught each one. Spittle fly is dreadful among the border plants, but only found here and there among those in the pots. You have to catch and kill the pests, otherwise the plant is crippled and spoiled for flowering.

But all these malefactors are passing jokes compared with the maggot, but here, as with the spittle fly, we get it only very partially, practically very little among the pot plants. It would be a veto on border culture here if we had not the stock from the pots to go upon. In 1886 it was very bad; in 1887, the hot year, no sign of it. Last year the whole stock in the borders, except a few plants, was ruined. I had some eighteen plants of a charming yellow ground rose flake, but I have now only the stump of one left. It is surprising how gardeners and even Carnation growers often fail to see the signs of the maggot. Of course it will in cases elude all watchfulness till the ruin is done, but very much can be done by looking for it in a suspicious season like the last. I have had plants from first-rate growers—amateur and trade—that I could see at once had maggot. I returned a plant last year to a trade grower, having taken four maggots out of it. Friends of mine, who, when I complained last year of the pest, said they had not got it, are now bewailing their plants, or rather the loss of them. I thought at first it was part and parcel of our budget of urban disabilities, but my country friends are now also complaining, which is, of course, a great consolation. M. ROWAN.

Cypripedium spectabile.—A good companion to *Orchis foliosa* is the Mocasson Flower (*Cypripedium spectabile*). It requires just such a position, and at the present moment is a perfect picture.

When grown in plenty of moisture it becomes quite luxuriant, producing tall strong stems, each carrying two or three flowers of great beauty. The lip or slipper is white with a large blotch of bright rosy carmine in front. *C. parviflorum*, pubescens, *C. californicum*, *macranthum* and others will be found suitable for such positions, and when grown in company with *Sarracenia purpurea*, *Trilliums*, *Linnaea*, *Rubus arcticus* and other peat-loving subjects form a pretty and highly interesting group.—D.

Littonia modesta being a special favourite of mine, I had much pleasure in reading your note about it. This plant does not by any means require stove treatment, and if in flower now it is simply being forced. The curiously formed tubers resting during winter may be kept in any dry place where no frost can penetrate; they should be potted up in March, placed in a cool frame till about the latter end of May, and may then be brought outside, where a warm position against a fence or wall facing the south ought to be chosen. The slender shoots will during summer attain a height of about 5 feet or 6 feet, the foliage assuming a brilliant, dark green colour, and the flowers a very deep, rich orange tint. The charming *Sander-sonia aurantiaca* may be treated in exactly the same way, and if possible would even claim preference on account of its exceedingly pretty, almost globular flowers.—C. G. VAN TUBERGEN, JUNR., *Haarlem, Holland*.

Water Flags.—The Yellow Flag (*Iris pseud-acorus*) has flowered especially well this year in a large bog here close by the river Seine. The numerous bright yellow flowers are very showy, and the very wet and slimy nature of the soil in which the plants grow prevents either local people or visitors from disturbing them. Their picturesque abode is not a common one. Imagine first some Horse-tails (*Equisetum arvense*) growing in the Grass on firm soil and *Equisetum palustre* in the bog in company with the greater *Equisetum limosum*, forming a dense bed, then one mass of Yellow Flags. Here and there some vigorous Knitback (*Symphytum officinale*) are intermixed. The diversity of foliage and tints render their numerous white, rosy pink or purple flowers rather conspicuous. The varieties of *Carex* seen in the distance are worth mention, especially *C. paniculata*, forming large deep green clusters with very light and elegant leaves, somewhat like those of *Gynuriums*. Some of the old ones have produced so many roots, that they are now on stems from 2 feet to 3 feet high in the way of a Tree Fern. Old Willows and Poplars afford a soft, deep and shady background to this scene, which although wild is nevertheless very beautiful.—J. SALLIER, *St. Germain-en-Laye*.

Newly-received plants dying.—It is a common experience that plants newly received die. Doubtless there may be many causes varying with individual plants, and persons, and garden conditions, but there is one cause so common in my opinion, that I may be permitted to point it out for what it is worth. I hardly need say that these remarks do not apply to vigorous things that will grow anywhere and anyhow, but to plants that need at least ordinary care in relation to their habits, soil, &c. One grower may treat such a plant one way, and another somewhat differently, and still both may answer, but my point is that when a young plant changes hands it should not in its most delicate stage of life be subjected to an extreme change. In some way or other we should learn the life history of a rare plant when it comes into our hands. For instance, I know one nursery where plants are usually plunged over the rims of the pots in a light dusty sand, covering some leaves which, notwithstanding, retain their colour. I can never put the same plants under corresponding conditions; to plant over the natural collars will not do, and to expose the parts that have been under dry sand for months is equally fatal, and so the plants die. From another source I have received plants (alpines) that have been richly fed, and herbaceous plants

potted in compost enriched by ground bones. These never did well with me, for I never manure beyond the usual way of giving stable manure and leaf mould. But the most deadly results of all came about when I received plants from a nursery where most of the choice things were kept in rather close frames. If such plants were procured during any month from November to April, the risk of their growing would be great. Whether these methods are sound practice, or hardy plants should ever at any stage be so treated, I will not attempt to discuss now, but we might benefit by learning how our nurserymen had dealt with this or that plant just before he sent it off, and a knowledge of some of his general dealings with all his stock would be helpful to the customer. I do not say that the nurseryman should educate his buyers in detail, but a hint or two in his catalogue with this object in view might be usefully given. We can, most of us, follow up the frame treatment, and, perhaps, the plants would be helped, but where we cannot follow sand mulchings there will be more difficulty and risk. Newly imported roots and bulbs just started in autumn or winter in frames, although sent out doing nicely, are pretty sure to die, unless similar nursing is continued for a while; therefore, and in short, the remedy seems to be to learn, and act upon the knowledge of the former treatment of the plants.—J. W.

SHORT NOTES.—FLOWER.

Hardiness of *Sarracenia purpurea*.—In the lake wood here this Pitcher Plant has stood 13° of frost on several occasions with impunity. I always considered it as quite hardy, the frost doing it far less harm than the slugs.—A. D. W.

Double *Lychnis* (*L. Viscaria rubra plena*) is a glorious hardy border flower now at its best. The flowers are rich rose, quite double, and closely set on erect slender stems. Such a brilliant hardy plant should be seen in many gardens.

Libertia ixioides is a beautiful iridaceous plant from New Zealand, and makes a dense mass of evergreen, grassy foliage; the flowers white, and on long stalks, not unlike those of an *Ixia*. It does well at Broxbourne in the borders.

Alpine Catchfly (*Silene alpestris*) is a charming alpine flower of the most polished white. The plant is perfectly hardy, easy to grow, dwarf, compact, and at this season smothered with flowers. It was one of the best things in bloom in the Epsom Nursery in early June.

Blood Pink (*Dianthus cruentus*).—This European Pink is flowering freely on the Broxbourne rockery. It is not a handsome plant, but exceedingly rich just now with its small crowded heads of the deepest crimson flowers carried at the top of long straggling stems. The plant is difficult to do well. At Broxbourne it is given a loamy soil, and each tuft surrounded with pieces of sandstone.

***Calceolaria amplexicaulis*.**—A note on p. 522 of THE GARDEN, June 8, mentions that this is not now to be found in the London markets; but it is largely and exclusively grown at Penllergare, near Swansea, and I regard it as the best bedding *Calceolaria* we have. It bears hot weather well, and flowers until very late in the autumn. It is a pity it is not more grown, and it would be a misfortune to allow it to become extinct.—J. Muir.

The Dutchman's Pipe (*Aristolochia*) upon a Laburnum.—Whether by accident or design I cannot say, but a novel and beautiful combination I recently saw was formed by a strong plant of *Aristolochia* Siphon clambering through and over a common Laburnum. Its handsome broad leaves contrasted well with those of the Laburnum, and the effect was simply perfect, as there was just enough of the one to contrast with or relieve the other. The Laburnum appeared to be giving support without hurt to itself, but in a year or two the encircling folds of the *Aristolochia* may destroy it. Even then to have this beautiful climber growing so naturally and free would be a distinct gain.—A. H.

White Rosette Mullein (*Ramondia pyrenæica alba*) is blooming freely on the rockery in Messrs. Paul and Son's Broxbourne Nursery in a nook, where it gets sufficient moisture and shade to suit its requirements. The plants are in a peaty soil, and surrounded with pieces of sandstone.

Under these conditions they have each made a dense rosette of rich green leaves, and give plenty of flowers. There is a distinct pink tinge in the blossoms. We saw the type flourishing remarkably well at Kew the other day planted in pockets in the coolest, most shady portion of the rockery, where Ferns delight to grow. The *Ramondia*, if planted in "pockets," must have a good depth of light soil, that of a peaty character for preference.

FLOWER GARDEN NOTES.

FLOWER GARDENING.—*Pæonies*, *Irises*, *Spiræas*, *Aquilegias*, *Pyrethrums*, and other herbaceous plants at the present time make such a grand display as to put the bedded-out department of the flower garden quite in the shade. I should not hesitate for a moment to entirely dispense with the bedders were it possible to have arrangements of perennials of a sufficiently "dressy" appearance and prolonged season of flowering suitable to formal or geometrically laid-out gardens. At present I am quite unable to make out a list of plants of this description at all likely to prove even moderately good substitutes for ordinary bedding-out plants, and, therefore, there is no alternative but that of continuing the use of bedding plants for the formal parterre, and hardy perennials for beds and borders in less formal positions. The present season promises to be an extra good one for bedders, as the sunshine and showers have suited them so well that many are already in good flower, *Marguerites*, *Pelargoniums*, *Petunias*, and *Fuchsias* being worthy of special mention as early flowerers. Beds composed of one species or variety are already gay. White and blue *Violas*, *Agathæas*, dwarf *Tropeolums*, the blue *Anagallis*, pink *Geraniums*, yellow and white *Marguerites* are already nearly filled out, and are, to me, far more beautiful than either carpet or other formal flowering arrangements.

OVERCROWDED PLANTS.—Owing to the splendid growing weather of the present season the growth of plants in herbaceous beds is becoming too strong, and the more vigorous ones are likely to smother those that are weaker. Vigorous *Asters* and *Delphiniums*, though very beautiful, are not sufficiently valuable to be allowed to smother handsome *Anemones*, *Campanulas*, *Pinks*, *Irises*, *Phloxes*, *Spiræas*, *Thalictrums*, &c., and to prevent this we have found it necessary to tie all rampant growers much closer than is good for the plants either in regard to the production of flowers or their appearance. It is, in fact, a choice of evils, and the preservation of weaker-growing, but more valuable plants is to be preferred to that of the lumpy appearance of strong growing plants.

EARLY FLOWERING OF SINGLE DAHLIAS.—Recently a lady visitor to these gardens expressed great surprise at the sight of *Dahlia* flowers so early in the season, because she had always regarded them as portending the near approach of winter. This notion must, I think, soon die out, more particularly in regard to the single-flowered class, some dozens of plants of which we have had in flower for some time past, and they are now getting quite gay. Apart from their natural propensity to flower quickly I believe that they can be made to do so still earlier by early propagation of the plants. The cuttings of these plants now in the fullest flower were inserted in February and grown on freely and transferred to the borders about the 20th of May, and they are now from 3 feet to 4 feet high and well furnished with shoots. This early and continuous flowering of single *Dahlias* renders them, I think, worthy of special attention by lovers of flowers generally.

W. W.

A few good *Irises*.—There are many beautiful *Irises*, and amongst the number we may certainly include the following, which we selected from the mass of varieties now in bloom in the Royal Horticultural Society's Gardens at Chiswick. In the variegata section two fine kinds are *Minico*, which has standards of a rich yellow colour, the falls deep reddish brown margined with dull yellow and veined at the extreme base, and *Hector*, a distinct

form, the standards sulphur-yellow; the lip deep lake colour, very richly veined at the base. *Flavescens* is exceedingly beautiful with its large sulphur-coloured flowers, but the most splendid *Iris* in bloom is unquestionably the lovely pallida *Celeste*. Its peculiarly transparent shining blue colouring is as clear as the blue of a summer sky. *Neglecta Virginie* is another distinct kind, the standards pale blue, and the falls rich violet-purple veined on a white ground at the base, where there is a central band of the richest orange. *Aphylla* Mme. Chereau is a well-known kind frequently seen in the market. The flower has fine broad standards of a delicate shade of the softest blue, almost white, and regularly feathered at the margin with a decided blue; the falls are of a purer body colour, but margined in the same style. *Amœna Victorine* exhibits a rich contrast in colour; the standards are white, feathered with the deepest violet-purple; the lip of the fall velvety purple-violet.

GARDEN FLORA.

PLATE 706.

ONCIDIUM CRÆSUS.*

THIS species is said to be a native of the Organ Mountains, in Brazil, and it certainly takes a leading position for beauty in the ranks of the small-growing kinds to which it belongs. At the same time, however, it is far less frequently to be found in our collections of the present day than formerly, where in many instances it was cultivated under the erroneous name of *O. longipes*, a species, indeed, to which it is nearly allied. Under this name I found the largest example of this plant that I have ever seen, in the collection at Kew thirty years ago, where it used to flower freely annually, its rich yellow and black flowers being particularly showy, especially when seen in such a mass as this plant produced. Indeed, at that time many small species were to be seen specially fine at Kew, such as *O. triquetrum*, *O. tetrapetalum*, *O. pulchellum*, &c. As will be seen by the accompanying plate, *O. Cræsus* is a plant of exceeding beauty; its small pseudobulbs are somewhat oblong, tapering upwards, and bear a pair of linear-oblong, obtuse leaves, which are somewhat fleshy in texture and deep green. The scape bears from two to three and sometimes four flowers. The sepals and petals are spreading, of a reddish-brown hue, tinged with green on the outside; lip three-lobed, the anterior lobe large and flat, of a rich golden yellow, the disc and crest being of a deep velvety black—a combination of colours which is at once pleasing and conspicuous.

This plant, and indeed all the small-growing kinds enumerated above, should have but little material about their roots; therefore, they thrive best when grown in small, shallow, earthenware pans or baskets which should be hung up near the roof where the plants may obtain a maximum of light and an abundance of air. The pan or basket should be well drained, and the plant should be upon an elevated mound composed of peat and *Sphagnum*, amongst which should be inserted some medium-sized nodules of charcoal, which serve to keep the material open and allow the water to trickle quickly away. The above requirements are absolutely necessary to enable these small growing plants to retain a healthy condition. The majority of the plants from the Organ Mountains thrive under cultivation best in the cool house, but this one I have found to succeed best in the Cattleya house all the year round. I have no

* Drawn for THE GARDEN by H. G. Moon, July 8, 1888, in Mr. Philbrick's garden at Oldfield, Bickley. Lithographed and printed by Guillaume Severoyens.



ORCHID OF BEUS

doubt the *Odontoglossum* house would be warm enough for it during the summer months, but in this latter situation there is an absence of sun. *O. Cræsus*, however, appears to enjoy the sun. During the growing season it thrives best with an abundance of moisture in the atmosphere. It also enjoys a liberal supply of water to its roots, and a dewing overhead from the syringe in the morning and evening. Indeed, throughout the summer it is far best to water all the Orchids in the evening, thus causing a genial moist atmosphere to arise, which induces the plants to root vigorously. There is little more to be said respecting the management of this gem, but insects should be kept from it, and everything about the plant should be kept thoroughly fresh and clean; the white scale if allowed to congregate in the axils of the leaves soon rob it of its health and colour, so that a careful examination is necessary whenever the plant is taken down to be dipped.

W. H. G.

FRUIT GARDEN.

W. COLEMAN.

THE STRAWBERRY GARDEN.

THE modern method of cultivating this grateful fruit upon the three years system pretty well enables the gardener to set the seasons at defiance. Good average hot growing summers, a dry time when the fruit is ripe, and sharp winters are the conditions which one would choose if he could control the weather, but, lacking these, we must take matters in a quiet way and be satisfied. Whilst fruit trees of all kinds have cast their flowers or embryo fruits wholesale, and insect enemies have made serious raids upon the foliage, the Strawberry has produced splendid leaves, perhaps a little too gross, and an abundance of unusually fine flowers, which have set well. The crop is not particularly early, but fruit from the open ground will be plentiful, whilst late pot plants will not give out much before the end of the present month. The secret of success, it is hardly necessary for me to say or repeat, is deep and generous cultivation, annual planting and trenching in at the end of the third year. Old plants often yield good crops of fair-sized delicious fruit, as I know a bed of Keen's Seedling, planted forty years ago upon a deep stiff loam of the old red sandstone, from which bushels of fruit are gathered annually, and the flavour is superb. But this is one of the exceptional cases which I could relate, though certainly not recommend, as size now carries the consumer, quantity combined with quality the producer. Still, for my own eating give me a dish of ripe fruit from an old bed fully exposed to the blazing sun, and upon which the foliage is short petioled and barely sufficient to shade the rootstocks. Operations just now in the Strawberry department will be as active as they are varied; hence my object in penning a seasonable notice. Early fruit resting upon clean straw or supported by bands of matting attached to three or four short sticks stuck in round each stool will now require protection from birds, snails, and mice, and I need not say regular attention to gathering. Main and late crops not yet ready will demand the same care, and possibly in due course copious watering. It is not, however, of the present crop, already fairly safe, that I wish to speak, but rather of the preparation of the young plants for giving our future succession.

When properly handled, the Strawberry is one of our most accommodating plants, as I have seen old plants split up or pulled to pieces and put out in single crowns, producing good crops the following year, whilst others which

have been forced in pots sometimes give an autumn crop and yield enormously the following summer. Good runners, however, from maiden plants are best, as they do not readily degenerate, and none but the most healthy and vigorous parents, free from spider and mildew, are accepted when the time arrives for layering. We sometimes hear the remark that runners are scarce, but this never happens where stock plants are put out in August, divested of all their flowers in the spring, well mulched and copiously watered. By adopting this plan and keeping the propagating ground clear of the shade of trees and buildings, a few hundreds of plants will beat forced plants by some weeks and give the best of runners by tens of thousands. If anyone who would excel in Strawberry culture has not adopted this method, he should secure true stocks and put out the plants, not in an out-of-the-way corner, but upon the best tilled ground in the garden early in August. Water being an essential, especially where layering in pots is extensively practised, an abundant supply close to the hand is a very important matter. When the runners are ready for layering, one or other of these methods may be adopted; they may be pegged down upon small pots firmly filled with stiff loam and let into the ground to save watering. They may be pegged down upon small cubes of turf, which, by the way, require watering every evening in dry weather, or from single rows a yard or more apart they may be hand-laid into the natural soil, where they will fruit the following year, or be removed and transplanted whenever their future home is in suitable condition. Years ago I laid all my plants upon 3-inch pots, and in due time detached them for potting into 6-inch pots or open-air planting. This plan I have given up, as it entails a great deal of labour in watering as well as a second potting, and I now peg down upon the fruiting pots all I require for forcing. For planting purposes I adopt Lovell's method of hand-layering in thoroughly rich, pulverised soil previously cropped with early Potatoes, thin out the best plants for permanent beds in August, and allow the remainder to stand 1 foot apart for fruiting. In March, 1888, I put out President Paxton, Dr. Hogg, British Queen, and that splendid variety Filbert Pine runners of the previous August. The rows 40 yards in length, and plants 2 feet apart, occupied the centres of beds 4 feet in width. All the flowers were taken off and the runners in due course pegged out right and left completely covered the ground, in some instances taking possession of the hard trodden paths made for convenience. These beds gave all the stock I required, and at the present time they are white sheets of the finest flowers I have ever witnessed. This, to my mind, is the most simple, the most natural, and the most profitable mode of growing quantity and quality, and as such I strongly recommend it to private and market gardeners.

When runners are laid upon 3-inch pots, the ground intended for their reception should be ready by the end of July, as every day after this date increases labour in watering and detracts from their value not only by starving their cramped roots, but also by shortening their growing season after planting. In the preparation of ground for new plantations, I prefer manuring and trenching in winter, taking a crop of early Potatoes, the best of all ameliorating courses and planting very early in August. Such ground need not be deeply dug, but simply forked over, finely broken, and made as firm as treading or ramming can make it. If a heavy calcareous loam, the rows should be 30 inches apart and the plants 24 inches from each other. The balls of the young plants should

be thoroughly wet when they are turned out, and, notwithstanding very firm planting, they will require liberal watering in dry weather. A little fresh maiden loam placed round each ball is a great help in giving the roots a start, and mulching, as everyone knows, is an imperative factor in high culture.

WORK IN FRUIT HOUSES.

STRAWBERRIES IN POTS.

WITH the exception of British Queen, Dr. Hogg, and some late varieties now ripe in cool airy pits, this fruit will be over for the season. In good gardens, especially in warm localities, early sorts in the open ground will now be coming in, but for quality as well as size these late highly flavoured varieties, which simply require the shelter of glass, stand unrivalled through the months of May and June. The first two are unequalled for flavour, and being somewhat tender and liable to go off, not only after wet winters, but also in parching hot summers, cold pits enable a great number to grow them well where they fail or are unreliable in the open air. Yet another variety equally late, bright and handsome, and hardly inferior in flavour is Filbert Pine. It has not been so long before the public, but it is fast winning its way to the front, and being thoroughly hardy, a good grower, and a heavy cropper in the open air, I can strongly recommend it for open ground or late pot culture. Where pot Strawberries lead well up to a supply from the open garden, the management of plants in pots never ends; indeed, the comparatively modern method of fruiting the early sorts from the beginning of September right into January now leaves but a very short period when ripe fruit is not forthcoming. The mainspring of success of course lies in the open ground plantations, which must be young and vigorous and capable of giving good runners early in the season. Early forced plants, no matter how well they are managed or how freely they crop a second time in the autumn, cannot be induced to give the strongest and earliest runners, but maidens put out last August, well grown and divested of all their flowers the moment they can be seen, will give an abundance in June and the first part of July. La Grosse Sucrée, Vicomtesse Héricart de Thury, Early Prolific, Noble and Waterloo now form the front rank for early work, and some of these are remarkably fine, but, taken at all points, the first-named still holds its own. To have stout plants with ripe crowns fit for starting in November the runners should be laid now, and considering that 5-inch pots are quite large enough, these, clean and dry, should now be filled with suitable compost and placed alongside the stock plants for the reception of the runners.

STRAWBERRY PLANTS will grow in almost any free rich soil, but the staple should be a heavy calcareous loam, made pervious to the free passage of water by the addition of old lime rubble broken fine, bone dust, pounded oyster-shells, or charcoal. As this compost must be made very firm by ramming, it cannot be used too dry, neither will it be the worse, but rather the better, for being mixed a month before it is wanted. When all the pots are filled to within half-an-inch of the level of the rims, a short, stout hook-peg should be stuck lightly into the centre of each, to be pressed home when the runners are placed in position. Runners pegged down in this way always remain above the surface of the soil, their natural position, as may be witnessed when they strike root into a hard path or walk, even where the crowns, by no means large, become as red as a Cherry and as hard as a nut before autumn. Such crowns, thoroughly ripe, invariably throw fine trusses of bloom, and, costing a minimum of trouble, this mode of preparation is preferable to layering in small pots and shifting on when properly rooted. Water, of course, is a very important element, and the fruiting pots being so small and quickly filled with roots, weak liquid is a great help from the time the plants are detached until they show signs of ripening. The best site for the summer station is quite out in the open, away from the shading or elongating influence of

trees or buildings. Here, placed 6 inches to 9 inches apart, the pots to a certain extent will shade each other; but when they become very full of roots and require water more than once a day, much labour may be saved by giving the plants more room and casting a little leaf-mould or old tan amongst them. The late kinds, which must brave bright sun and drying winds when their fruit is swelling in the spring, should have larger pots—say 6 inches to 7 inches in diameter—also the compost may be a little heavier, as the roots will penetrate the hardest compost when rammed into them in a thoroughly dry condition. Strawberry pots do not require a great abundance of crocks, but they should be clean and well placed, as a year must elapse before they again see daylight. Worms are sometimes troublesome; hence the advantage of a sprinkling of soot over the crocks, also in the compost. The stations, as a matter of course, will be composed of coal ashes or concrete, made firm and impervious to the passage of these pests after the plants are detached; but, assuming that they have made an entrance from the propagating bed, they must be dislodged by a few thorough soakings with clear lime water. Opinions vary as to the effect of overhead watering in hot, dry weather. Where pipe-water is plentiful the hose is a very tempting instrument, but unless the water is soft, warm, and well aerated, the less it is cast over the leaves the better. A good plant will take from a pint to a quart per day, and as this must percolate through the compost into the station, the moisture constantly rising keeps the foliage fresh and free from spider. Warm summer showers are a godsend at all times, especially throughout the layering period, but once the pots are filled with roots, the season which necessitates incessant watering is the best for pot Strawberries.

MELONS.

As choice hardy fruits are not likely to be overabundant, every available pit and frame should now be pressed into use for the growth of late Melons. Bottom-heat, as I stated in my last paper, is essential to setting, and especially to ripening; but mid-summer being now upon us, almost anything that will ferment, combined with very early closing with solar heat, will maintain a temperature equal to the growth of very good Melons. Some varieties which set freely and ripen quickly are preferable to others, and these finish best when good sound loam free from animal manure is used in moderate quantity. I lately saw half-a-dozen large handsome fruits which had been forced and fed beyond their normal size, but the seed cavity was too capacious and they lacked flavour. Had they been grown in pure loam and moderately fed when swelling, what they lost in size would have been gained in flavour. This, then, should be the aim, a thoroughly good calcareous loam, a limited root run, all the top and bottom heat that can be secured, thin training, good syringing with water at a temperature of 85° to 90°, moderate feeding when the fruit is swelling, and just enough pure water to prevent flagging when the Melons are ripening. Melons in hot dry summers will stand any reasonable quantity of water, but they are not aquatics; hence the importance of placing the plants on raised mounds and keeping the necks dry when all other parts of the bed are flooded; also, they like all the sun that can be admitted, and so acceptable is fresh air that we often throw off the lights for an hour or two when in settled weather the external temperature touches or exceeds 80°. If trained thinly and the sun can reach the bed the growths soon become tough, wiry, and fertile, setting a profusion of fruit, which should be well thinned to ensure fair size, say two to three pounds each—a most suitable weight for ordinary purposes. It is well to fertilise summer Melons, but plants grown in pure loam set so profusely that there is no difficulty in making a good selection for the crop, and as the produce of each plant should be uniform in size, certainly at the outset, this point should be kept in view during the process of thinning.

House Melons.—Those who would have stiff, sturdy plants for succession should still sow single seeds in 4-inch pots or squares of turf placed over

bottom-heat from a bed of fermenting material. A little shade is essential to the quick germination of the seeds, but once they break the soil they may be gradually inured to the sun for the remainder of the season. If intended for planting out in troughs or upon hills, these should be ready for their reception before they become pot-bound. Where express speed, however, is the object, and a series of small compartments are occupied, room can always be found for duplicates, which in their fruiting pots may be 2 feet to 3 feet in height by the time they are wanted. By adopting this plan plants strong enough to produce male flowers may be ready for transfer on the day the last fruit is cut from the pit they are intended to occupy. This, as a matter of course, will require cleansing, and the bed most likely will be the better for turning and renovating, as no heat can touch that obtained from decaying fermenting materials. Plenty of strength should be employed in the transfer of the plants, as each leaf should be preserved intact, and the vines must not be twisted. Seakale or Rhubarb pots plunged two-thirds of their depth into a sod of stiff turf beneath them, serve admirably for summer Melons, and, provided they are placed 24 inches from centre to centre, each plant will have ample room for development. Pot plants generally run 4 feet or 5 feet up the wires before they are strong enough to set and swell fine fruit, but once they commence showing freely the leaders are stopped, and all female flowers fertilised as they open. When two fruits likely to swell in unison can be selected for the crop, all larger and smaller fruits must be cut away and every lateral closely pinched, not only to concentrate force, but also to prevent the main leaves from becoming crowded. It may be well to remind the young beginner that the surplus fruits should not be removed too early, as a little too much water or a languid bottom-heat sometimes causes Melons the size of pigeons' eggs, to turn yellow and die off. When swelling freely and supported to prevent a strain upon the vines the plants may be thoroughly syringed with water at a temperature of 80° to 90°, and shut up at any heat ranging from 80° to 100°, care being taken that the roots are copiously supplied with tepid liquid guano or weak soot water alternately. The final top-dressing also must be placed over the roots, but still giving animal manure a wide berth, this may consist of pure loam enriched with one-sixth of its bulk of bone-dust.

PINES.

The weather of late has been all that could be desired for Pines generally, and for plants ripening their fruit especially, as bright highly flavoured examples cannot be secured without the aid of strong solar heat, light, and fresh air. I lately remarked that root-watering should be discontinued as soon as the lower pips begin to change colour, but the weather being favourable to liberal ventilation, the walls, floors, and surface of the bed may be freely damped two or three times in the course of the day. With such weather Queens will ripen perfectly under the partial shade of thinly trained early Vines upon which the Grapes are ripe, or equally well opposite a west window in a dry warm store room. The removal of Pines to ripen, it must be understood, is not absolutely necessary, but where fruiting space is limited and it is desirable to make the most of it, this method favours filling up as well as the maintenance of a high temperature with plenty of atmospheric moisture.

Succession fruiters, including the cream of the different varieties usually grown, will now be making rapid progress, and daylight having reached its fullest extent, the temperature may range 75° at banking time, 70° at daylight the following morning, 85° through the day, and 90° to 95° after shutting up with solar heat and moisture. The plants should not be syringed overhead in the morning, but the beds and all available spaces may be well moistened, the overhead dewing being reserved for the afternoon. High feeding, of course, is necessary, but unless the pots are very full of roots a great deal can be accomplished by syringing weak liquid into the axils of the lower leaves,

by filling the evaporating pans with the same, and sprinkling the floors after shutting up for the day. Root watering, of course, is necessary, but indiscriminate supplies are bad; indeed, the keystone of success rests upon knowing when to withhold until the roots require a thorough supply. Queens and Jamaicas require great care in this respect, but Rothschilds and Cayennes, two comparatively hardy, robust varieties, which make a profusion of roots, not only need, but actually improve under double the quantity of good stimulating liquid. As the Pines swell care must be taken that they do not get out of the perpendicular, all gills must be removed, and on no account must the suckers intended for stock exceed two upon each plant.

Succession plants intended for starting next January should now be filling their pots pretty fast, and the better to prevent an untimely check they must be carefully fed with weak stimulants and kept steadily progressing under genial and generous treatment. A little fire-heat through the night in nine seasons out of ten is a necessary help, as it prevents the pits from becoming too cold at daylight, but solar heat being best, early airing and early closing should be the rule. If shading is found necessary, the material used should be very light, as it is questionable if the soft, unripe plants which refuse to start until they have made a growth are not the outcome of excessive shade and too much moisture. As this particular set of plants require such very nice treatment, first, to get them well matured before days become dark and short, and second, to prevent them from growing too late in the season, it is a good plan to draw the most promising and replunge them in the small compartment as soon as their predecessors are cleared of their fruit. Here they can be kept growing until the end of August, when gradual sinking to rest will ensure the starting of a large percentage at the proper time.

WORK AMONGST HARDY FRUITS.

The most important work throughout the past month has been the destruction of caterpillars and grubs by hand-picking and washing, and those, unfortunately, who have been most busily occupied will reap but a poor reward for their labour. Saving the crop where the trees are thus badly attacked is hardly possible; therefore, this being the worst outdoor fruit season I have experienced since 1861, those who have lost the produce must think themselves fortunate in saving the lives of their trees. The heavy storms of thunder rain in two ways have been a godsend; first, in washing away a great deal of grub and blight, and second, in facilitating the flow of sap by thoroughly moistening the subsoil with soft water slightly above the average temperature. Growth being pretty well advanced, it is hardly likely that barren trees will suffer from drought; but, having been so long accustomed to extremes, it may be well to husband the root moisture by pushing mulching to an early close. Mulches of a highly stimulating nature are hardly needful or suitable; therefore materials that will check radiation and yet admit solar warmth are to be preferred. Fresh stable litter stands first on my list, but a host of materials, including short Grass from the lawn, spent tan, Cocoa-nut fibre, the remains of exhausted Mushroom beds and charred refuse also may be used. Failing these, great benefit may be derived from constant hoeing and keeping the surface of fruit tree borders loose and free from weeds.

As fruit trees of all kinds are now sufficiently advanced, nailing and tying in must be closely followed up, but on no account must useless or superfluous shoots be retained to the detriment of those intended to bear fruit next season. All trees as they are nailed in should be well washed out with the hose or garden engine, not once or twice, but repeatedly, until they are quite free from insects and the fruit is clean. After grub, the most troublesome and persistent pest is black-fly, especially when through neglect it has been allowed to become established in faulty walls. In this case all infested points should be dipped in tobacco water before they are laid in, and then, to put

an end to a re-appearance, soapsuds may be well syringed into every part of the wall. Peaches generally, I believe, are unusually clean and free from blistered leaves; also being lightly cropped, a tendency to the production of gross centre breastwood already prevails. As these strong growths very soon destroy the balance by becoming robbers, they should be closely pinched and in due course shortened back to a lateral, which may be laid in where old arterial branches require shelter from the sun. An even spread of moderately strong shoots and good foliage, of course, is the acme of perfect manipulation, but unless the season is exceptionally hot and dry, these gross, watery growths rarely make useful fruit-bearing wood; hence the wisdom of constant repression, especially in aged trees. In young trees, with ample room for extension, the conditions are altogether different, as we frequently convert these strong growths into a series of moderate shoots, which not only furnish the wall, but ripen an abundance of flower-buds.

Pyramids and bushes of all kinds from choice Pears down to the humble Currant and Gooseberry are making a most exuberant growth, so dense indeed that the crop of fruit and incipient flower-buds can hardly be expected to ripen unless they are judiciously thinned. This work, I may say, should be performed piecemeal, commencing in the centres to let in light and air, but in no part should sudden exposure be followed by sere and yellow leaves. Gooseberries with us are light, but fine, as might be expected after the enormous crops they carried last year. Red and White Currants are a better crop, but the wood is very plentiful and strong, and requires careful thinning. Black Currants are eaten up with aphids, and notwithstanding the heavy rains the crop is going off. Raspberries look badly, especially the finest and strongest canes, a fair proof that they were imperfectly matured. All our plantations, fortunately, are not in this plight, Carter's Prolific No. 1 and No. 2, Baumforth's Seedling, and Fastolf on warm borders being excellent. The young canes are abundant and very strong, and require a good deal of thinning, an operation too often neglected in the management of this wholesome fruit, especially in private gardens. W. C.

Caterpillars.—The lackey moth caterpillar is abundant in this district this year beyond all precedent. The leaf roller caterpillar is giving enough of trouble, but the other one is the dominant pest of fruit trees, and especially of Apple trees. In some of the market orchards it has been the rule to set men with guns morning and evening to blow these nests of caterpillars out from the trees with charges of gunpowder, and where the trees are high, men have been sent up into them with ladders to wipe the insects out with wisps of Grass or short brushes. The clusters were so numerous that the firing into the trees resembled a running volley from a line of infantry. In a smaller way I dealt very drastically with the clusters affecting my trees and which were out of reach. I tied some cotton rag tightly round the end of a long stick, then saturated it with paraffin, and setting it alight held the flame just beneath the bunches of caterpillars. Of course it soon destroyed them, and I found that one torch sufficed to destroy about fifty clusters; in fact, quite cleared my trees, which are tall. Not the least harm was done to the trees by the flame, which it was needful to hold about the caterpillars for but a moment or two, as they fell off instantly. It is very important that every one of these insects should be destroyed, and as they seem to be too offensive for birds, burning them appears to be the most efficacious method of dealing with them. There can be no doubt but that caterpillars have done much harm, especially in old gardens or orchards. The utilisation of the soil beneath tall trees by growing bush fruits no doubt helps to promote caterpillars, whilst preventing that destruction of the chrysalis which follows when soil can be deeply dug.—A. D.

Assisting Strawberries to ripen.—Laxton's Noble is supplying our earliest fruits in the open this

season. It is ready before Black Prince, but we have tried successfully a new way of assisting some of the fruits to ripen. Being possessed of some brick-coloured roofing tiles, which measure 6 inches by 10 inches, we placed one of these under many of the best clusters of fruit, and as the tiles soon become warm and retain the heat under a powerful sunshine the fruit have ripened eight days before those not so treated. The tiles are quite clean and keep the fruit perfectly unsoiled. We shall in future use them largely for forwarding dessert Strawberries, but they might not be so effectual in a cold, sunless season.—J. MITCHELL.

KITCHEN GARDEN.

LARGE LEEKS.

In the midland and more northern counties of England and Scotland generally Leeks have long been held in high esteem, and invariably figure conspicuously in collections of exhibition vegetables much earlier in the season than they are shown in the southern districts. Nor have the southerners as yet, as a rule, fully acquired a liking for Leeks, and in many gardens they are grown solely for flavouring soups. That this vegetable is exceptionally hardy there is no disputing, and if the owners of numerous comparatively small gardens were fully aware of this, and also of the fact that well-grown Leeks form a very acceptable dish on the dining table, they would be more universally cultivated in preference, if need be, to less hardy vegetables. I never yet saw Leeks with the stems properly moulded up injured by frosts, and in some districts they continue to increase in size throughout the winter.

For ordinary purposes there are no varieties to surpass the Ayton Castle Giant, and the Musselburgh also attains a good size, while the quality in both instances is first class. Monstrous Carentan, when first introduced, was to have superseded all others for exhibition purposes, but it is much too coarse-grained and altogether inferior to the Lyon. The latter is now the most popular variety where extra fine Leeks are required. When Leeks are required extra early, or, say, for the August, September, and later shows, the plants should either be raised in the autumn previous in the open ground, the seed being sown at the same time, and the plants treated similarly to Tripoli Onions, or else in heat not later than February. The former plan answers best, but if the spring raised plants are duly pricked off into pans or boxes of rich light soil, grown to good size in heat not far from the glass, and eventually hardened off, these would be ready for the open ground early in May. For the main crop, or ordinary purposes, the requisite number of plants can be most easily raised on an open border, the seed being sown as early in March as the weather will permit.

There are several different methods of growing Leeks, it being necessary to vary the treatment according to circumstances. On well-manured, light, and medium land they thrive remarkably well and without much labour being expended on them, but where the soil is naturally cold and clayey large Leeks are not easily grown. In the former case all that is necessary for the ordinary crops is to dig in a liberal dressing of solid manure, and when the plants are strong—or say about 12 inches long—these may be dropped singly into holes formed with a stout dibber. These holes may be 12 inches apart each way, or the rows may be 18 inches apart, a distance of 9 inches dividing them in the rows. All the fixing necessary is to drop a small portion of soil into the holes and water in the plants. If in a sunny or rather dry position, it is advisable to water the plants occasionally; but in our case, a

north-east border being usually devoted to this crop, one watering is usually ample. Being kept clear of weeds, the Leeks soon make good progress, and fine, well-blanching stems can be had at any time during the winter and spring months. In the case of heavy land, deep planting must not be resorted to, as much finer Leeks can be had by planting on the surface, and eventually moulding up the stems in order to blanch them properly. The ground ought to have been manured and dug early, and by this time will have become well pulverised. After this has been duly levelled, draw shallow drills 2 feet apart, and in these plant the Leeks 6 inches apart, the roots being spread out and covered with about 2 inches of fine soil. During a dry summer, water should be given once a week, and a mulching of short manure would act beneficially. In the autumn, or as soon as those first planted have attained a serviceable size, the soil may be drawn up to the stems on each side, and the blanching will then be effected in the course of a month or five weeks.

In the event of a few dozen extra large Leeks being required for exhibition, more than ordinary pains must be taken with their culture. Surface culture must still be resorted to in the case of heavy land and cold subsoils, rather more manure being dug in, more space between the plants allowed, and liquid manure given at each watering. The blanching can be most cleanly effected by bandaging the stems with several folds of brown paper or old sacking. If this plan is adopted there will be no necessity to mould up the stems, and the rows may, therefore, be arranged 18 inches apart, a distance of 9 inches dividing the plants. On light or warm free-working soils the finest Leeks can generally be grown in trenches well manured and otherwise prepared as for Celery. The plants may be put out in these in a single row with the aid of a trowel from the boxes or pans in which they were pricked out, or they may be carefully lifted from the beds in which they were raised. In this instance, and also when they are put out on the level, it is advisable to transplant them when about 6 inches high, smaller plants recovering most quickly from the check. We usually arrange the plants with the leaves across the trenches, but fail to see any necessity for shortening the leaves unless extra long and weak.

When growing strongly, Leeks require to be watered frequently, liquid manure being also freely used, that obtained from a cesspool appearing to suit them better than anything else I have seen tried. A little soil ought to be distributed in the trenches soon after the plants have commenced to grow strongly, but the blanching should not be attempted too early or before the plants are nearly fully grown, from six weeks to eight weeks being allowed for this process. When moulded up similarly to Celery some of the soil is apt to work down the inside of the outer leaves, this necessitating a considerable reduction of the size of the stems before they can be said to be presentable. If the brown paper, sacking, or canvas wraps previously alluded to are used, these, if sufficiently thick, will effectually exclude the light and cleanly blanch the stems be the result. Where preferred, thinner bandages may be used and the soil worked well up around the stems, and they will turn out of this cleanly. W. I.

Purple Sprouting Broccoli.—I quite agree with the editorial note (p. 510) respecting the Purple Sprouting Broccoli, as unquestionably it is the best and most delicate in flavour of all the lot, and should be largely grown in all gardens where a supply of vegetables has to be kept up, as its

sprouting is long and continuous, and by having a fair-sized plantation there will be heads for gathering for many weeks in succession. There are two varieties of this most valuable Broccoli, an early and late kind, and by sowing and planting both sorts the season for their use may be greatly prolonged. Those who would have them must lose no time now in raising the plants. Ours are ready for going out, as I like to have them strong, and the way we manage them and others, as well as Brussels Sprouts, is to plant and grow them between rows of Potatoes placed 4 feet apart. This, when the Potatoes are lifted, gives plenty of light and air to the Brassicas, and I find that we not only get the Broccoli and sprouts much finer, but they stand the weather better, as they dry quickly and have firmer stems.—S. D.

KITCHEN GARDEN NOTES.

ASPARAGUS.

NUMEROUS employers of gardeners and the more inexperienced amateurs have but a hazy notion of Asparagus culture, and every season some fallacy or very faulty practice of theirs comes to light. Not a few imagine that if they purchase three-year-old plants these ought to produce strong shoots during the following season, and, whether they have done well from the first or not, close cutting is resorted to. It often happens, however, that two-year-old roots transplant better than any one or more years older, especially if the latter had not previously been lifted and replanted from the time the seedlings were raised. It is really a ruinous practice to cut the shoots from a bed that has not been formed more than one season, and unless the plants grew exceptionally well from the first they ought to have at least two clear seasons' growth. Nor should any comparatively young beds be cut from very late in the season or much after the first week in June. The older beds this season have not been quite so productive as they were last season, heavy cold rains greatly checking the growth. This being the case generally, and seeing that early Peas are scarce, there is no reason why the Asparagus should not be cut rather later than usual or to the end of June. I do not advise a close clearance, but rather to thin out the shoots, the remainder being allowed to develop.

Many fail to apprehend what are the functions of Asparagus foliage or growth. Were it otherwise, there would be fewer cultural blunders. If it was fully realised that cutting the top growth is in a manner similar to clearing a shrub or fruit tree of leaves, the owners of the beds would perhaps be more lenient to those who have charge of them, especially when the proper time has arrived to cease cutting. If we strip a tree of leaves, the bud and root-formers are destroyed, and a much weakened growth, or it may be death, is the result. The top growth of Asparagus forms buds or crowns at its base and stimulates strong root action, and the sooner these develop the better chance there is for all to mature properly. If thinning out is judiciously performed, the weakly shoots especially being cut now, fewer but finer buds are formed, and superior produce is the ultimate result. It is sometimes said "a little knowledge is a dangerous thing," and an instance of the truth of this has just come under my notice—has led to the foregoing remarks being offered, in fact. The owner of a good-sized garden had somewhere discovered that flowering and fruiting have a most weakening effect on any kind of plant, and were especially injurious to Asparagus. When therefore he observed that his were flowering rather freely last summer he gave orders for all growths in flower or the greater portion to be cut out, and he also advised a lady friend to follow his example. This season they are grieved to find their Asparagus is so very thin, and such a forcible lesson (now they know where they erred) will not be lost on them. In all probability an early removal of either the flowers or fruit would act beneficially, but it is very doubtful if the result would be at all commensurate with the outlay.

YOUNG ASPARAGUS PLANTS.

Seed sown in April or early in May has germi-

nated evenly, and in many instances ought to be freely thinned out. Quite young plants can be moved readily with a trowel, and after all blanks have been made good the seedlings may be left about 3 inches apart in the rows. Thus favoured they will make good progress, and most probably will be large enough to transplant to their final quarters, if need be, next spring. Asparagus growth is naturally top-heavy, and when weighted down by heavy dews or rain is liable to be broken off in windy weather. Seeing that the loss of the best shoots must greatly weaken the plants, it behoves the cultivator to preserve them as much as possible. Where thin planting is resorted to it is especially necessary to place a rough stake to each plant, this being inserted well clear of the crown, and to which the strongest growths can be loosely secured by strips of matting. The surface of the beds ought to be lightly stirred with Dutch hoes whenever weeds appear, and if this is done in dry, hot weather very little further trouble will be necessary. A mulching of strawy manure or decaying leaves may be given with advantage. Slugs are very troublesome this season. They eat through the young shoots and completely skin the older ones, and unless either caught and destroyed or kept off with the aid of soot and lime or a light sprinkling of salt, they much weaken the plants.

POTATOES AND POTATO DISEASE.

We commenced lifting Potatoes from a warm border, the variety being the old Ashleaf, during the first week in June, and as yet have found no disease. In a neighbouring garden it has made its appearance first among the crops in pits and frames, and at the present time it is spreading rapidly through the large breadths of Ashleaf in the open borders. Not only is the haulm affected, but the disease has also reached the tubers, and unless drier, warmer weather is experienced soon, the crops of the earliest Potatoes generally will not be worth much. It is not often the disease is discernible so early in the season, the first week in July being about the time we usually first observe it. On the whole, Potatoes never looked more promising. They came up well, grew strongly, were uninjured by frosts, and were finally moulded up fully a fortnight earlier than usual. A few weeks of hot, dry weather would suit them well hereabouts. There is no remedy for disease, and only one method of preventing it that I am aware of, and even this does not always prove a success. The theory of the disease germs or spores being first lodged on the foliage and from these washed down to the roots by rain is no doubt correct. They cannot be prevented from effecting a lodgment on the haulm, and it is no easy matter to prevent their finding a way down to the tubers. The best disease-resisting varieties are those which form strong spreading haulm, the greater part of which falls over the sides of the ridges. In this category may be included Scotch Champion, Laxton's Reward, Magnum Bonum, Abundance, Reading Hero, and Chiswick Favourite, and these being moulded up in the ordinary way are, with us at any rate, rarely injured by the Potato disease. Nothing apparently will save the Ashleaf and others short-topped or comparatively weakly growers, but if those moderately vigorous are so moulded up as to drive the haulm over to the sunniest side of the rows, the greater portion of the crop may be saved. In addition to drawing more soil to the opposite side to which the haulm is to be driven, it is also advisable to smoothe over the soil on the top of the ridge with the hand, and at the same time press it against the stems, or otherwise these may again recover their original or erect position. We have found this plan of moulding up, and which I believe is known as Jensen's system, to answer fairly well in the case of Lady Truscott, Early Regent, Vicar of Laleham, Cosmopolitan, Early Puritan, Welford Park, Cole's Favourite, and a few other moderately strong growers, and cultivators will generally do well to give it a trial. It does not entail a deal of labour, and if it only saves half the crop the compensation is good. The least that can be done is to burn all diseased haulm as quickly as possible, and with this innumerable spores that would otherwise survive and prove troublesome either in this or the following season.

SEED POTATOES AND DISEASE.

Where only a few of Early Ashleaf or other favourite extra early varieties are grown, the seed is usually saved in June or early in July. There is no real necessity to save tubers for open-air planting thus early in the season, and in our case the bulk are grown in the open quarters and only a limited number saved from the rows on warm borders, these being intended for frame and pot culture. Medium-sized sets are always the best, these being planted whole, and if any are bought these should be procured soon after they are lifted, or the chances are they will not answer nearly so well as the thinly stored home-saved tubers. Where so many err is in leaving seed Potatoes on the ground to become green. They may be quite sound when first lifted, but after a few hours' exposure on the ground a considerable portion of them not unfrequently become diseased, and they are stored without its being discovered. In order, therefore, to prevent the disease spores from taking possession of the newly lifted and most susceptible tubers, all should be dried in an airy shed and duly stored thinly in a light, cool, and fairly dry shed. Where possible it is advisable to fit up a number of latticed shelves in a cool shed specially for storing and preparing choice Potato sets. The original outlay need not be heavy, and the convenience would or ought to be fully appreciated by the gardener in charge. W. I.

TREES AND SHRUBS.

THE WISTARIA.

ONE of the very best of all strong-growing climbers is the Chinese Wistaria. It is certainly a most beautiful object at this season of the year, when the long branches are wreathed for a considerable distance with drooping racemes of lilac-purple coloured blossoms. In exposed places the flowers are sometimes injured before expansion by late spring frosts, but this year they have escaped, and, consequently, the Wistarias are seen to the best possible advantage, as in addition to the blooms, the freshly expanded foliage is this year, in common with that of all outdoor trees and shrubs, very fine. The Wistaria is generally treated as a wall plant, but it has also a beautiful and picturesque appearance when so situated that its vigorous branches can ramble into the head of a neighbouring tree. If planted with this intention a mistake too often made should be avoided, viz., that of planting the climber too closely to the tree which is intended as its support, for if planted close to the trunk of an established specimen the new-comer is simply starved to death. The Wistarias, too, are well suited for arbours, and a large specimen just supported by a framework of some kind forms a beautiful object on a lawn. Though one seldom meets with any Wistaria except the Chinese form, there are several others, one or two of which are perhaps worthy of being planted to a greater extent than at present, but as they are of far more recent introduction than the one above mentioned the plants are small, and, consequently, cannot be compared with the older species. A very promising variety is the white-flowered form of the Chinese Wistaria (*W. chinensis alba*), which appears to be a counterpart of the type, except that the flowers are pure white. In the specimens of this that I have seen the racemes are smaller than in the typical form, but this might be accounted for by the plants being much weaker. A very pretty effect might be produced by planting this and the ordinary form in such close proximity to each other that as they grew up the branches of the two would intertwine one with the other. A very distinct variety is the double-flowered (*flore-pleno*), which I believe

was introduced from Japan to the United States, and from there sent to this country.

It has been highly spoken of in America, but here it does not seem worthy of the praise that has been bestowed upon it. The variegated-leaved variety does not appear to be in any way desirable. There is another *Wistaria*, viz., *multijuga*, which is said to have racemes of bloom over 2 feet in length, and, judging by young plants, it seems very probable; but the racemes are longer than in the Chinese *Wistaria* and the individual blooms somewhat smaller, as well as of a paler hue, so that the plant is not so showy as a description might at first lead one to suppose. There is a variety of this announced in different catalogues as bearing pure white blossoms, but the flowering plant I have not yet seen. The variety of the Chinese *Wistaria* known as *macrobotrys*, perhaps, the same as *multijuga*. A very pretty *Wistaria* is the North American *W. frutescens*, which was the first of this genus to be cultivated here, having, according to Loudon, been introduced into this country in 1724. It is especially remarkable from the fact that it flowers after all the others are past, except it be a few scattered blooms, which are occasionally produced on the Chinese *Wistaria* towards the end of the summer. The American species is smaller than the other, with the same arrangement of the foliage, while the bluish purple blossoms are borne in shorter and more dense racemes and in an erect manner. This last especially is a distinguishing feature, and another is the fragrance of the blossoms. This *Wistaria* is a native of a considerable tract of country in the United States, and may be treated the same as the Chinese species, or, being less vigorous, it forms a very ornamental single specimen if twisted around a few stout stakes and then allowed to grow at will. It is said by Loudon to grow naturally in boggy places, but succeeds very well in this country, even in dry sandy soils, no doubt owing to the fact that the roots go down to a considerable depth. This last applies to all the members of the genus, and on this account they do not when established transplant very readily, as fibres are but sparingly produced. Propagation is effected in a variety of ways—by seeds, by layers, by cuttings of the roots, and in the case of the varieties by grafting a shoot on to a portion of a root. If a root of the common kind is used as a stock, whatever is grafted on it, I have never found suckers to be produced to any extent. T.

Ribes nigrum aureum.—The golden-leaved form of the Black Currant seems to be but little known, yet when fully exposed to the sun the foliage assumes a rich golden tint. The shrub is consequently valuable for associating with some of the dark-leaved Evergreens. It is as vigorous in growth as the typical form, and, therefore, soon grows into an effective specimen. There are two other distinct forms of the Black Currant, viz., one in which the leaves are mottled and marbled with white, and the other (*laciniatum*) whose foliage is curiously cut.—T.

Cratægus oxyacantha semperflorens.—This is a remarkably singular, and, to those who are fond of miniature varieties, a very interesting form of the common Hawthorn. Its usual habit is that of a dwarf, much-branched bush, which early in the season is profusely studded with corymbs of pure white blossoms, and unless parched up during the summer, a scattered succession of bloom will be maintained for a considerable time. From this circumstance it is sometimes possible to find both ripe fruit and flowers on the same plant, the berries being the product of the flowers that opened at the usual season, while the blooms are among the scattered ones produced later on. The remarkable

freedom of flowering of this variety in a small state should serve it in good stead as a subject for forcing early into bloom, as little bushes full of flower could be readily obtained. It is of Continental origin, having been first observed by M. Bruant, of Poitiers, about 1882, and after that gentleman had propagated a number from the original plant it was ultimately distributed.—T.

YUCCA BACCATA AND Y. TRECULEANA.

AMONGST the arborescent *Yuccas* few are comparable to these two species in beauty. The first-named, a native of Mexico, where, it is said, its fleshy fruit is roasted and eaten by the Indians in the same way as Bananas are disposed of, flowers magnificently in the south of France, where it has become thoroughly acclimatised throughout the region of the Mediterranean coast, and where, under a brilliant and hot sun, its flowers attain dimensions that would appear surprising to those who have only

nificent foliage and tall pyramids of white flowers.

It is interesting to consider what may be the outcome of crossing these two fine species with the Mexican *Yucca Whipplei*, especially with the fine variety *violacea*. In all probability the progeny will possess a combination of qualities and characteristics involving important modifications in the vigour, the appearance, and, above all, in the hardiness of these fine plants.—*Revue Horticole*.

NOTES ON TREES.

THE claims of *Sequoia gigantea* to be ranked amongst the Conifers suitable for ornamental planting were, I remember, discussed at length some time back in your pages, several writers refusing to give it a place under any circumstances. Now, although I am prepared to admit that it was at the time of its introduction used oftener than the occasion warranted and in situations where as a large specimen it is decidedly objectionable, there

are, I think, some sites that it fills satisfactorily. I have been led to these remarks from seeing, in a corner of an old garden, three trees, one or two of which must soon be sacrificed. Of the three trees the centre plant is a *Sequoia*, planted, I fancy, soon after its introduction, as it is a good specimen, nearly 60 feet high, with a bole 13 feet in circumference, and well clothed to the ground. On either side the *Sequoia* and close to it were planted two *Abies Pinsapo* that are now hard on to the former tree, and, indeed, have required a free use of the knife to keep a clear way. The question as to which must be sacrificed will soon arise—the two *P. Pinsapo* or the *Sequoia*? I think in this instance it is clearly a case for the retention of the *Sequoia*; in fact, it seems to me that in the majority of cases where this tree is thoroughly at home and doing well we should take all possible care of it in order to give coming generations a chance to solve the problem as to whether its term of life in this country will contrast favourably with the age of the Californian trees. This question of longevity has been to the fore with us lately consequent on the removal of many *Silver Firs*. At the time when these grounds were laid out in or about 1760, a certain portion of the pleasure-ground was



Yucca baccata.

Yucca Treculeana.

seen the plant in bloom in more northward districts.

The flowers of *Yucca baccata*, of which we here give an illustration, were grown by M. Deleuil at Marseilles, who by skilful selection of seed has been successful in raising some forms superior to the type, which was first introduced. The flower is pure white, nearly 5 inches long, like that of *Magnolia grandiflora* in its very large size and somewhat resembling it in shape.

From these enormous flowers some striking results in the way of hybridisation may be looked for under the practised hands of M. Deleuil, who has found out the secret of artificially fertilising some N. American *Yuccas* which never produce seed in this country.

Yucca Treculeana is a native of Texas, where it forms a most interesting feature in the natural scenery of the country from its great size, mag-

largely planted with the *Silver Firs*, but they are all now dead or dying, so I suppose one may draw the inference that their term of life in this West Surrey soil does not much exceed 120 years. It would be rather interesting to discover if life would be longer in a much stiffer soil. The same remarks as to longevity may apply with equal force to the Cedar of Lebanon planted at the same time as these *Silver Firs*, although the decadence in their case may be traced to other causes. Many single specimens of Cedar planted about the time named above are now entirely swept away, not that they have actually died, but their removal has been rendered necessary, because they have become practically bare and unsightly stumps from the effect of heavy snowfalls and violent storms. It is perhaps a little early to write up the Deodar Cedar as a substitute for *C. Libani*, but, so far as I am able to judge, it appears to suffer very little from the effects of snow, and for this cause I should certainly be inclined to plant it in any prominent position as a specimen tree instead of the Lebanon Cedar. I have before noticed

the idea of planting this tree in clumps, and may add that, whilst the majority of the single specimens here are either swept entirely away or have lost their original symmetry, the clumps remain nearly intact, possibly from the fact that under the latter mode of planting the individual trees which comprise the clump have not such a tendency to horizontal growth, and are consequently better able to withstand heavy snows. Apropos of the Deodar Cedar above mentioned, is it, as a rule, doing well in this country? I fancy the trees here were among the earliest planted, and their average size is a height of 50 feet and a girth of 8 feet. Does this at all represent the experience from other places? One of the brightest Conifers at the present time is *Abies Smithiana* or *Morinda*. Where this tree is thoroughly at home, it is one of the best of the Spruces in a young state, and may possibly in some soils retain this character. I find, however, in this soil the tree becomes rather ragged with age, and the individual growth weak and thin. Another handsome tree at the present time is *Ginkgo biloba*; the foliage is wonderfully bright and fresh, and it is so distinct from anything else that it is always attractive. The large plant here has a very singular appearance. It seems to have been at some time checked in growth and then to have gone away suddenly with five or six leaders that are now perfectly erect and about 45 feet in height. I can compare the tree in the distance to nothing better than one of the gigantic standard Pears of the Bergamot and Swan's-egg varieties that are to be found occasionally in old gardens in the south of England. *Pinus Laricio* seems likely to do well in West Surrey. Young plants are very healthy and vigorous, the average growth of the leader being from 20 inches to 24 inches. The experiment was tried some two seasons back of planting up some of the vacant spaces in the adjacent Pine woods with some of the newer Conifers, both *Abies* and *Pinus*. I hope to make a tour of inspection shortly, and will let you know how they are flourishing in their several varieties.

Claremont.

E. BURRELL.

Pernettya mucronata.—The winter display of fruits is the principal charm of this plant, but it is ornamental now, for the branches are profusely studded with pretty little wax-like, bell-shaped blossoms, which contrast boldly with the deep green shining foliage and reddish leaf-stalks. From their firm texture the flowers retain their beauty for some considerable time, and few (if any) outdoor shrubs are better adapted for use in a cut state than this *Pernettya*, as if the blossoms are gathered just as they are on the point of opening they will remain fresh for weeks. Again, during the winter the berried sprays, or, for the matter of that, the branches without berries, are very valuable for filling vases.—H. P.

Philesia buxifolia.—This near relative of the *Lapageria*, is compared with its larger ally, quite a rare plant, though it has been known in this country considerably over thirty years. Unlike the *Lapageria*, it is not a climber, but forms a dense mass of slender, wiry branches, clothed with dark green leaves something like those of the Box, and of the same hard texture as those of the *Lapageria*. The blossoms very much resemble those of the last-named plant, and, being borne in considerable numbers, render a good healthy specimen of it very attractive when in the flowering stage. This *Philesia* is hardy in particularly favoured districts along our southern and western coasts, but, generally speaking, it requires the protection of greenhouse, or at all events of a frame, where it is proof against frosts during the winter. Its cultural requirements are the same as those of the *Lapageria*—that is to say, a good open soil largely composed of fibrous peat, thorough drainage, and, above all, a cool spot where shaded from the full rays of the sun. It succeeds well when planted out in a peat border, and where a place is found in the greenhouse or conservatory for a bed of the tender *Rhododendrons*, this *Philesia* would find a congenial home. A liberal supply of sand should be incorporated with the peat in which it is planted, and a few nodules of sandstone or

broken bricks will assist in keeping the compost open. The *Philesia* is also a good subject for the rockwork under glass, and it may besides this be grown in pots. It is a native of Chili, and was introduced by William Lobb, who at that time was travelling for Messrs. Veitch. Lobb's other introductions from that region include some very valuable plants, among them being *Lapageria rosea*, *Escallonia macrantha*, *Embothrium coccineum*, *Desfontainea spinosa*, and *Berberis Darwini*. Between the *Philesia* and *Lapageria rosea* Messrs. Veitch raised a very distinct hybrid partaking of the characters of both parents, and named *Philageria Veitchi*.—H. P.

THE SCARLET-LEAVED HORSE CHESTNUT. (ÆSCULUS FLAVA.)

SURELY this handsome hardy tree is not well known, for during the present season I have had many flowers of it sent for name. When at the famous Knap Hill Nursery of Mr. Waterer last week this yellow-flowered, scarlet-leaved or sweet Horse Chestnut (it is known under all these names, but it certainly merits the above) was in its full beauty, several excellent examples of from 20 feet to 30 feet in height, and half as much in spread of branches, being very conspicuous by the great wealth of yellow flowers with which each branchlet was tipped. But not only for its pretty yellow flowers is this Horse Chestnut valuable, for the leaves, at the branch tips particularly, change in autumn to a rich deep scarlet, and at that time when set off by the deep greenery of those behind, for all the leaves do not seem to put on this scarlet garb, but only those at the points of the branches, few trees have a more decided or attractive appearance.

It is a great pity that so distinct and desirable a hardy tree as this Chestnut is should not find fitting situations in more of our gardens and grounds than it does at present, but I need not hesitate to prophesy that in a few years when better known it will be widely appreciated. From observations of different specimens on various estates throughout the country, I do not think that this little-known Horse Chestnut is one whit harder to manage or less accommodating in any way than the well-known and typical tree, for it seems to grow rapidly, and shows no great preference for any particular soil. Of course it never attains to anything approaching the size of the common Horse Chestnut, but it grows vigorously and has a hardy constitution. Of North American origin and introduced since 1764, it may seem to be somewhat against this pretty tree that it is not better known or more widely cultivated than at present; but, in my own opinion, non-attention is more to be attributed to want of a general knowledge of its beauty and hardihood than to any difficulty in its cultivation. The flowers are produced much in the way of those of the common Horse Chestnut, but in colour they are of a soft shade of yellow, and are of good substance, remaining in excellent condition on the tree for a considerable length of time. The yellow-flowered Horse Chestnut may be described as well rounded in general outline, for it grows wide in proportion to the height, is well and thickly furnished with branches and leaves, and is in all respects a valuable tree for planting either singly on the lawn or along the margins of plantations.

Let us hope that before long many more specimens of this handsome and peculiarly distinct small-growing tree may be found scattered about over our parks and grounds than there are at present, for amongst our commonly cultivated park trees there are fully half a hundred whose merits in an ornamental way come far short of those of the scarlet-leaved Horse Chestnut.

A. D. WEBSTER.

Cratægus Carrieri.—This Thorn is of garden origin and is said to be a seedling from *C. mexicana*, but it certainly bears a greater resemblance to the Cockspur section than it does to the Mexican species. It forms a bold-growing tree, with large

deep green leaves, very glossy on the upper surface, and flowers freely in even a small state. The individual blooms are large, pure white when first expanded, except a pink flush in the centre, which extends over the whole of the petals before they drop. The fruit is said to resemble small Cherries and is of a bright red colour.—T.

OLEARIA GUNNI.

THIS is earlier in flowering than its better-known relative *Olearia Haasti*, and as it appears to be at least nearly as hardy as that beautiful shrub it is worthy of a place amongst the most select Evergreens, for the blossoms are produced just as the majority of spring-flowering shrubs are over, and are, consequently, especially valuable. It is a native of Tasmania, and, in common with most plants from that region, was at one time considered tender, except under very favourable conditions, which can scarcely be said to exist on the slopes of Coombe Wood, where it succeeds so well. *O. Gunni* forms a free-growing, much-branched bush, clothed with small, rather hoary leaves, and bears a great profusion of white, star-shaped blossoms, which are about an inch in diameter. The flowers are borne along a considerable length of the branches, so that when in full bloom a good specimen of this *Olearia* is quite a mass of its Daisy-like flowers. Where not quite hardy it forms a good wall plant, and is besides very suitable for a cool greenhouse or conservatory, especially in a structure from which it is only possible to just exclude the frost. *O. Haasti* is a native of New Zealand, and though introduced about thirty years ago was but little known till within the last few years, when it was found to be perfectly hardy, and as it does not flower till after midsummer, it soon became a popular shrub. This *Olearia* is a neat, compact-growing bush, clothed with dark green, Box-like leaves, and produces a great quantity of its white, star-like blossoms. Irrespective of the flowers, it is a neat evergreen shrub, and the fact that it thrives well where fully exposed to the sea is a great point in its favour. Singularly enough, it also does better within the smoke of London than many other Evergreens. A third species of *Olearia* is the New Zealand *O. dentata* or *macrodonata*, the foliage of which is Holly-like, and on the underside clothed with a whitish tomentum. The individual flowers are small, but borne in dense flat corymbs, so that collectively they make a good show. The foliage of this smells somewhat of musk, though less pronounced than in that of the more tender *O. argophylla*, better known under the generic name of *Eurybia*. There are many other species of *Olearia*, some of them, perhaps, as hardy as those above described, but the three mentioned are certainly among the best. Their propagation is by no means difficult, as cuttings formed of the current season's shoots taken when they are about half ripened will strike root readily enough if dibbled into pots or pans of sandy soil, or they may be put in a sheltered border and covered with a handlight or some other protection. T.

SHORT NOTES.—TREES AND SHRUBS.

Ivy Gold Cloud.—At the present time this variety of Ivy is very showy owing to the variation in the colour of its leaves, some being of a pure gold colour, some marbled, others pale yellow, while many are quite green. All these vagaries occur on one plant, which is growing at the east side of a dwelling-house in this neighbourhood. This Ivy grows quickly.—SOUTH HANES.

Purple-leaved Barberry.—Apart from its rich golden flowers, this is one of the best purple-leaved shrubs we possess, that is, if planted in a suitable position, for if in too rich a soil or too shaded a spot, the foliage becomes of a rusty rather than a purple hue. But in sandy or gravelly soils, and where fully exposed to the sun's rays, it assumes a rich purple colour, which is retained till the fall of the leaf.

The Manna Ash (*Fraxinus ornus*).—This uncommon and pretty tree is again in full flower, and well it looks, the rich and large masses of greenish white flowers being set off by the emerald-green foliage. Last year I hinted that the Manna

Ash might surely be propagated from cuttings, but I find I am rather in the wrong, for out of a goodly number inserted very few have taken. Probably grafting must be resorted to, for no seeds have as yet been produced on the Holwood specimen. Altogether the Flowering Ash is a tree of which we can hardly have too much, for its neat habit and great abundance of flowers attract the notice of everyone who sees the tree when in full bloom.—A. D. WEBSTER.

The Guelder Rose (*Viburnum Opulus*).—I am not now referring to the commonly-cultivated Guelder Rose with large globular flowers, but to our native wilding, which in many a Kentish copse and woodland is one of our prettiest and handsomest native or exotic shrubs. It is very unusual for a specimen of nearly 20 feet in height, and fully half as much in diameter of spread of branches, to be seen. Such, however, is now in full bloom within a couple of yards of one of the Holwood ponds. Plenty of room for development and a good rich soil are the main factors which produced so fine a specimen. But not only for its free-flowering qualities is the Guelder Rose one of the choicest of shrubs; but also, on account of the myriads of shining blackish red berries with which each branch tip is literally loaded, this shrub deserves a special word of praise. Last autumn the same plant was simply a mass of glittering berries.—A. D. W.

Pernettyas on the clay.—These beautiful low-growing shrubs just now are more densely flowered than I have seen them for some years past, but whether, like our fruit trees, they will fail to set their fruit remains to be seen later on. I have not planted any of the new hybrids, which I know are a great acquisition, but strongly advise planters to introduce as extensively as possible not only the new, but also the old ones, wherever space along the margins of shrubberies offers facilities for their naturalisation. This, perhaps, is hardly the correct term, and yet, like the majority of our hardy trailing and creeping shrubs, they improve with age and do not develop their true character until they commence forcing their young shoots through the gravel walks, and strive, not always unsuccessfully, to hug and smother to death Hollies and other strong-growing shrubs which interfere with their progress. The flowers alone of *P. mucronata* and *P. angustifolia*, so daintily mounted on bright dark diminutive leaves, entitle them to a place in every garden and shrubbery. But these comprise only half their beauty, as they carry a profusion of the most charming berries, about the size of those of the Holly, from October onwards through the winter. Indeed, so beautiful are these and so useful for room decoration that the birds even seem to admire and give them a wide berth until quite late in the season. For distinct clumps, again, they are invaluable, for, much as they spread laterally, they never become too high; neither do they soon grow bare and untidy. All the *Pernettyas*, I believe, are considered bog plants, and doubtless they grow best in peat or loam free from an excess of lime; but, like the *Rhododendron*, they are by no means fastidious, as I have at this place very large clumps growing and doing splendidly in a stiff limestone marl. These clumps, facing up a group of golden and variegated Hollies, when planted more than twenty years ago had a few spadefuls of light boggy loam to give them a start, and nothing, not even a drop of water has been given to them since; indeed, so rich and rampant are they that I have decided upon changing the course of a gravel walk to give them more room. Whoever is in doubt as to what he shall plant in the pinetum, or indeed in any part of his grounds, may set his mind at rest by choosing any of the *Pernettyas*.—W. COLEMAN.

Woodlice in peat Moss.—Will any reader of THE GARDEN inform me if German peat Moss is a producer of or contains woodlice, as I have more here than I ever saw anywhere else? I opened a bundle of peat Moss one day and found inside of it quite a large double handful of woodlice. I think they must come from the Moss, as I found some no larger than ants

and others full grown. I shall feel obliged if any reader will give me his experience in this respect.—A. W.

ORCHIDS.

W. H. GOWER.

ONCIDIUM HEMATOCHILUM.

THIS beautiful species has long been known in our gardens, having been introduced into this country in a living state nearly fifty years ago. It has always been one of the rarest, and it still remains so, but it is one of the most superb of the genus. I have seen this plant at very rare intervals a few times only during the past thirty years. I was, therefore, highly gratified recently to observe several fine examples flowering in Mr. Sander's collection at St. Albans, and I here wish to draw the attention of all readers of THE GARDEN to its great beauties and desirable qualities. The plant in question is a native of New Grenada, but I do not think it occurs at any great elevation, as under cultivation it thrives best in the warmth of the *Cattleya* or intermediate house. It belongs to the *luridum* section. *O. luridum*, however, in its typical state is anything but a showy or attractive plant, and therefore this relationship will not give the plant now under consideration any helping hand. Even amongst the varieties of the somewhat despised *O. luridum*, however, are to be found some highly desirable and beautiful forms, and I would strongly advise anyone coming into possession of any of this section of the genus to flower them before they are discarded.

Oncidium hematochilum produces very small pseudo-bulbs, and the leaves are large, solitary, keeled behind, and channelled in front. The leaves are deep green in colour, and over the whole surface they are thickly dotted with red. The scape is radical, from 2 feet to 3 feet or more high, much-branched and many-flowered. The flowers are spreading, about $1\frac{1}{2}$ inches across, and very showy. Sepals and petals nearly equal, the ground colour greenish yellow, profusely blotched and spotted with bright brown; lip clawed at the base, the front being of a rich reddish crimson, the margin yellow, more or less spotted with rosy crimson; the crest is large and conspicuous, being fleshy in texture, and with the claw of a deep magenta, the wings of the column being of the same beautiful hue. A panicle of these flowers is very attractive, especially as from forty to fifty are borne together, and when the plant is strong and with several leading shoots several spikes may be expected from the same specimen, whilst, independent of the superb effect produced in the plant house, the branches, when cut and placed in water, are very effective when arranged with Ferns and a few other flowers about equal in size. As I have before remarked, the plant thrives best in the temperature of the *Cattleya* house, and I prefer the hanging-basket system of culture for it. Under this system thorough drainage can be readily secured, whilst it should be planted in good fibrous, upland peat and Sphagnum Moss. Treated thus it can be well exposed to the light, but although its leaves are so thick and fleshy, the plant cannot withstand full exposure to the sunshine; therefore, when the full sun is shining, the plant must be lightly shaded. At all times it enjoys plenty of air. The atmosphere should be well charged with moisture during the summer months, and the plant also enjoys a liberal supply to its roots, which, however, must pass away quickly, and during the winter season a moderate supply is necessary to save the leaves from shrivelling, which, from the absence of

pseudo-bulbs, they are very apt to do if allowed to remain dry any length of time. If the leaves are allowed to shrivel the plant is very much weakened.

Cattleya Bluntii.—This beautiful pure white *Cattleya* is now flowering with Mr. Horsman, of Colchester, along with various other forms of great beauty, most conspicuous being a form of *C. Mossii* named Mr. Taylor's variety. It is beautifully and brilliantly marked, and is a distinct and very superior variety. It is wonderful how these plants appear to vary.

Oncidium nigratum.—This is a very pretty small-flowered species from Guiana, and one that is seldom seen. We recently noted a nice form of this plant producing long branched panicles of its distinct blooms. The sepals and petals are long and narrow, white, transversely banded with blackish brown; the triangular lip yellow, tipped with white, across which is a streak of brown, the fleshy crest dotted with red. It is a cheerful and desirable plant, requiring the intermediate house.

Epidendrum bicornutum.—The finest spike of this species which we have ever seen comes from Mr. Gregory, The Gardens, Birdhurst, South Croydon; the spike in question was upwards of $2\frac{1}{2}$ feet long, and had borne twenty-four flowers, the blooms ivory white, saving the base of the lip which is freckled with purple dots. It is one of the most difficult plants to maintain in good condition, but its beauty renders it worthy of any labour which may be bestowed upon it. It enjoys strong heat and moisture, full exposure to the sun, and a free circulation of air, but very little potting material about its roots.

Oncidium carthaginense.—This is an old species in our gardens, having been grown by the Messrs. Loddiges in their once famous nursery at Hackney, by whom it is recorded as having been introduced in 1791, and I recently noted it flowering in great beauty in Messrs. Sander's nursery at St. Albans. I have frequently had the species, which has the habit of *O. luridum*; its spikes are erect, much branched, and many-flowered; sepals and petals white, marked transversely with bands of bright brown; lip bright red, bearing on the disc a warty excrescence of a rosy hue, behind which is a tinge of yellow; the column is winged, the wings white tinged with rose. It is a highly desirable species even amongst such a lot of newer kinds as we have now in the Orchid world.—G.

Dendrobium Stratiotes.—This is a grand and rare species. Some flowers of it have just arrived from Mr. J. Jones, gardener at Dunedin, Streatham Hill, the residence of Mr. Sherwood, and it is certainly by far the best form of the species which I have yet seen. This species was introduced by M. Linden, of Brussels, some four or five years ago from New Guinea, and up to the present its flowers have usually appeared in the late summer and autumn, but we have as yet seen so little of the species that its true flowering season cannot be exactly defined. Mr. Jones says: "The plant appears to grow well with me, and it has three spikes of bloom, one with three, one with six, and the third bears eight, so that altogether the plant bears seventeen chastely beautiful flowers." The flowers are large, sepals about equal of the purest white, ending in a funnel-shaped spur, which is curved upwards; petals much longer than the sepals, erect, twisted, white at the base, passing into greenish white upwards; side lobes large, spreading outwards, white, thickly streaked with forked lines of magenta, which end below the edge, leaving a marginal border of white; middle lobe large, flat, pure white, and beautifully netted with broad veins of magenta. It is a superb variety of a magnificent species, and one that I hope to see more frequently. Being a native of a hot district, this plant appears to enjoy strong heat and moisture, and full exposure to the sun.—W.

Cypripedium Stonei.—Flowers of a very fine form of this beautiful species come from Mr. Hills, gardener at East Cowes Castle, Isle of Wight. It is a beautiful species, which first flowered in the late

Mr. Day's collection in 1861, and it was named by the desire of the Messrs. Low, its original importers, in honour of Mr. Stone, the grower of the plants in the Tottenham collection. The original plant, however, figured by Hooker has the inner side of the sepals pure white, and not, as in the plant before me, with two broad lines of deep chocolate on each side of the centre, the lower sepals being also striped with the same colour. Forms with these markings indeed are more familiar than the pure white ones. The lip, as Hooker aptly remarks, is shaped like a Turkish slipper, white, beautifully netted inside with veins of red, which show through to the exterior. The whole upper surface on the exterior is covered with a reddish pink hue, deeper in Mr. Hill's plant than is usual. All the plants of this section appear to be difficult to establish when first introduced, but they are worthy of every attention.

THE CHELTENHAM ORCHIDS.

THERE are always a considerable number of Orchids in flower wherever a well varied and fairly extensive collection is grown, but the most gorgeous and the most generally interesting displays are to be seen in May and June. My visit to Mr. J. Cypher's, Queen's Road Nurseries, Cheltenham, was well timed, and a rare treat was experienced. Not only was the show house a grand sight, but in numerous other houses devoted exclusively to Orchids there was much to see and admire. When all are in a clean and healthy state, as at Cheltenham, even those Orchids not in flower are by no means so unsightly or unattractive as many would have us believe, while those who are enthusiasts pick up many useful hints in their rounds through an Orchid nursery.

Lælia purpurata, a deservedly popular species, is extensively grown by Mr. Cypher, and I was just in time to see a fine batch in full flower before they were sent away. The collection includes several grand forms, but as there is a great demand for large specimens, I was not surprised to see fewer than usual. There were several with twelve or more flowers open, and no Orchid shows up more effectively. *Lælia purpurata* Russelliana is quite distinct from the type, and the stock is much valued. This also varies considerably, some being richly coloured and others very pale or nearly white. These *Lælias* make a fine background for the *Cattleyas* in front or grouped with them. Of the latter I noticed large numbers, moderately large, and either beautifully in flower or on the point of opening. The comparatively early flowering *C. Trianae* section includes several forms with fine bold flowers and richly coloured lips, which are far from being eclipsed by the beautiful *C. Mossiæ*. Of the latter Mr. Cypher has a grand lot in flower or opening, some of the forms being indescribably beautiful. The majority are in pots, but a few on blocks and short lengths of tree stems were nearly as strong and flowering freely. It was rather too early for *Cattleya Mendeli*, but those in flower were remarkable for their great size and substance and bright colours of the lip. Fresh importations of all the preceding bring to light several extra good and valuable forms, and most of the best at Cheltenham were obtained in that way. *Cattleya Skinneri* is both very distinct and beautiful, this desirable species being at its best in May. One specimen had twelve spikes, each with eight or more flowers. Various other plants were flowering well. *Cattleya Skinneri oculata* has larger flowers than the type, and these are also deeper in colour, thereby rendering it decidedly superior and valuable. *Cattleya citrina*, of which there is a large and very healthy stock, was flowering freely, and its comparatively large, rich yellow flowers are very attractive. The majority of the plants are on boards and rafts, the former especially suiting it much better than baskets.

Dendrobiums are quite a speciality with Mr. Cypher. The greater portion of them are, taking the size of the plants into consideration, in surprisingly small pots or pans, and this should be made a note of, as overpotting is a frequent cause of failure in private gardens. It is very little rough

Orchid compost they require, and this should be as sweet as possible. During the growing season nearly all the species are suspended near the glass in a brisk temperature and moist atmosphere and kept well supplied with water. When their growths are fully matured they are well exposed to the light and sunshine and kept much drier, or in some instances, notably in the case of deciduous varieties, are literally baked. At the time of my visit *Dendrobium thyrsiflorum* was very beautiful, as may be readily imagined, when it is stated plenty of the pendulous spikes were 12 inches long and not less than 5 inches through. The best plant had seven such grand clusters, and other comparatively small plants were equally as well flowered. *D. densiflorum* was also plentiful, one specimen having fifteen fine spikes of its rich deep yellow flowers. The tall-growing *D. Dalhousianum* is kept on the centre of a high stage, and the plants will soon be at their best. One fine plant had growths about 7 feet in length and was furnished with twenty spikes of bloom. These long pendulous spikes of fairly large pale yellow flowers are very attractive, but unfortunately are not durable. A fine lot of *D. Jamesianum* were to be seen in the show and other houses, and this may be classed as one of the most serviceable Orchids in cultivation. *D. Bensoniæ* is quite a gem, and a beautiful display the stock makes in May and June. Most of the plants are in 3-inch pans, and the stout pseudo-bulbs on these are quite covered with attractive flowers. There are three or more distinct forms, one being named *D. Bensoniæ album*. *D. Freemani* is not so showy, but belongs rather to the delicately pretty section. A plant in a 4-inch pan had one growth 18 inches long and covered with flowers throughout its length. *D. litiflorum* forms thin pendulous growth, and this rather delicate variety produces very attractive flowers. *D. Devonianum* well grown is very beautiful. One specimen in a 6-inch pot was furnished with twenty-two growths, each from 3 feet to 4 feet in length, these on an average bearing each four dozen flowers. A good piece of *D. suavisimum*, well established on a short length of stem of old Tree Fern, had thirteen strong spikes, and other plants of this beautiful species were flowering freely. Other *Dendrobies* in flower were tortile roseum, nobile, Parishii, Falconeri, superbiens, eburneum, cretaceum, and chrysotoxum.

Masdevallias will soon be quite a feature, some of the species being very showy and several more quaint than beautiful. Among the former the best in flower were *M. Harryana* (Bull's Blood variety), *Veitchiana*, *ignea* and *Lindeni*, and of the latter *M. Shuttleworthii*, *Schlimi*, *tortilis*, *Chimæra*, *radiosa* and *Roezli* were noteworthy. All the *Masdevallias* are found to succeed best in a lean-to house facing north-west and an intermediate temperature. The beautiful and very serviceable *Epidendrum vitellinum majus* is most at home in the same house, and a large batch is grown. *Odontoglossums*, though largely cultivated, were not much in flower, but the pendulous and very attractive *O. citrosum* was well represented, and the new and distinct *O. Harryanum* was showing bloom. A few plants of *O. vexillarium*, *Alexandreæ*, *Pescatorei*, and *Rossi majus* were flowering strongly.

Cypripediums were well represented, quite large batches of some of the species being grown. *C. bellatulum* just now attracts most attention. Evidently it is the best of the *C. niveum* section, and is a quaint, yet beautiful species. It blooms freely, and the flowers last well. Some of the imported plants show a considerable advance on the original introduction, and good cultivation will still further improve them. It quite eclipses *C. Godefroyæ*, which it somewhat resembles, while *C. Regneri* is rightly considered an improvement on *C. niveum*. I counted thirty strong blooms on one mass of *C. barbatum*, and several strong pieces of *C. Lawrenceanum* would soon be at their best. Other *Cypripediums* in flower were *Swannianum*, *grande*, *Parishii*, *Stonci*, *biflorum*, *vernixium*, *Dominianum*, *Roezli*, *hirsutissimum*, *lævigatum* and *barbatum grandiflorum*.

Vandas are in luxuriant health and are grown principally in pots on stages, and are given rather

less heat than *Cattleyas* receive. If kept in a higher temperature they grow strongly, but are shy-flowering. *Vanda suavis* is very beautiful, the Heaton Park variety being especially good. *Vanda tricolor* was also well represented, and both species retain their freshness several weeks. The *Aerides* and *Saccolabiums*, a considerable number of which are showing spikes, also succeed well with the *Vandas*. A comparatively small plant of *Aerides Lobbi* had two strong branching spikes, and *Saccolabium Blumei* always flowers well at Cheltenham. *Cymbidium Lowianum* is a noble Orchid, and not at all difficult to grow. I noticed that the strongest plant in the show house was carrying six long spikes. *Calanthe veratrifolia* is both a distinct and beautiful species. It throws up strong erect spikes of small pure white flowers and remains serviceable for many weeks. The *Phalænopsids* are suspended near the roof at the shady end of a well heated house, where there is always plenty of moisture in the air, and they evidently like the position. *P. violacea* and *P. grandiflora* were the only species in flower. *Oncidium concolor* deserves mention as being a very pretty species, and *Trichopilia suavis grandiflora*, though it does not long retain its freshness, is well worthy of cultivation. I.

ORCHIDS IN FLOWER AT ST. ALBANS.

THE Orchids in Mr. Sander's establishment just now are simply magnificent, and never before has such an enormous quantity been seen together. Take, for instance, the beautiful and chaste *Odontoglossum Alexandreæ* seen in such quantities. Fancy 7000 spikes of this species open at once! Such a sight has never before been seen in Europe. There were hundreds of the most exquisite forms and I did not see a bad one. Mr. Sander's collectors have decidedly come across some grand types of this species. Again, in the *Cattleya* houses were thousands of flowers of the various kinds, *Mossiæ*, *Gaskelliana*, and *Mendeli* being the most plentiful. Amongst these were some very fine varieties. Independent of the flowers of these *Cattleyas*, I must say a word respecting the plants. I have heard it remarked that the St. Albans specimens had no roots, but this must have been an observation made by those who obtained newly imported plants, for no one can truthfully make this assertion of plants which have passed twelve months in the establishment, for at the present moment the plants are a mass of growing roots inside and outside the pots; in fact, never in my life have I ever seen *Cattleyas* with such masses of roots. It is not one plant alone, but hundreds and thousands of plants are in a similar condition. The show of *Odontoglossum vexillarium* is very grand, and I should be afraid to say how many thousands of plants are now flowering, and all of the best types.

Amongst other things in bloom now, the following are specially noticeable, although it is quite beyond one's space to notice a host of splendid things. *Lælia purpurata* is flowering in profusion, and amongst them are some superb varieties, and one in particular, with the largest and darkest lip I have ever seen. Hundreds of the beautiful and elegant *Angræcum Sanderianum* are flowering, and no one who has not seen this species in quantity can have the slightest conception of its beauty. Amongst the specimens of *Oncidium macranthum* was one bearing seventy-four expanded flowers. *Cypripediums* were in abundance; amongst them were quantities of the superb variety of *Curtisi*, recently introduced by this firm; fine examples of superbiens, grand varieties of *Dayanum* and *barbatum*; masses of the *Selenipediums*, strong forms of *Stonci*, *philippinense*, *Hookeri*, *Io*, and many others; *Odontoglossum Harryanum*, *Dendrobium dixanthum*, *Anguloa Ruckeri sanguinea*, *Dendrobium Dearei*, *Ada aurantiaca*, whose beautiful and distinct colour renders it so conspicuous, and quite an army of *Masdevallias*. I am sure our Orchid growers are showing good taste in again taking these plants under their care; they flower so profusely, and the colours are so exquisitely gorgeous that they are a host in themselves.

Large strong masses of *Angræcum Scottianum* are quite a display in themselves, the large ivory

white lip and long spur under it being very distinct. Other plants in lesser quantities were Cattleya Wageri, the pure white flowers, with a stain of yellow in the lip, being very effective; Cattleya Brymeriana is also a superb plant, very rich in colour. The Flor de Mayo (*Laelia majalis*), one of the most beautiful of the Mexican species, but which appears to be one of the most difficult for the amateur grower to bloom, does splendidly here. These and many *Aerides*, *Vandas*, *Dendrobiums* in quantity and variety, and *Sobralias*, besides a hundred other things, form such a picture as I am sure has never been equalled in Europe, and yet there is no attempt at an exhibition. The plants all stand in the positions in which they have been grown. There is no confusion and no crowding, and yet so grand that one must see them to realise the enormous quantity of plants here gathered together and the immense number that are displaying their chaste and beautiful flowers.

W. H. G.

SHORT NOTES.—ORCHIDS.

Cypripedium Sanderianum.—This is a remarkable and beautiful species, introduced first by Mr. Sander, and afterwards in quantity by the Messrs. Low, of Clapton, where established plants are now to be seen in flower. Its habitat has not been disclosed, but it is of Eastern origin. It is one of the long-petalled forms which cannot be mistaken for any other kind, numerous as this genus now is.

Lissochilus Krebsi.—This South African Orchid does far better planted out than in a pot. In the Cactus house at Kew it is growing in a bed of loamy soil, which is kept moderately moist, and the vigour of the foliage shows that the treatment is correct. The plants are flowering well, and though not strikingly handsome are pretty with their brownish red sepals and yellow petals and lip.

Cypripedium insigne in summer.—Mr. Cypher, of Cheltenham, places this Orchid in a cold frame as soon as it has completed its growth in summer. Following his system, I do the same with my plants, and I have just placed four plants that are a yard in diameter each in a cold frame. The plants will be shaded a little at first, but this will be gradually withdrawn until they are fully exposed to the sun in August. Although some of the plants produced over 100 blooms last October, I have no doubt this number will be exceeded in the autumn.—J. MUIR.

Dendrobium Streblceras.—From Mr. Fraser, gardener to Mr. White, of Arddarroch, comes a spike of bloom of this *Dendro* with the crumpled petals, and which from its resemblance in growth and coming from the same district as *D. Stratiotes*, was thought likely to prove a fine species. As it has hitherto been seen, however, it is, like the specimen before me, not remarkable for beauty, being brown, or yellowish brown, with distinct lines or nerves of brown; lip small, pale yellow, streaked with fine raised lines of dull purple. There may yet be some pretty forms of this plant introduced. I believe there is a white form in the Burford Lodge collection.—W. H. G.

Dendrobium nobile.—Respecting the curious growth mentioned by Greenwood Pim (GARDEN, June 8), I have a plant with the same characteristics. It is growing in an 8-inch pot, and has some strong pseudo-bulbs, which during March flowered very freely. At the second leaf-joint growth in three of the pseudo-bulbs roots were produced. No. 1 had four flowers, all deformed in the lip; No. 2 bore three flowers, one a large and well-developed bloom, the other deformed as before; No. 3 carried five flowers, four deformed, and one with almost a red lip. I believe the malformation to be caused by the lip of the unfolded flower being compressed against the stem under the leaf in its immature state. The plant has not been pruned in any way. Perhaps other readers will give their experience.—R. V. SMITH, *Margery Hall Gardens, Reigate.*

An Orchid chief.—I cannot quite agree with the editorial remarks on page 567 in your last issue of THE GARDEN. What Orchid men do think is that for years Orchids have been put on one side by the horticultural leaders, and they are equally as much entitled to a society devoted to their interests as many of the other Orders of plants, whilst if a thought is given to the money lying and expended in this Order, their claims will far exceed all the others combined. Orchid men, therefore,

deserve a good leader, which they had when Lindley was connected with the Horticultural Society. At his death the Orchid world accepted Reichenbach, and he worked for all the world honourably and well. He has joined the majority; we want another. Who is he to be? Government servants I do not consider available; their time is bargained for and paid for out of the public funds, and their leisure is all that could be devoted to general subjects for the general public, and the Royal Horticultural Society should now establish the Orchid growers in a firm position, independent of any clique or partisanship. If they do this the society will become greatly strengthened, for the Orchid fraternity is large and influential.—W. H. G.

It is surely monstrous to speak of Orchid culture as in the lines we print in italics! The capital, large as it is, is very far from equalling that which the flower and pleasure gardens of the country have cost. Up to the present time, flower gardening has generally been done for its own sake, and if we notice any difference in this of late years, it is among Orchid growers. But money invested in anything is not a reason why a society having some pretensions to science and philanthropy should go out of its way to serve any one order of plants. No growers are so apt to value a thing, not for its intrinsic beauty, but for what it has cost.—ED.

FERNS.

W. H. GOWER.

DICTYOXIPHIMUM PANAMENSE.

THIS has always been a scarce Fern, and at the present time I believe it to be very rare. The other day, however, I saw a nice example of this species which leads me to hope that it again will be sought after by Fern growers, for although it does not possess either grace or elegance in outline, being a simple fronded species, it yet contrasts well with other kinds with more divided fronds, whilst the rich bright green of its fronds is always pleasing. It is the only species, and it also bears the name of *Amphiblestra simplex*, which, however, is rarely used. It is said to have been originally found by Cuming in the neighbourhood of Panama, and afterwards by Purdie in the States of Colombia, but I do not think it grows at any great elevation, as I have always found it succeed best when grown in the hottest stove, treated to shade and an abundance of water. It is a plant with an erect caudex, and if treated as noted above it bears quite a number of fronds, which, being of a bright shining green, form a pleasing addition to the diversified shades prevalent in a fernery, and thus introduce a variety which I am fully persuaded must be done before these structures can again become as popular as they formerly were. The fronds are erect, quite entire, and are said to each attain a height of about 3 feet. If such is the case it must be a noble Fern, but I cannot recollect to have ever seen a frond more than about 18 inches high, at which height it is about 1½ inches wide. The fronds are broadest in the middle, the mid-rib being stout and prominent throughout its entire length. In some instances the fertile fronds are considerably narrower than the barren ones; but I have frequently seen fertile fronds by no means curtailed in their proportions. The fronds are arranged in a vasiiform manner, and, as before remarked, their pleasing shade of green renders them very effective. I should be glad to hear from any reader of THE GARDEN who may happen to have this plant with fronds 3 feet in length.

This plant is placed with *Lindsaea*, to which it bears some affinity by its marginal indusium, but its general habit of growth renders it very distinct from that genus. As before remarked, this plant enjoys strong heat, shade, and mois-

ture, and it should be potted in loam, peat, and old mortar rubbish in about equal parts. Treated in this manner I have found it grow strongly and carry the largest head of fronds, which is certainly of consequence, as they give the plant a much better appearance. It is now some ten years since I grew this plant, which was in the nurseries of the Messrs. Rollisson at Tooting, and the last trade establishment where I saw the species in any quantity.

Ferns for market.—One of the great specialties in the nursery of Messrs. Hawkins and Bennett at Twickenham is the large batches of *Adiantum cuneatum*, the most useful of all Ferns for pot culture or for cutting. There are hundreds of specimens in all stages of development, from the smallest seedlings to those as much as 4 feet across. We remember a specimen shown by Messrs. Hawkins and Bennett a few years ago that was over 5 feet across, and several in their nursery at the present time approach the breadth of that plant. Very little shading is given, and only then when the sun is very powerful and the plants have been newly potted. It is found that dense shade weakens the plants, and fails to give the fronds that richness and hardness so necessary when they are used for associating with flowers. The notion that the glass must be as green as grass for Ferns has almost died out. Still we see remnants of a past fashion, and one of the most conspicuous places is in the Royal Gardens, Kew, where the green-coloured glass still remains as it was years ago. It is impossible to enjoy the beauty of Ferns under such an unpleasant covering.

PROPAGATING.

ACALYPHAS.—These are easily grown, and when well coloured are very effective. They should be propagated annually, selecting cuttings from fairly strong-growing shoots. These will root freely in the stove propagating pit, and it is best to put them in singly into small pots, using light peaty soil, with plenty of sharp sand. As soon as the cuttings have struck root they should be gradually exposed, and by the time they are hardened off they will be ready for potting on. *Acalyphas* succeed well in loam, peat, and leaf-mould, and a little well rotted manure. The compost should be used rough and the plants not be potted very firmly. To secure good colour in the foliage the plants must be grown in a light open position, but care must be taken that the atmosphere is not too dry or red spider will be very destructive. *A. musaica* is perhaps the most useful. *A. Wilkesiana* (tricolor) is very bright and showy, and *A. macrophylla* is another good species.

REIDIA GLAUCESCENS.—Cuttings of this plant struck early in the season soon make good specimens. Plants that have lost their bottom leaves may be topped, or plants which have previously been stopped will produce side shoots, which will make good cuttings. The cuttings should be taken off close to the old wood, or where the tops are taken the plants should be cut down to where the wood is firm. The cuttings should be put in singly into small pots, using light peaty soil, which should be pressed firm. If placed in the close propagating case where there is a good bottom heat they will not be long in forming roots. The plants should be grown on in the warm part of the stove, and they like rather a shady position, but should not be crowded up under other plants. When well grown they form symmetrical little plants, the horizontal branches having the appearance of long pinnate leaves. When well covered with the tiny flowers they are very interesting.

XYLOPHYLLA ANGUSTIFOLIA.—This is nearly allied to the above, and is a very interesting plant, but not quite so readily propagated as the *Reidia*. The cuttings may be treated similarly to those of the *Reidia*, but will be longer in forming roots, and, therefore, require more attention while in the propagating pit. The plants are also of slower growth,

and require some care to become nicely established. They should be potted in rough peaty soil, using plenty of drainage, and attending carefully to the watering.

PHYLLANTHUS NIVOSUS.—This is another interesting plant belonging to the same Order. It is, however, of a distinct habit of growth, branching out freely, and forming a bushy specimen, the foliage being prettily variegated. In well-developed plants the young leaves are almost white. It may be propagated from cuttings, which should be taken from well-matured growths, and may be treated in a similar way to those of the *Xylophylla*. *P. roseo-pictus* is a pretty form with more red in the variegation. It is essential to place the plants in a good position and keep them free from insect pests. Once allow them to get into an unhealthy condition and they soon have a miserable appearance.

FIGUS PARCELLI.—This is a very pretty variegated plant, and quite distinct from the well-known *F. elastica*. It thrives well in an ordinary stove, but does not require a very high temperature. The stock may be increased either from cuttings or by grafting. Cuttings do not start away freely, but useful plants may soon be established by grafting on to the roots of *Ficus repens*. The roots should be about the same size as the scions, which may be taken from moderate-sized, fairly well-ripened wood. After the grafts are put on they should be potted, keeping them down low enough to cover the union. The plants should then be plunged in the warmest part of the propagating pit and kept close, but only given just sufficient water to keep them from withering. A.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

JUNE 19.

DELIGHTFUL summer weather favoured the last show of the season of the above society, and as regards hardy and cut flowers, fruit and miscellaneous collections, visitors must have been well satisfied with the display. Remove these and there would have been little to see, as the time has gone by for specimen plants, except Ferns, which were as good as we have seen them for some time past, and a similar remark applies to the fresh, handsome, well grown Crotons. But it is evidently of little use to trust, as in years gone by, to specimen plants for making an exhibition. Each year shows a gradual and perceptible decline in this class of plants, and therefore we happily see more hardy flowers. It would be well if more classes were provided for these and fewer for specimens, as there would not only be greater variety, but a fresher and more interesting exhibit. The large tent presented the usual appearance it has on a great show day. The colours were well distributed, and therefore rich effects were obtained without a garish admixture.

Hardy flowers were exceptionally beautiful, especially in those groups in which large masses were staged. This is the way to exhibit plants of this character to the best advantage, as in a large tent small scraps look weak and ineffective. In the class for twenty-four trusses of hardy herbaceous flowers, Messrs. Paul and Son, The Old Nurseries, Cheshunt, were first, and we have seldom seen a better selection of hardy plants from this firm. *Potentilla Mars*, a brilliant crimson double variety, shot with yellow; *Lychnis viscaria splendens plena*, the flowers rich rose, double, and closely packed on slender spikes; *Geranium platypetalum*, *G. armenum*, rich purple rose, black centre; *Cypripedium spectabile*, *Campanula glomerata dahurica* and *Clematis erecta* were the best things shown. The *Clematis* is a good hardy kind, the flowers creamy white and borne in dense bunches. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, was second, and in the collection was a splendid mass of the brilliant orange-coloured *Papaver nudicaule minimum*, one of the brightest flowers in the garden. Mr. Ware was also first for a collection of Irises, and a good series of varieties was shown, the individual flowers being also unusually fine for the year. This is not a good season for bulbous

Irises. Of the English section, *Phidias*, full rich plum-crimson; *Purity*, almost white, but with a pinkish tinge; and *Dolphin*, pure rich violet. Of the Spanish Irises, the best were *Vondel*, rich yellow; *Beets*, blue shaded with brown, rich yellow lip; *Bathurst*, yellow, limb mauve colour; and such kinds as *Mme. Chereau*, a lovely Iris, white beautifully frilled with blue. Why is the English Iris so called? It is not a native of England, neither has it, we believe, any claim to be distinguished as English any more than the Spanish Iris. Mr. Ware was also first for a collection of Lilies, and brought together an interesting series of kinds for the season. It is early yet for the Lilies, and therefore there were such kinds as *davuricum* or *umbellatum*, *Martagon*, with its white variety; *Hansoni*, a showy kind, orange spotted with crimson; and *L. Washingtonianum*, a beautiful type, the segments narrow, white and spotted with chocolate-crimson. A most extensive collection of cut hardy flowers came from Messrs. Barr and Son, Covent Garden, for which a silver medal was given. This superb group contained double *Ranunculi*, Lilies, Spanish and English Irises in excellent condition, fine spikes of *Ornithogalum pyramidale*, *Pæony Ambrose Verschaffelt*, purple-crimson; *Leoni*, pink, flaked with red occasionally; *Louis Van Houtte*, purple-crimson; all being double-flowered varieties.

Cut flowers were surprisingly good, especially the Roses, which were delightfully fresh and beautiful, so as to raise one's hopes for a good season. The dark-coloured flowers were of exquisite finish, and none more so than the old favourites, as the ever welcome *A. K. Williams*, the noble *Ulrich Brunner*, *Mme. Gabriel Luizet*, &c. The first prize for twenty-four varieties was won by Mr. B. R. Cant, Colchester, whose blooms included fine examples of *A. K. Williams*, *Ulrich Brunner*, *Duke of Edinburgh*, *Etienne Levet*, *Mme. Gabriel Luizet*, the lovely *Hon. Edith Gifford*, of the most charming pearly white colour; *Dupuy Jamain*, *General Jacqueminot*, an old favourite we are never tired of seeing; *Marie Baumann*, *Charles Lefebvre*, and *Innocente Pirola*. Messrs. Paul and Son were second. A good class was that for twelve varieties, three trusses, in which *Col. T. H. Pitt*, Turkey Court, Maidstone, was first. He had charming flowers of *Mons. E. Y. Teas*, *A. K. Williams*, and *Prince Arthur*. Mr. W. Robins, gardener to Mr. E. D. Lee, Hartwell House, Aylesbury, was second. The classes for flowers of one variety are always worth seeing, and on this occasion there was no exception to the general rule. A splendid box of *Maréchal Niel* blooms came from Mr. G. Prince, Oxford, the colour rich and uniform. Mr. Robins also exhibited this grand Rose in praiseworthy form. In the class for twelve Roses of any colour, Messrs. Keynes, Williams and Co., of Salisbury, were first, and showed a magnificent box of *Mrs. John Laing*, the flowers faultless in shape and colour, and having to perfection the rich satiny rose shading so fresh and pure. Mr. B. R. Cant was second. The Oxford grower, Mr. Prince, was first for six fine scented Roses, and as it may interest some to know the varieties, we give them here. They were *Comtesse de Nadaillac*, *Catherine Mermet*, *Innocente Pirola*, *Princess of Wales*, *Maréchal Niel*, and *Lady Mary Fitzwilliam*. A collection of Tea Roses came from Mr. B. R. Cant, in which *Mme. Cusin* was noticeable for the richness of its colour; *Mme. de Watteville*, *Innocente Pirola*, *Rubens*, *Princess Beatrice*, *Anna Ollivier* were also exceptionally good, and all these kinds when well shown are almost the perfection of Tea Roses. Mr. Wm. Rumsey, Waltham Cross, exhibited good blooms of *Comte de Raimbaud*, a rich crimson variety; *Rubens*, a lovely Tea Rose, the outer petals just tinted with the softest lemon shade, and intermingled with a salmon colour in the centre of the flower; *M. Prosper Laugier*, *Violette Bouyer*, and *Grace Darling*, a beautiful Hybrid Tea. There were some excellent displays of cut Orchids. Mr. J. Douglas, The Gardens, Great Gearies, Ilford, was first for twelve trusses of Orchids, which included several good types of *Cattleya Mossiae* and *Mendeli*. Trusses of show *Pelargoniums* from Mr. Charles Turner, Slough, and of zonal varieties from Mr. D. Phillips, Langley Broom, Slough, made bright patches of colour.

FRUIT.—We always expect a good display of fruit at the June exhibition of this society, nor were visitors disappointed on the present occasion. The Grapes were not of the usual finish, but both Peaches and Strawberries were unusually good, especially the Strawberries, which the present season has suited admirably. A good, well-assorted collection came from Mr. R. Parker, gardener to Mr. J. Corbet, Impney, Droitwich, who was first. The finest exhibit was a splendidly grown Queen Pine-apple, weighing 5½ lbs.; *Nectarine Lord Napier*, *Peach Dr. Hogg*, and *President Strawberry* were also well grown; Mr. J. Edmonds, Bestwood, Nottingham, was second. Melons were well exhibited by Mr. T. Hare, Wellingore Gardens, Grantham. He showed *Dell's Hybrid Greenflesh* and *Wellington Seedling Scarlet* in the class for one fruit of each of these sections. The Peaches shown by Mr. W. H. Diver, The Gardens, Ketton Hall, Stamford, in the class for two dishes were faultless. The varieties were *Prince Albert* and *Stirling Castle*, the fruits large and finely coloured; Mr. W. Robins was second. Mr. Hare showed the best *Nectarines*, having excellent fruits of *Violette Hative* and the *Murray* variety. Strawberries were unusually large and of excellent colour. In the class for two dishes, Mr. W. H. Diver was first, showing none too well-coloured fruits of the *British Queen* and *Lord Napier*. Mr. T. Sharp, the Royal Strawberry Gardens, Knowle Hill, Chertsey, was second. He had fruits of *Sir Joseph Paxton* and *Marguerite*, a coarse, large fruit of little beauty. Cherries were poorly represented. Mr. T. Hare had two excellent dishes of *Elton* and the *Black Circassian*. Grapes were fairly satisfactory, but many of the bunches would have better for a longer stay on the Vines. An excellent basket of *Black Hamburgh* came from Mr. J. Edmonds; and Mr. George Clinging, Morden Park Gardens, Caterham Valley, also exhibited well in this class. *Muscat of Alexandria* was presented in first-rate condition by Mr. P. Feist, gardener to Mr. R. J. Ashton, Bishopsgate House, Staines, Mr. Geo. Clinging showing creditable clusters of *Foster's Seedling*. The still unbeaten *Black Hamburgh* was well exhibited by Mr. J. Edmonds in the class for this, the berries large, finely coloured, and the bunches well finished. In the class for three bunches, any other than *Black Hamburgh*, Mr. G. Thompson, gardener to Messrs. W. & E. Wells, Hounslow, had excellent bunches of *Madresfield Court*, but the bunches shown by other exhibitors were sadly wanting in colour; Mr. Geo. Clinging was second. Mr. P. Feist exhibited *Muscat of Alexandria* as it ought to be, except that the bunches were not properly ripened. It is a pity to cut good bunches when they are about three parts ripe. Mr. T. Osman, gardener to Mr. L. J. Baker, Ottershaw Park Gardens, Chertsey, had good clusters of *Buckland Sweetwater* in the class for white Grapes.

Ferns and fine-foliaged plants call for little comment. Mr. A. Offer, gardener to Mr. J. Warren, Handcross Park, Crawley, had excellent Crotons, and was the chief prize-winner throughout. His six specimens of variegated plants were exceedingly well grown, especially *Alocasia macrorrhiza variegata* and *Croton revolutum*. In the nurserymen's class, Mr. Henry James, Castle Nursery, Norwood was a frequent prize-winner.

Pelargoniums of various kinds were full of flower, and Mr. D. Phillips, Langley Broom, Slough, was the principal exhibitor. He was first in the majority of classes provided for these. Mr. H. Eason, gardener to Mr. B. Noakes, Hope Cottage, Highgate, showed the best zonal varieties, *Plutarch*, *Lady Chesterfield*, *Edith Pearson*, and *Atlas* being the chief kinds. Mr. Charles Turner, of Slough, was first in the nurserymen's class for show and fancy varieties.

Orchids were better shown this time than last. A very fine miscellaneous group came from Mr. G. T. White, Winchmore Hill, comprising a rich series of *Cattleya Mossiae*, *Mendeli*, and *Lelia purpurata*. One form of *C. Mossiae* named *G. T. White* calls for mention. The flower is pure white, except the fringed lip, which is sulphur-yellow at the entrance to the throat, and there is a distinct soft

lilac suffusion on the front (silver medal). In the competitive classes Mr. Howard, gardener to Mr. H. Little, was first for a collection of remarkably well-grown and selected plants. There were good plants of *Cattleya Mossiae*, Mendeli, *Dendrobium thyrsiflorum*, *Lælia purpurata*, *Cypripedium levigatum*, and C. Mendeli Miss Little, a well-shaped flower of the purest white, except for a yellow shading at the entrance to the lip and a rose-magenta tint in the front. In the nurserymen's class for twelve Orchids, Mr. Henry James was first. *Oncidium crispum* and *Cattleya Warneri* were good. Mr. J. Douglas showed the best twelve specimens in the amateurs' division, having remarkably well-flowered plants of *Cattleya Mendeli*, C. *Mossiae* superba, *Oncidium macranthum*, *Odontoglossum Roezli* album, a very pure form; *Aerides Fieldingi*, and *Calanthe veratrifolia*. Mr. T. Whillans, gardener to the Duke of Marlborough, Blenheim, was second.

Miscellaneous collections formed the most interesting portion of the show. One of the finest contributions was the magnificent group of cut Roses from Messrs. William Paul and Son, Waltham Cross. There were Roses of all kinds, and not the least interesting the baskets of Damask, Moss, Bourbon, Gallica, Hybrid Chinese, Scotch, Polyantha, &c. The same firm had also superb blooms of the varieties Lady Mary Fitzwilliam, Mme. Alfred de Rougemont, Bourbon Souvenir de la Malmaison (splendid), Mme. Gabriel Luizet, John Hopper, Captain Christy, Boule de Neige, General Jacqueminot, Heinrich Schultheis, and Tea-scented variety Medea, a fine yellow flower of excellent shape (silver medal). An exceptionally fine group came from Mr. B. S. Williams, Upper Holloway. The arrangement consisted principally of Orchids, exquisitely disposed. *Calanthe veratrifolia*, *Cattleya Warneri*, Mendeli, and *Mossiae* were conspicuous (silver medal). A bank of Orchids came from Messrs. H. Low and Co., Clapton. *Cypripedium bellatulum*, *Cattleya Mossiae* Wageneri, *Phalenopsis Sanderiana* and *P. grandiflora* aurea, also varieties of *Cattleya Mossiae* and Mendeli, and *Cypripedium de Witte*, a hybrid with much of the *Stonei* character in it, were noteworthy (silver medal). A good group came from the Studley House collection, of which Mr. Cowley has charge (silver medal). Mr. G. Elliott also had an excellent arrangement, receiving a similar award.

One of the best groups was that from Messrs. J. Laing and Sons, Forest Hill, tuberous Begonias forming the chief features. Of the double varieties, Princess Victoria, rich shining rose; Mrs. F. Nettlefold, bright scarlet; and Miss French, creamy-white, were the best. Two good single types are Mrs. Joseph Chamberlain, rose and white, and majestic, rich crimson (silver medal). Tuberous Begonias of considerable merit came from the Swanley Nursery of Messrs. Cannell and Sons. The characteristics of this strain were fully pointed out in THE GARDEN of last week, and of the double varieties exhibited, A. F. Barron, rose; Lady Lewisham, rich salmon-scarlet; Edwin Banks, brilliant scarlet; Mrs. W. B. Miller, lovely coppery tint, just as we find in *Comtesse de Nadailac* Rose; and Mrs. Matthews, buff (silver medal). A fine assortment of Pæonies, Delphiniums, Pyrethrums and Gailardias were sent from the Langport Nurseries of Messrs. Kelway and Son. Of the double Pyrethrums, Aphrodite, pure white; Leonard Kelway, rich rose; Pericles, yellow centre, rose-tinted guard florets, were delightfully fresh and handsome. Delphiniums Castro and Duke of Teck are excellent additions to their class. It is a pity to put new flowers under number. Surely there is no lack of names (silver medal).

Messrs. F. Rivers, of Sawbridgeworth, had a collection of fruit trees in pots, comprising well-fruited trees of the Conkling Peach, a highly-coloured kind; The Czar, Rivers' Early Plum, Peach Early York, Cherries May Duke and Guigne Anonnay, a very fruitful black variety (silver medal).

Pæonies and alpine flowers were shown by Messrs. Paul and Son, Cheshunt, a miscellaneous collection of cut flowers by Mr. T. S. Ware, and Viola Snowflake, white, and herbaceous Phlox White Swan,

also white, by Mr. J. Chambers, Isleworth. To Messrs. Paul a bronze medal was given. Mr. W. Langlands, Chingford, had a collection of miscellaneous plants, and Messrs. Gordon, of Twickenham, a fine group of *Lilium auratum* in variety, also *Acer Gordoni*. Bronze medals in each instance. Double Begonias came from Mr. J. Ford, and Pelargonium Pearl, a white regal variety, from Mr. R. Miller, Southdown Nursery, Shoreham. A good type of crested Fern is *Pteris cretica nobilis*, which was exhibited by Mr. May, Edmonton. It is of dense growth and the fronds well crested. Mr. G. Prince, Oxford, showed blooms of the white Tea Rose Souvenir de S. A. Prince, and two new Pelargoniums came from Mr. Turner. Messrs. Collins Bros., Waterloo Road, exhibited Phlox (herbaceous) Avalanche, a single white variety of considerable merit. Some new Roses came from Messrs. Paul and Son, Cheshunt, including flowers of what was called the blue Rose, a dirty ashengrey-coloured flower of little merit, and Margaret Heywood, a beautiful Rose, full, and of a similar tint to La France.

A full list of awards is given in our advertising columns.

Gardeners' Royal Benevolent Institution.

—The fiftieth anniversary of any institution is always a joyful event, and the jubilee festival of this charity was not wanting in the festive spirit proper to the occasion. The chair was taken by Leopold de Rothschild, and the subscription list for the banquet amounted to no less than £1500, a most signal way of celebrating an anniversary. Another gratifying proof of the interest and warm-heartedness shown in the institution is that £950 were contributed by the gardeners of England to the Jubilee Fund. It was felt that in no better way could this year be marked out in the annals of the institution than by raising a sum of money that would enable the committee to place upon the pension list the unsuccessful candidates, to the number of seventeen, of the last election. £3000 were required, and not only was this sum obtained, but £469 over. Mr. John Lee, the "father" of the institution, spoke, and Mr. H. J. Veitch, the treasurer of the institution, gave some interesting particulars. The annual subscriptions, he said, fifteen years ago were £720, but now they were £1360. Donations at that time £700, but now £1165. Pensions then were found to the amount of £930, now £2100. The expenses also had decreased. In 1874 the funded stock was £10,400, but now £21,100; and in 1865 the pensions were increased from £16 and £12 to £20 and £16. The pensioners had increased from 1 in 1840 to 50 in 1860, 60 in 1870, 80 in 1880, and they now number 134. The oldest of them, 101 years of age, had subscribed £18 18s., and in twenty-nine years has received £470. Mr. Veitch expressed a hope that the pensioners might be still further increased to 150. The health of the secretary was proposed by the chairman, and in response Mr. Cutler expressed his pleasure at the results they had achieved for a deserving institution in its year of Jubilee.

DEATH OF MR. ARTHUR BARKER.

WITH feelings of profound regret I have to announce to readers of THE GARDEN the sad intelligence of the death of this excellent man at the age of 38. Some thirteen years ago he came to Eastnor as my general foreman, and so quietly, so efficiently, and so intelligently were all his duties performed that with the greatest pleasure and confidence, just ten years back, I recommended him for the post of head gardener to the late Lord Hindlip, Hindlip Hall, Worcester. In this capacity, aided and trusted by most noble employers, he suggested and carried out a great number of improvements, which will bear the impress of his hand for years to come. As a cultivator and general manager he paid that unceasing and intelligent attention to the smallest details, not only in the extensive fruit and plant houses, but also in the hardy fruit, kitchen, and flower gardens, which stamped him as a thoroughly practical all-round gardener, and, hardly need it be said, enabled him to make a prominent mark as

an exhibitor at the leading horticultural shows. As a regular contributor to the pages of this journal, Mr. Barker's papers upon various subjects, but most particularly upon fruits, upon hardy herbaceous plants and upon garden destroyers, not only raised sound, healthy, and friendly discussion, but they proved that he was thoroughly master of his subjects and as such a valuable correspondent whose service we can ill afford to lose. But, alas! my young friend, whose posthumous contribution appeared only on Saturday last, was not permitted to remain with friends and employers, who loved him so well, for on the 14th inst. he breathed his last, and now rests within a few feet of the late Lord Hindlip, a score of paces from the beautiful church recently restored as a last tribute by a sorrowing family. Never a very strong man, Mr. Barker some four and a half years ago ruptured a blood-vessel on the right lung, and for a long time his life was despaired of; but, thanks to the large-hearted Lord and Lady Hindlip and their family, whose kindness cannot be too widely chronicled, he was attended by the first physicians of the day. He received every attention and delicacy, and he rallied for a time. Under ordinary treatment, the Grass years ago would have been green over his untimely grave. Those excellent articles penned by him when he could not venture out would have been lost to the rising generation of gardeners, and his patient sorrowing wife with her two children long since would have mourned the loss of a kind, gentle, unassuming husband, who never gave her a wrong word. Mr. Barker's remains were followed by Lady Hindlip and other members of the family, and under the shade of a beautiful Beech tree he rests within forty yards of the cottage in which he lived close upon ten years.

W. COLEMAN.

Death of David Jackson.—Kindly give a corner of THE GARDEN to a notice of the death of David Jackson, an old hand-loom silk weaver at Middleton, near Manchester, who died on the 6th inst., at the age of 84 years. He was a thorough florist, and for nearly half a century grew Auriculas, Gold-laced Polyanthus, and Tulips, with other things. But the Gold-laced Polyanthus appeared to be his favourite flower, and he grew it well, and exhibited plants having blossoms of remarkable quality. He raised one he named The Rev. F. D. Horner, a flower by no means faultless, but I never saw anyone else produce it in such form on the exhibition table as the raiser himself. It came from a pod of Lord Lincoln. Mr. Barlow informed me that he had Maud's Beauty of England Polyanthus in its true form, and grows it later in point of time than any other florist in the Manchester district. There is now reason to believe it is quite lost to cultivation. He was both a grower and exhibitor of Tulips, and from a pod of seed of a byblæmen named Ashmole's Emma he obtained three, which were subsequently named, viz., Mrs. Jackson, feathered byblæmen, which, singular to state, never passed through the breeder stage, but bloomed in the broken character the first time it flowered; and flamed byblæmens David Jackson and Nimbus. These were purchased by Mr. Samuel Barlow, and now form a part of the Stakehill collection.—R. D.

BOOKS RECEIVED.

"Bulletin of Miscellaneous Information." Royal Gardens, Kew. No. 30. June, 1889.

"All about Tobacco." Compiled and published by A. M. and J. Ferguson, Colombo, Ceylon. Agents, John Haddon and Co., Bouverie Street.

"Report as to the best System for the Maintenance of Main Roads in the County of Hertford." By Urban A. Smith, County Surveyor of Highways.

Peat Moss.—Does peat moss litter (as the moss litter sellers assert) hold the ammonia better than straw, and therefore make a better manure for a garden than ordinary stable manure?—E. M.

Names of plants.—*J. Watmore*.—*Homocallis flava*.—*Norman*.—*Lactuca hastata*.—*MacBean*.—*Cratægus punctata*.—*J. J. Harrington*.—1, *Zephyranthes Andersonianus*; 2, *Scirpus setaceus*; 3, *Mosombryanthemum* sp., too small to name.—*A. H. W. D.*—*Bunias orientalis*.—1, *L.*—1, *Fagus sylvatica asplenifolia*; 2, probably *Forsythia viridissima*.

WOODS & FORESTS.

FORESTRY.

OWING to the cold wet summer which we experienced in 1888, and the very dry and warm season of 1887, many people told us that these extremes would have a prejudicial effect on vegetation and tree life generally for a series of years, yet I am glad to say that these prognostications have not as yet been verified to any great extent; but, on the contrary, vegetation of all kinds, including the growth of trees and shrubs, is remarkable for the luxuriance which it exhibits in stem, branch, and foliage. Newly-planted trees and shrubs, as a general rule, have made remarkable progress, and this may be accounted for in a great measure by the condition of the ground at the time of planting, as well as to the beneficial influence of alternate bursts of heat and genial showers of rain in early summer just at the time the plants were beginning to become active. Old-established trees, as well as trees of medium size, are remarkable this season for the great wealth and healthy appearance of their foliage, and this proves that abundance of moisture, if not allowed to lie in a stagnant state at the roots, promotes the growth and healthy development of the trees. The only drawback which I have noticed is in cases where the trees are growing on cold, bleak, exposed positions, and, consequently, had not in all cases alike matured their growth in autumn to such an extent as to render the wood firm and proof against the inclemency of the weather in the following winter and spring. Among other trees which have lately suffered damage in this way is a specimen tree of the Monster Ash (*Fraxinus monstrosa*), which had not altogether perfected its growth last autumn, and now shows some dead wood at the terminal points of the twigs and branches. Trees recently transplanted occasionally show dead wood in their tops through various causes, and when such appears to any extent the present is a good time to have it removed. Particular attention should be paid to such trees to prevent wind-waving, for I believe that newly-planted trees often suffer serious damage from this cause alone. In addition to the removal of dead stuff from the top, all holes, wounds, and ruptures in the stem and other parts of the tree where they occur should be scraped and cleaned out, in order to destroy the eggs and progeny of insects. In most cases it will prove beneficial to wash out the parts affected with a mixture of lime-water and soot, and in cases where the spores of parasitic fungi have found a congenial home the parts affected should be pared with a sharp knife and painted over with coal-tar, which will promote the healing process and prevent the spores of fungi from growing. Insects are very uncertain; sometimes we are overwhelmed by the numbers of some particular species, while perhaps in the course of a twelvemonth after the same species will have left the locality and become scarce, so that the habits and movements of insects cannot be easily understood and accounted for. For example, my attention was attracted to a specimen tree of the Goat Willow (*Salix caprea*) which showed marks of decay during the month of April. The surface of the ground around the base of the stem was covered to a certain extent with fresh wood raspings, which I found to be the work of the caterpillar of the goat moth (*Cossus ligniperda*), and as the tree has not shown a green leaf on its top this season, it must be quite dead and the trunk almost alive with the insect. The

best plan to get rid of these pests when they appear in such numbers is to cut the tree down and burn it. I do not remember ever seeing this insect in anything like such numbers in the same locality before. The hornet (*Vespa crabro*) and several species of wasps who build their nests in trees and underground are often a source of annoyance to workmen employed during summer in woods and forests, so that it becomes part of the forester's duty to have these pests destroyed, or at least kept within bounds. I have found the common tree wasp (*Vespa Britannica*) in different parts of Great Britain and Ireland. It generally attaches its nest to the branch of an evergreen tree, where it hangs suspended, and is thus sheltered in a great measure from the extremes of heat, rain and cold. These nests are of an oval or egg-shaped form, greyish in colour and rather less in size than a man's hat. As the orifice where the wasps enter their nests is always below, the best plan to destroy them is to place a small quantity of gunpowder on the top of a pole with a lighted fusee attached, then by reaching it up right below the nest the whole fabric will be instantly blown to pieces and the inmates killed. This should always be done in the evening after the wasps have retired and settled for the night. Another species of wasp which often gives considerable annoyance and trouble in woods and plantations is the *V. vulgaris*, which in place of swinging its nest from the branch of a tree excavates a chamber of suitable size underground at the root of a tree or hedge, and sometimes in a dry mossy bank or other suitable place. The best plan for destroying these nests is to mark the spots where they are during the day, then by visiting the places in the evening and pouring some coal-tar into the orifice of the nest it will be effectually destroyed and give no further trouble. The hornet, on the other hand, generally selects a hollowed-out crevice in a tree in a state of decay for its nest. This may be destroyed in a similar way to that recommended above.

J. B. WEBSTER.

The Black Walnut, in the States bordering on the Ohio, often grows to a great size. Michaux says he has frequently seen Walnut trees each from 6 feet to 7 feet in diameter. Planks have been sawed from such trees 5 feet wide and 30 feet or 40 feet long. When the Walnut stands alone it spreads out into a spacious head and extends its branches horizontally to a great distance; but, in the depths of the forest, it is of more compact growth, is often shorn of its limbs, and has a smooth bole to the height of from 40 feet to 60 feet. The largest trees are probably from 400 to 600 years old.

American yellow deal.—The yellow Pine (*Pinus Strobus* or *Weymouth Pine*), when sawn into planks, deals, and battens, is known as American or Canadian yellow deal, and is largely used for joiners' work on account of its being exceedingly straight in the grain and free from knots, besides being easy to work, and obtainable in planks, each frequently running as wide as 30 inches. When wrought with the plane it is readily recognised, from the surface being covered in the direction of the grain with short, fine, somewhat dark marks, like scratches made with the pen.—J.

Failures in planting.—Many of the failures in planting are due to unsuitableness of soil and site, late removals, and the large size of the plants used. From the effects of wind-waving, which disturbs the old roots and ruptures the rootlets, arises the most fertile cause of the necessity for replanting or filling up. Careful observation shows that under ordinary circumstances of soil and planting, small trees planted out under 3 feet high will, even in moderately sheltered places, in a few years outstrip those put out at a height of from

5 feet to 8 feet, and where the exposure is great the difference will be even more marked. Where the system of notching-in is adopted only small plants can be used, and to this may be attributed the great success which generally attends this method, which is much practised upon hilly districts, and where the lightness of the soil renders pitting unadvisable on account of the small amount of moisture which the land afterwards retains. Better results may generally be obtained by using Firs under 2 feet 6 inches high, and deciduous trees under 5 feet, than by larger specimens.—J.

A WORD FOR THE JACK PINE.

MR. H. B. AYRES, of Minnesota, who is familiar with forest conditions and the necessity of forest preservation, sends us, at our request, the following note upon the proper use of the Jack Pine (*Pinus Banksiana*) lands so common in the north-central part of the State:—

"In looking over the region the importance of keeping out fires is very evident. This sandy soil is not adapted to farming. People will be moving out of the country as soon as the timber is gone. It is therefore important to keep a growth of timber on that land which is not fertile enough to command sale to farmers.

"If fires can be kept from running over the land, timber will continue to grow, and will furnish repeated cuttings of log-timber, piles, ties, cordwood, and material for wooden ware, matches, paper, dyes, acids, tanning, &c. Even the very sandy lands that are cut clean and burned over, and are now worthless, will, if kept from fire, be seeded during the first year, and in a few years be covered with a dense growth of young Jack Pine, with many Norway and some white Pine scattered throughout them.

"I am aware that many Minnesotians would laugh at the idea of encouraging a growth of Jack Pine; but during a number of years I have given the subject careful attention, and am now convinced that this little, persistent, mean-looking and despised Jack Pine has duties as important and performs them as faithfully as the much sought White Pine. If there were no Jack Pine, I believe a large area in the State would be practically desert to-day, and in proportion as fires are permitted to destroy the young growths, the sandy and rocky land will become desert-like.

"When a tract of Norway Pine timber has been cut clean and fire kept out, a dense growth of Jack Pine will spring up first; then young Norway Pine will be able to start in the shelter thus formed. As the Norway grows more rapidly, the Jack Pine is soon left as an undergrowth, which serves to prevent the growth of limbs on the trunks of the Norway. In about thirty years the Norway Pine will be large enough to do without the nursing of the Jack Pine, which may then be cut for cordwood, and the Norway, where too thick to leave for log timber, may be thinned for piles and ties, leaving the remainder a tract of clear timber to be coveted by every lumberman, and a good return for reasonable care to encourage tree growth on land otherwise worthless and unsaleable.

"I would earnestly recommend that the existing laws concerning forest fires be rigidly enforced, and such other measures taken as to keep the poor land in timber, thus holding what population there may be now, and even furnishing employment for a greater."—*Garden and Forest*.

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London: 37, Southampton Street, Strand, W.C.

No. 919. SATURDAY, June 29, 1889. Vol. XXXV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

NOTES FROM A NEW ZEALAND GARDEN.

THE gardens at Craig Head are what may be termed a combination of ancient and modern English styles in an exotic climate and surroundings. Nearly every branch of gardening is, therefore, represented. The pretty sweeping carriage-drive, with a wide margin of turf, on which are planted alternately Wellingtonias and Douglas Firs, mixed for the present with a variety of shrubs, reminds one of England. This delusion is, however, quickly dispelled when the stately trees of Cordylines and *Dracæna australis* are seen. Charming vistas of green-sward, upon which are growing luxuriantly English, Californian, and Australasian trees, lend an additional charm. Roses, which are here a speciality, from the oldest down to Mme. de Watteville, are grown to perfection in all conceivable positions. Spring and summer bulbous plants are also much thought of and grown. But the flower which seems most at home here is the Pansy; our cool nights seem to suit it admirably. Seeds from some of the Scotch growers are highly esteemed, English strains having been tried in vain. The chief feature, however, in my opinion, of this place is a large bed or border somewhat oblong in shape specially devoted to uncommon shrubs and rare herbaceous plants, and upon it may be found flowers all the year round, its very incongruity (if there is any) being charming. No expense has been spared to make it both interesting and beautiful. A bed filled with some of the best named *Rhododendrons* is noteworthy. The plants are in an airy situation, and thus escape getting burned, and grow and flower splendidly. The owner of this pleasant retreat is H. J. Le Crew, one of the original pioneers of this part of the colony.

Timaru, N.Z. T. SMITH.

A note from Bristol.—Iris Milesi should be grown by everyone. When established it is very free-flowering, and Canon Ellacombe agrees with me that it is one of the most beautiful. Here, though only moved in March, it is covered with bloom in a long open border. I have here quantities of seedlings of *Abutilon vitifolium album*. The shaded lilac-blue kind I admire more after having seen it in big clusters at Bitton on Monday. *Brugmansias* (yellow, white, and red) have been in fine bloom. The yellow kind is not so strongly scented as the white, and is much admired. *Lilium Szovitzianum* is blooming freely, but very dwarf owing to removal in March. The blue Poppy is on the point of blooming. *Brodiaea coccinea* is a quaint curiosity. *Delphinium cardinale* from Max Leichtlin is breaking into bloom; it has a very straggling growth. How fine the *Helianthemums* are this season. I have a double yellow one. A huge plant of double red at Bitton pleased me. All the farmers complain that there will be no Apples for cider this year. On my young trees there is a good show, and bush fruit is remarkable. We have been picking Strawberries from the open for a fortnight.—C. O. MILES, *Vicarage, Almondsbury, Bristol, June 24.*

The influence of strong light on vegetation.—This is an interesting subject, and one on which much may be said. Here in lat. 42° S., dark flowers, particularly the darker varieties of Roses, are sometimes burned in a few hours; whereas light ones, on the contrary, come out with a double purity. Roses *Sunset* and *W. A. Richardson* seem to lose character. Their beautiful orange-apricot

colour, as described in England, is destroyed here, and in place comes a lighter hue. *Rose The Bride*, mentioned in your descriptive exhibitions as having a greenish tinge, here comes and remains a superb white, and a charming *Rose* in shape. One day, when examining a pretty collection of Orchids at Beverley, the seat of A. Terry, my attention was drawn to the great difference in size between the pseudo-bulbs of an imported plant of *Cattleya Lawrenceana* and those which had grown since. This increase in size could only be attributed to our stronger light. Again, the rapidity with which deciduous and evergreen trees from a cooler climate grow after becoming acclimatised here is amazing.

—T. SMITH, *Timaru, New Zealand.*

ROSE GARDEN.

ROSE MARECHAL NIEL IN THE OPEN AIR.

I PROMISED the readers of THE GARDEN a few weeks ago that I would report later on as to the behaviour of a bed of *Maréchal Niel* Roses that I then referred to. Twice since that note was written have I seen the bed under notice, the last time on the 20th of June. I should have been glad to have reported that it was a complete success, but I am not able to do so. At the same time it has not been altogether a failure, as quite 100 good blooms have been taken from this bed. This, it must be understood, is but a small number compared with the quantity of buds which had formed, as on my second visit I took up a branch and counted nineteen buds in a length of 2 feet, and there were many more quite as well flowered. Had the plants developed only a fair proportion of the flowers formed, there would have been at least 500 good blooms without including a considerable number of small and weak flowers. I am still of opinion that if this bed of Roses had been formed in a more sheltered position that it would have been a success. As it is, the owner (Mr. Fowler) has accomplished more than he takes credit for, and more than a good many have done. He has planted a dozen *Maréchal Niel* Roses, and induced every one of them to grow into a vigorous plant without any more coaxing than a well-prepared soil. This is so contrary to my experience and that of many others, that it is worthy of being put on record.

J. C. C.

Persian Yellow Rose.—In a cottage garden I lately saw a very fine specimen of this *Rose*. Not that it is the largest, perhaps, but the manner in which it is flowering at the present time is remarkable. The tree, a kind of half standard, measures about 6 feet across, and is one mass of bloom, presenting a sheet of the deepest yellow, which is set off to advantage by its own foliage. The plant has been subjected to but little pruning, some of the longest branches having been cut away to preserve a uniform shape. The tree stands in a westerly aspect.—W.

The Chinese or Bengal Rose as a climber.—The number of plants of this old-fashioned *Rose* which are to be seen in Hampshire growing on the walls of cottages in all sorts of positions and aspects proves its adaptability for culture as an early-flowering variety. At the present time those plants which have the benefit of warm southern walls are completely smothered with bloom, the brilliant colour of which brightens many a cottage home. It cannot be said that the plants receive any other but ordinary treatment; in some cases the reverse of careful nursing is practised. The method of pruning the trees is quite of a rural character. Towards the autumn, when the plants have quite ceased blooming, the sickle is brought into use in a free manner, so much so that all growth which hangs from the wall is cut closely off; side branches,

leaders and all receive the same fate. The result is that the following season numerous stout growths push from the most unlikely places in the old stems, and it is from such growths as these newly made that the flowering period is carried so far into the autumn. Added to this exuberant growth the favoured position of a warm south wall, and you have one of the best opportunities not only for growing this section of *Roses*, but for others more valuable on account of the individual merit of the blossoms.—E. M.

Rose Gloire de Dijon.—The other day at Bowden Hill on a dwelling-house I was struck by a plant of this *Rose*. It covered the side of the house. I never saw such a profusion of flower. We have had some magnificent flowers of this, as also other *Roses*, including *Maréchal Niel*, *Devoniensis*, *Clothilde*, *Souvenir d'un Ami*, *William A. Richardson*, *Cheshunt Hybrid*, *Baroness Rothschild*, and *A. K. Williams* upon walls have all done well. Standard and dwarf *Roses* are good this season.—WILLIAM A. COOK, *Compton Bassett.*

Rose Wm. A. Richardson.—It has been often stated that this *Rose* is not quite hardy, and probably might not stand very severe frost. I would be glad of information from those who have tested its constitution in the open ground for more than one season. I planted two specimens (not robust or in extra health) last year, and they grew fairly well and flowered more freely than one could have expected from plants of the same size. The flowers were much admired, and answered well for cutting when not too open. The plants were allowed to remain unprotected, except by some soil drawn round their collars. They are again growing, and promise to be fine plants by the end of the season, and are showing plenty of flower-buds. Were we certain that it was hardy, a goodly number would be planted, it is so distinct and beautiful. Our county is *Stirlingshire*, and may not be the most favourable for tender plants of any kind, but most hardy *Roses* do well.—M. T.

Roses on trees.—There may be objections to training *Roses* to trunks of trees, and one of the most powerful is that the use of the necessary tacks for fixing the stems is injurious and a disfigurement. This style of gardening is now carried out at *Syon House*, *Brentford*, and if a few tacks are used, and these as small as possible, no harm can result, while the wreaths of white flowers clustering round the rich brown bark give that picturesque, wild and natural appearance to a garden that is inexpressibly charming. A few of the trunks of the trees in the magnificent grounds at *Syon House* are thus enriched, and *Noisette* *Roses* the kinds used. Aged specimens of trees fast decaying, and becoming in a certain sense unsightly, are generally selected for the *Roses* to ramble over, and this they do most effectually. One *Cedar* almost dead was embellished with *Virginia Creeper*, and a large tree of the *Red Cedar* was draped with this climber, the shoots hanging gracefully down and covering what would have been an unsightly stump. In another part a *Virginia Creeper* was fast hiding the bareness of a *Monkey Puzzle*, or *Araucaria*, that had lost its lower limbs. The time to see the *Ampelopsis* is the autumn, say the month of October. Then its rich green leafage changes gradually, but quickly to brilliant crimson tints which light up the garden with intense colour. A tree veiled with shoots and tendrils, as the *Red Cedar* at *Syon*, looks in the autumn as if encircled with fire. This kind of gardening can be overdone. Only a little is wanted, and in such a place as *Syon House* there are always weather-beaten monarchs, whose very age commands reverence, that may be made picturesque and beautiful by planting against their hollow trunks *Roses* or creepers of the nature of the *Ampelopsis*. Breaks of white *Roses* here and there in a large park certainly have a peculiar beauty in the summer months.

Rose trees killed by lightning.—In a garden which I visited a few days ago I was shown several dwarf *Rose* trees that had been killed by lightning. The foliage as well as the stems was quite withered, and every part of the plant evidently dead. The

most remarkable feature in the case is that four or five plants near each other were killed; while in one direction no further harm was done to the plants growing in the same line. On the other side, however, about half a dozen plants escaped harm, while the next two or three following were injured. It seems that the electric current had struck the bed of Roses in two distinct places. I may mention that the bed holds two rows of plants, and that it is of considerable length. Three rows of galvanised wire are stretched over the bed, about 18 inches from the ground, reaching from end to end. Is it possible that the wire had any influence in attracting the electric current?—J. C. C.

TEA-SCENTED ROSES AT TAUNTON.

AMONGST a large collection of Tea Roses grown in open beds in Mr. Fowler's garden near Taunton, I noticed the other day the following as being exceedingly good:—

MME. DE WATTEVILLE is undoubtedly a grand addition; the flowers are large, full, and freely produced.

VISCOUNTESS FOLKESTONE.—This is a very striking Rose, the colour creamy pink, with a salmon-pink centre. The blooms are as remarkable for their large size as for their exquisite sweetness. The plant is also evidently a good grower.

LADY MARY FITZWILLIAM.—Out of nearly 400 plants the most telling variety was this. Under almost any circumstances this Rose grows and flowers better than the majority of Teas. The plants, as grown by Mr. Fowler, are flowering freely, and producing numbers of finely formed globular blooms of the most delicate colouring.

LUCIOLE is another splendid addition. The colour may be described as a crimson-rose, with the centre petals shaded with coppery yellow. The form is also good.

Amongst others I noticed as being very fine was **Comtesse de Nadaillac**, rosy flesh colour, distinct and beautiful both in size and form. **Innocente Pirola**, **Marie Van Houtte**, and **Souvenir d'un Ami** were also very fine. **Jules Finger** and **Jean Pernet** deserve to be mentioned. J. C. C.

SHORT NOTES.—ROSES.

Rose Catherine Mermet.—Among Teas this has certainly been the best Rose of the week. We have a group of twenty-five plants, and although the bushes are small, the shoots have borne some beautiful buds and flowers.—H.

Rose Niphetos.—I have before said that the flowers of this Rose are more double and of greater substance when produced in the open air, and this season's blooms confirm me in that opinion. Upon some plants in the open air the great white buds open into enormous flowers, which do not show their centres, but hang gracefully for some days.—A.

Rose Homere.—Hitherto my experience with this Rose has been upon heavy soils, and whilst others have praised it, especially Mr. D. T. Fish, to me it has been disappointing. During the past week, however, I have seen buds upon bushes growing in a warm, sandy loam develop into lovely flowers with soft shades of pink, bright rose, and white commingled in a charming manner.—A. H.

Mme. Bravy Rose.—This is a capital variety for early flowering out of doors. We have it planted on a low south wall, and were able last week to cut some perfectly formed and well-developed blooms. In a small state the blooms are very useful for button-hole bouquets. The petals seem to unfold in such a recurring manner, each one showing the back of its neighbour to perfection while unfolding. The colour is French white with a pale rosy centre.—S.

Marechal Niel out of doors.—When the present kitchen garden was made at Castle Ashby, some twenty-three years ago, several recesses round the walls (inside) were planted with this Rose. I do not know if they have weathered the storm up to the present time, but when I last saw them in 1875, eight or nine years after planting, they were doing remarkably well, each recess being filled with healthy wood and foliage, the crop of flowers being invariably large, and the individual blooms of extraordinary size and substance and very deeply coloured.—E. BURRELL.

Roses and Musk.—Have any of your readers tried this combination? A large bed filled with standard and bush Roses had rather a naked appearance, and to remedy this I covered it all over two seasons ago with the common Musk. It is this year a dense carpet of yellow, and has had to be cleared away round the bush Roses, but is allowed to climb at will up the bare stems of the standards.—E. B.

Rose Anna Ollivier.—Although rarely mentioned, much less praised, there are few more interesting or more beautiful Tea Roses than this. In the unique form of its urn-shaped buds it stands alone, whilst the gradual deepening of colour towards the base of the petals both outside and inside is another distinct quality. The buds are flesh or salmon tipped, and when half expanded are singularly beautiful. In addition it is one of the most beautiful Roses imaginable by lamplight, and on this account is very suitable for table decoration.—A. H.

Rose Souvenir de Gabrielle Drevet.—This is a sweet and beautiful Tea, brought out by Guillot in 1884, and as yet somewhat uncommon. The flower is full and double; the outer shell-like petals are white suffused with salmon, which towards the centre of the flower deepens into rose and copper. The scent is strong and very sweet, and the growth hardy and free. This Rose when better known will be found a good companion to the lovely Mme. de Watteville, which came from the same source in the previous year.

MARKET GARDEN NOTES.

UNDER the influence of fine summer weather crops have come on rapidly lately, and although the spring was late, there is little difference now from ordinary seasons, and vegetables of all kinds are abundant and cheap.

POTATOES, which are very largely grown in this locality, are coming into market very plentifully, and the promise of an exceptionally good crop could not be better, the haulm looking strong and of a deep green colour. There are still a good many Potatoes of last year's crop on hand, but they realise very low prices. There does not appear anything like the quantity of foreign Potatoes in our markets this season as compared with former ones, and home growers are well able to compete with their foreign rivals. In addition to the early kidneys and the old Beauty of Hebron, one of the most prolific and popular of early kinds we have is the new white Beauty of Hebron, that promises to be a very good early kind; while Sharpe's Victor is one of the very best kidney varieties that I have yet tried, making short tops, and being equally suitable for frame or early outdoor crops.

CABBAGES are being sent to market in large quantities, as Peas, Beans, and Cauliflowers are just coming in, and as soon as these get plentiful the demand for Cabbages slackens. The planting of spring-sown plants, as also of all kinds of winter greens, is now being pushed on.

CUCUMBERS both in frames and on ridges have made great progress during the fine spell of warm weather, and excellent crops are now being cut. The demand is also brisker, and prices better than they were a month ago. Main crops and even late crops are frequently more remunerative than very early ones, the demand increasing with the heat of summer, when salads are in general request.

TOMATOES both under glass and in the open air are making rapid progress, and should the season continue favourable, the out-door crops will be good, as on plants that were strong when put out the fruit is setting freely. The light stony land, with full south aspect, suits this crop well. Once get a crop set, stimulants in liquid form can be safely applied.

VEGETABLE MARROWS are making rapid growth and commencing to fruit freely. Mulching the soil between the plants is now being done to keep the moisture in the soil, and watering is likely to be an important item of culture with crops of this kind.

RUNNER AND DWARF BEANS are making good growth. The field crops of runners, as a rule, get no stakes, but are frequently stopped, and produce excellent crops. The old Scarlet and Carter's Champion are the favourite varieties, and amongst the dwarf French Beans, Canadian Wonder and Black Negro are largely grown.

LETTUCE of both Cos and Cabbage kinds are sown frequently on good rich soil, and thinned out, so as to leave the plants about 1 foot apart, thereby avoiding the check of transplanting, which, in hot dry seasons in a light soil, is an important consideration, as the more quickly the Lettuce can be grown, the better in quality it is. By sowing the seed thinly in drills there is not so much loss of seed as might be expected, and economising labour is a more important point than sparing the seed, which can be saved readily, or purchased cheaply enough. The White Cos and All the Year Round Cabbage appear in most favour in market gardens in this district.

FRUIT CROPS as a rule are good in this locality. It is some years since such a crop of Apples was seen; the oldest trees as well as those only planted last winter are equally good, but I may remark that last year with its heavy rainfall did the trees a deal of good, and as we escaped the plague of caterpillars the trees carried a splendid crop of foliage, and the fruit is this year looking unusually healthy and swelling up rapidly. Pears are not so abundant as they promised at one time, but if they swell up well they will be all the more valuable. Some varieties of Plums and Damsons, such as the Victoria and Orleans Plums and the Cluster Damson, are heavily laden with fruit, but choice dessert Plums have dropped a good deal. Bush fruits of all kinds are plentiful, Black Currants being exceptionally heavy. Raspberries look well now, but need rain to swell them up on the light soils. Gooseberries are a fine crop, but being such moisture-loving subjects, a cool, moist bottom is of the utmost importance for them. Mulching the roots is very needful in light soil, and plenty of water when the fruit is swelling.

STRAWBERRIES are now being gathered in quantity. The weather is very favourable for gathering, being bright and dry, but if it continues so we shall not have a long Strawberry season, as the largest Strawberry grounds are situated on very light soil that only a few years ago was barren heath land and not considered worth cultivating. The enormous piles of boxes and punnets now lying at some of our local stations prove that Strawberry culture at least has made its mark in South Hants, and probably other fruits will be equally largely grown at no distant date. I may mention Noble Strawberry as being both early and fine.

Gosport.

JAMES GROOM.

The new railway rates.—The Nursery and Seed Trades Association has made it very clear that the proposed railway charges, as put forth by all the main railway companies and formulated for public information, will prove exceedingly oppressive in relation to all things connected with horticulture, unless they are very materially reduced by the Board of Trade. It may be that in putting forth a schedule of their proposed rates, the companies ask for all that is possible in the hope of getting something very considerable by that policy, but unless the Board of Trade does interpose on behalf of traders, it will be found in the majority of cases that the rates of transit, with the proposed station and service terminal charges, will add some 25 per cent. to the rates now in common use. If it be for all engaged in horticulture, but especially market growers, seedsmen, nurserymen, &c., hard enough now to exist, it will be doubly difficult when largely increased railway charges add to the trouble already experienced in securing orders. It may be that the railway charge for transit is often paid by the purchaser, but often also the vendor is debited with that charge, or, if still paid by the purchaser, the additional cost of transit must greatly tend to check trade. The new schedule is both a costly and a perplexing one, as on some lines of rail there are four diverse scales of charges for the same articles, according to distance carried. In the case of manures of all kinds the proposed rates seem to be very much higher than those now in existence. The Seed and Nursery Trades Association merit all possible support in their efforts to secure a large reduction of these proposed railway charges.—A. D.

STANMER PARK.

BETWEEN Brighton and Lewes is the little village of Falmer, and here we find the Earl of Chichester's picturesque residence and noble park, some 1500 acres in extent. The house, as seen in the engraving, is a plain, but substantial erection. It was built in 1724 by Thomas Pelham, ancestor of the present owner. The walls, being of sandstone, have long assumed that quiet soft grey tint which appears to harmonise with all the surroundings. The park is a part of the great Down formation. Unlike many parts, where the hills suddenly fall away into the rich plain constituting a portion of the Weald, they here spread far and wide into great

are some few specimens of Yews which here assume a dense, dwarf, stunted habit of growth. On these chalky slopes above the house are several fine Lebanon Cedars, which spread their horizontal arms far and wide. Judging from these Cedars and the little variation in size and apparent age of specimens in many other gardens, one would infer that the Lebanon Cedar had a short period of popularity, when it was planted by all who had a place of sufficient extent to admit thereof. Subject, however, to the whims and caprices of fashion, its popularity declined as rapidly as it rose, so that now, although we see many full-grown specimens, we do not find that young ones are much planted.

The Box is perfectly at home on the chalk,

and Crotons of a useful size for table decoration. A. H.

FRUIT GARDEN.

STRAWBERRIES IN POTS.

WE are now very near the time for layering the Strawberry plants either for pot culture or planting out. I cannot quite agree with all the remarks made by "J. C. B." at p. 554. I have been able to obtain good crops of well-flavoured Strawberries from the 1st of March until they have come in from plants out of doors, and as we are about to commence the season's propagation, a few remarks may be useful. "J. C. B." says he prefers to "go by his



Stanmer Park. Engraved for THE GARDEN from a photograph by Messrs. W. & A. H. Fry, Brighton.

expanses of easy undulations. No tree thrives like the Beech upon the chalk, and in Stanmer Park it is seen in great masses upon the higher ground, in groups upon knolls and in groves fringing the simple drive which winds through the park up to the house.

A portion of the park ground fenced off, surrounded by a grove of Beech and Sycamore and kept mown, forms, as is well shown in the picture, the foreground to the mansion. Where possible, nothing makes a better foreground to a house than a nice expanse of turf. The other sides of the house are pleasantly surrounded by lawns and pleasure grounds on a gentle slope, which leads up to higher ground covered with dense rich masses of Beech. In the front of the Beech trees

and when seen doing well it must be admitted to be one of our best Evergreens. It makes telling masses upon the lawn at Stanmer. A pretty nook upon the lawn is one devoted to flowers. Some walls with a quiet little arbour in the centre are entirely wreathed in beautiful things, chiefly Roses, but *Eccremocarpus* scaber covered a large area. The roots live in the ground all the winter, and year after year they send up their rambling shoots. Simple beds cut in the Grass are devoted to flowers.

There is a good walled-in kitchen garden, but glass is not extensive, and only includes a few houses to supply fruit, flowers, and plants. Of plants, one house was filled with beautifully coloured and well-grown examples of *Dracenas*

own experience," because by so doing he has had results in all ways satisfactory. Mr. Barker carries out his details of culture slightly different from those of "J. C. B.," and has also very good results. This plainly proves that a person must at least have a full knowledge of the requirements and nature of the plants he cultivates in order that he may be successful with them. The Strawberry is as easily grown to a high degree of excellence as any plant known to me; but, given a week or ten days of unskilful management, and the plants may be crippled for the season. In this respect pot plants are very different from those planted out in the open ground. Those planted out can take care of themselves, and may be better left alone sometimes; whereas a pot plant is entirely dependent upon outside help in order that it may live and thrive. The great point to aim at always is to get

a good start and keep it. A good beginning with Strawberries intended to be fruited in pots is to get them layered as soon as the runners are ready. This is a simple process not always managed so well as it ought to be. The pots into which the runners ought to be layered are what the trade term 3-inch pots. As the plants will not need to be in them for more than four weeks, no crocks will be needed. A little fibrous turf or some decayed frame manure may be put in the bottom of the pots, or, better, a mixture of both. This drains the soil enough for the time, and it is well to mix some soot with it, as it keeps out worms, which often do damage in the pots. I have seen some young cultivators, when sent to do work of this kind, place a pot down wherever they found a good runner, and with the pots scattered at irregular intervals all over the bed watering becomes difficult. Let the pots be filled with a compost of two parts loam to one of decayed manure, press it in firmly, and place a double row of pots between two rows of Strawberry plants. The runners can easily be brought round to the plants, and owing to this compact arrangement watering is easily managed. A short peg is the best thing to keep the runner in its place. If the weather is dry the young plants must be regularly watered, and in two weeks or thereabout they will be ready to be removed from the parent plants, and it is at this time that care is necessary to obtain the most satisfactory results. Very often the plants are placed on the sides of paths far too close together. It should be observed that almost as soon as fresh leaves are formed runners are also produced, and unless the latter are frequently removed they weaken the plants greatly. In hot dry seasons red spider makes a dead set upon the leaves, and fortunate indeed are those who have no experience with this troublesome pest. In the present garden under my care it has not caused any trouble, but in the last place I was in it covered the under sides of the leaves, even before the plants were cut from the parent stock. My plan was to dip the plants in a solution of soft soapy water to which had been added some tobacco liquor. This bath would kill all the live stock, but the plants had to be dipped again in ten days to kill the new arrivals which might be produced in the meantime. In two weeks or a little more, perhaps, the plants are ready to be planted in the pots in which they are to fruit, and for those intended to be fruited early 5-inch pots are best, but for later varieties 6-inch pots have to be used. Clean broken potsherds ought to be placed in the bottom of the pots; and over them some fibrous turf mixed with decayed flaked stable manure from old hot-beds; the finer particles may be sifted out of it. Some of this placed over the drainage will maintain a free egress for the water all through the season. The potting compound should be fibrous loam, to which has been added a third part of decayed stable manure, and it also ought to be beaten pretty firmly around the plants with a wooden rammer. After seeing that the plants are clean and well potted, the next point is to select an open place on which to stand them. A hard solid bottom of ashes is best, and it should be thick enough to prevent worms from coming through it. An open place should be chosen for the plants where they can have the benefit of the sun all day long. I have taken the trouble for many years in succession to place each plant on a brick laid flat on the ground, with the space of 1 foot for each plant. It seems to me that the air can circulate more freely amongst the leaves when the plants are placed in such a position. The plants make a great mass of roots before the end of the season, and require when well rooted copious supplies of water, but I certainly have never used nor do I advise the use of manure water when the plants are making their growth in the autumn. Growth is completed by the end of October, and by that time the plants ought to have good solid crowns. November and part of December are the resting periods for the early varieties, but the later sorts may have three months' rest less or more, and by rest I do not mean drying up the soil until it is quite parched up. This is an error of culture of a very grave kind, as in this way the

soil parts from the sides of the pots, and the most active roots being there they suffer, and the soil takes a long time to become thoroughly moist again. This manner of treating the plants, though not so common as it used to be, is not yet unknown in some parts of the country, but, on the other hand, when they are numbered by hundreds in small places and thousands in large ones, the difficulty is to know what to do with them in the winter. Even if glasshouses are plentiful, gardeners will fill them with one thing and another, and Strawberry plants being quite hardy are thought of last of all. They are most frequently pushed into cold frames, unheated pits, or out of doors altogether. They do very well in unheated houses, and should have merely enough water to keep the soil moist throughout. I have kept them out of doors by laying the pots on their sides, two rows with the bottoms of the pots to each other. Some ashes were laid over them to make a level surface, then another layer of pots in the same way, three, four, or five layers, one over each other. They ought to be stacked in this way in November when quite at rest, and enough water is absorbed through the pots to keep the roots in a comfortable condition as regards moisture. When forcing Strawberry plants they ought to be placed quite close to the roof glass, and the temperature to begin with at the end of December should not be more than 45° as a minimum, and as soon as the plants begin to grow I give them manure water for the first time; it is given very weak, and at each alternate watering. Strawberries in pots require a plentiful supply of water, but it is easy enough to give them too much. I have seen some growers place their plants in saucers of water, others have placed them on turves, but I do not approve of either. It may be more labour to attend to the watering of the plants, but it is labour well expended, and the results justify the means. It may be interesting to remark that if two sets of plants are placed on a shelf together, and one set is watered with manure water and the other with ordinary water, there will be but little difference between them when the fruits ripen. The only way to obtain the value of manure water on Strawberries or other plants is to test them together, with it and without.

J. DOUGLAS.

The Newtown Pippin at home.—Doubtless the great majority of American Apple growers have Apples better than the Newtown Pippin is with them, for there is no Apple grown which is so fastidious as to its location. Even here, where it reaches its highest perfection, it is utterly worthless a mile away from a mountain-side. And yet the lands, which of all others produce this Newtown Pippin in the highest perfection, the mountain coves and slopes of the Blue Ridge in Albemarle, Nelson and Green Counties, of Virginia, can to-day be bought at very low figures. Here in Albemarle few growers of Mountain Pippins ever think of gathering and packing their own fruit. The agents of the English shippers come all through the hills, buy all the Apples at a set price, and at the proper time bring their barrels, gather and ship the fruit. Occasionally a large grower packs and ships his fruit direct to Liverpool, and gains largely by so doing. Last autumn Apples of all kinds were very abundant and low in price, and yet the Liverpool shippers paid here for the fruit on the trees 10s. a barrel and furnished the barrels and packed them. The year before the price was 18s. It is well known that the Albemarle Pippin always leads in price Pippins grown elsewhere, and some are disposed to question its identity with the yellow Newtown Pippin. The great majority of us, however, are willing to admit their identity, but adhere to the name of Albemarle Pippin as expressive of the choicest Pippins sold.—W. F. MASSEY, *Crozet, Va.*

Raspberries.—There should be a very heavy crop of these fruits this year, and as Strawberries must now almost of necessity be very abundant, it may interest those who intend making jam to learn that Strawberries and Raspberries in about equal quantities make a very delicious mixture. Raspberries promise to ripen early, for they are already

large, although earlier where the soil is hard and the canes rather small and hard ripened than where so grossly grown, as is the case in most private gardens. It is instructive to note how stiff and hard canes of Raspberries are when grown out in very open situations and in soil which is fairly holding, but is not so very rich. Cut back to a height of from 30 inches to 36 inches, the canes stand up stiff and erect without being in any way supported, whilst they produce wonderful crops of fruit. Where many acres of canes are planted any attempt to support them would be out of the question. Still there is little necessity, because the free exposure to sun and wind, ample thinning in the summer, and hard, yet holding soil tend to the production of such woody suckers, which ripen fully as the winter approaches. Raspberries are, on the whole, perhaps the most regular croppers of all soft fruits. They suffer little or nothing from frost and are not affected by excessive wet or heat if growing on shallow soils. It is, however, unwise to risk that danger, especially where the plants may have to stand on the same ground for many years. Away in exposed places birds do the fruit less harm than when grown in close gardens.—A. D.

FEEDING POT STRAWBERRIES.

As a grower of many years' experience, I have been much interested in the discussion going on between Mr. Barker and "J. C. B." I lean rather to Mr. Barker, believing firmly that more Strawberries in pots have been fed than starved into worthlessness. Of course, there is no need to do either; but that is not the point, as both have been, and are still being done in a very wholesale way.

There are not a few cultivators who never lose sight of the smallness of the root-runs of Strawberries. They are ever contrasting the few square inches in pots with the feet or yards in the open, entirely forgetting that very often the roots may find more food in the smallest area. It is not what might be, but what is that tells on produce. For example, there may be nothing to prevent Strawberry plants in the open running a yard deep. But will they? and what will they get when they do? These are the vital, the material points. Writing broadly, Strawberries do nothing of the sort, and seldom go far afield for their food supplies if the latter lie within easy reach of them at home; hence it is better to dismiss our misleading contrasts as to root area at the outset. Possibly the nearer the food can be placed to the root-stock the better. The less time spent on root-wandering the more to spare for root-feeding and crown-plumping. Once the latter is perfected, the plant has no room for more until blossom, first leafage, and roots are once more on the move.

Pot-bound roots appeal for rest or more space, not more food. Their great work of crown storage is finished before much swelling takes place. And so soon as this takes place let the roots fast or rest until fresh demands are made on them. Hence I agree with the growers to say, water not at all, or with clean water only during the resting period. There is nothing further for the roots to do at present. The preliminary and furnishing part of the roots completed, let stem and top likewise rest until the finishing and completion of the crop. To stuff the roots with rich food during their semi-dormancy is like trying to put more into a vessel already full. This leads to a sheer waste of food and force, and it may do more and worse. Not more and stronger stimulants, but longer and deeper rest is what the plants most need at this stage. Hence I cannot agree with "J. C. B.'s" general statement that whether a Strawberry is finishing its growth or swelling off its crop the necessity for the application of some stimulant may be equally imperative. No; the season and the circumstances of the plant make all the differences. Under the first condition the work is done, under the second it is only beginning, and assuredly on the very face of it work needs more food than rest.

Neither does the second spell of the work and

life of Strawberry plants need so much root food as the first. It is in the first part of the career of Strawberry plants from runnerhood to maturity of crowns that the solid, sure foundation of abundant and perfect fruitage is well and truly laid. Beyond that stage it is a mere unfolding and finishing of perfect produce. In these latter processes light, air, heat are more potential than food. Hence not a few of our successful Strawberry growers condemn anything in the form of gross feeding from blossoming to finished fruit. Without pronouncing a very emphatic opinion on this point I have no hesitation in strongly condemning the double feeding with rank manures above and below not seldom adopted in Strawberry culture in pots. The surface heaped up with cow manure or other solid rank manure, the base stood on a similar layer, or in pans brimful of liquid manure. Is it, then, any wonder that the plants are often so surfeited with food that the overplus of the latter overflows into the fruit and flavours it with soot, guano, pigeon's manure, or other abominations.

Such gorgings of food at top and bottom may occasionally develop great size and even lay on tempting colour. But who can doubt that such excessive feeding and drinking are more responsible than aught else for the lack of that tempting aroma and delicious flavour so often conspicuous by their absence in forced Strawberries.

Rational forcing has very little to do with this. Overfed in the open air in the same way and to the same extent and we should reap similar results. Try Strawberries in the open over a sewage tank and under a manure heap, and note the results before advocating the imitation of such forcing conditions under glass. The inferior, under-average flavour of so many of the latter is caused wholly through their being overfed and by the use of gross, rank, unsuitable food. HORTUS.

FRUIT GROWING FOR PROFIT.

HAVING closely followed the fruit-growing controversy which raged in the press last autumn, and having since planted fruit trees in considerable quantities both in England and Ireland, I should be obliged by your allowing me space in your journal for a few remarks on the subject of fruit growing as an industry for small holders in Ireland. On the Irish side of St. George's Channel you start with the immense advantage of finding 300,000 small holdings under £15 valuation already in existence marked out for combined fruit, vegetable, dairy, and poultry farming. The two last-mentioned branches of farming are undergoing considerable improvement, while fruit and vegetable growing are almost entirely neglected in a soil and climate eminently suited for bush fruit growing. Were these 300,000 holdings in Belgium or Switzerland, their small cultivators would inundate British markets with their produce. In Ireland this very considerable source of wealth is almost ignored. I say almost, for only this very morning I have had the immense satisfaction of seeing my ideal of combined fruit and vegetable growing in actual and most successful operation in the village of Gormanstown, near Balbriggan. It is a long way the most encouraging spectacle I have witnessed during my repeated visits to Ireland in search of anything hopeful in any direction. I am happy to be able to add that the fruit-growing experiment is not confined to Gormanstown, but is to be met with in equally successful operation in the villages of Julianstown, Naul, Balscadden, Stamullen and Duleek. The holdings vary from one to about four Irish acres, and the average net profit from each acre one year with another is, by comparing statements, about £25. I know of no other use to which average land can be put which would yield so good a result.

Fruit and vegetable growing is peculiarly suitable to the economic conditions of Ireland, where small farms and large families prevail, furnishing free and always present labour for thinning and picking at the critical moment. Young hands would thus be usefully trained to picking, not in combination with stealing.

The commonly reputed avarice of the Irish landlord is strikingly absent at Gormanstown, where 30s. is the modest rent of the Irish acre of first-rate garden ground. I spent three-quarters of an hour minutely inspecting this morning. The acre was loaded with produce; about two-fifths was under Raspberries, two-fifths under Gooseberries, the remaining one-fifth under Currants and sundries. A passage 5 feet wide is left between each row of bush fruit, and utilised at times for Potatoes and Cabbages. The whole is dotted about with standard Apples and Plums, casting in some cases too much shadow, I think, over the fruit and vegetables. I should prefer to see bush Apples shaped like wine-glasses hollowed in the centre, with a stem about 3 feet high and branches trained upwards, but never allowed to grow out of the reach of a man's hand, *i.e.*, about 7 feet from the ground. Plums will not bear this training, and must be grown with more or less bushy heads, as I am informed by my friend Mr. Rivers, of Sawbridgeworth. As I sat in the clean and comfortable home of the grower of all this produce, after inspecting his little farm or big garden, his tidy wife exclaimed, "The fruit is a great paying business." The husband—quite a youth—remarked to me outside, referring to Irish small farmers in general, "They are not refined to this business." Dublin and Liverpool are the markets for the fruits produced. As a matter of fact, the inhabitants of this fruit-growing district, locally known as Fingal, are mostly descended from Danes, as I am informed. But if fruit and vegetable farming can be successful in Fingal, on the east coast of Ireland to the north of Dublin, what may not be achieved in the south of Cork, where I am encouraging experiments over a limited area? I am convinced that fruit-growing has a great future before it on both sides of St. George's Channel.

W. H. BULLOCK HALL.

WORK IN FRUIT HOUSES.

VINES.

EARLY HOUSES containing ripe Grapes cannot be kept too cool and airy, and unless the foliage is very good, black varieties, which soon lose their colour, may be the better for a little light shading. This, however, should not be systematic unless fishing nets are used, when one or two thicknesses, whilst letting in light, will greatly soften the sun's rays without affecting the foliage. White varieties, on the other hand, when the berries are fully developed and fairly coloured are greatly improved by exposure to bright light, always provided the circulation of air is equal to the expulsion of moisture. When a house is cleared of Grapes, say in June, the Vines will require very careful management throughout the remainder of the summer, particularly if it be hot and dry and there is the slightest tendency to insects. Spider, of course, is very troublesome, as it soon destroys the best leaves; hence the importance of laying on the syringe or hose and watering liberally. Laterals, too, are a great help, as they save the main buds, but they should not be allowed to run to an extent calculated to shade the main leaves or block the ventilators. Another enemy is black thrips, not unfrequently met with where hard-wooded plants, like Azaleas, are forced in vineries. It moves stealthily along, and, left alone, soon spoils bunches as well as foliage. If taken in time, sponging each affected leaf with soap or weak tobacco water is the safest and best remedy, but once thoroughly established the only cure is fumigation, three times within a fortnight. Bug can be driven off and scattered by the hose, unfortunately to rise again, or establish itself in pastures new where the presence of fruit in any stage prohibits death-dealing insecticides. Winter, when the Vines are dormant, is the proper time to annihilate it, but it may be prevented from spreading by syringing after sundown with a diluted emulsion of soft soap and paraffin, a wineglassful to a gallon of water. Oil washes, carefully applied, may not harm the foliage, but they are injurious to the roots, hence the wisdom of packing the stems with an absorbent that will prevent their descent into the border.

Succession houses in which Grapes are approaching

maturity will require plenty of air, less fire-heat, and a gradual reduction in the supply of atmospheric moisture. The roots of the Vines, nevertheless, must not be allowed to become dry, or partially so, as cutting off the supply a little too early is one of the most common causes of cracking. I always give to Madresfield Court Muscat, Black Morocco, and Foster's Seedling one good watering after the berries have commenced changing colour, cover up the borders to prevent the escape of moisture, and keep the houses extra dry when the weather is disturbed and unsteady. If the laterals have been allowed extra free licence, all the strongest may be shortened by degrees, but the weakest must be left intact to keep the sap in motion. If spider puts in an appearance, syringing amongst ripening Grapes being out of the question, the best preventive is sulphur. Annihilation of this pest is hardly possible, but when the pipes are made almost too hot for the hand to be borne upon them before painting is commenced and the wash is applied quickly, it receives a check which will save the foliage. The house, I may say, should be kept dry and cool until the pipes are hot, when it must be shut up and kept quite close throughout the night, care being taken that air is admitted very early the following morning.

Late vineries containing Lady Downe's, Alicantes, and other winter hanging Grapes this year are later than usual, but the set is good, and the borders having received such copious supplies of rain water their progress will be very rapid. This progress, of course, can be accelerated by timely and liberal thinning, by early airing and closing at a high temperature from solar influences, by an abundant supply of atmospheric moisture and regular damping with good diluted liquid. Inside borders resting upon ample drainage at this stage can hardly be over-watered, but the water must be quite as warm as that used for syringing purposes, soft if possible, and if the Vines be weak or over-cropped, slightly tinged with some stimulant. Guano water rushes foliage, soot water gives it colour, and liquid from the frame ground tank contains all that healthy fruit-bearing Vines require. As late set Grapes run quickly on to the stoning stage, it will be necessary to watch closely for scalding, a disease to which Lady Downe's and Muscats are very subject, especially during unsettled weather. Various causes have been assigned, but prevention just now claims our first attention. The idea that exposure of the berries to the sun must precede scalding is wrong, as thousands of berries and bunches undergo that ordeal, and yet they do not scald; whilst odd berries in bunches which the sun cannot reach suddenly become parboiled. If I wished to produce a bad case of scalding, the roots of the Vines should be cold, wet, and inactive; the temperature should range low and the atmosphere stagnant through the night, and a thoroughly high temperature from bright sun should precede ventilation the following morning. I would then produce a sharp current by opening the top and bottom ventilators, and my task would be accomplished. If bad colour, thin bloom and shanking also were wanted, I would follow up this mode of treatment; but, assuming that I wished to set aside these defects, warm pipes should favour night ventilation with a brisk temperature, in which the berries could not get cold enough to condense moisture. Liberal, very liberal, ventilation should prevent the air from becoming hot through the day, and the roots of the Vines should be kept fresh, bright, and active in warm, well-drained borders. Scalding does not extend over more than a fortnight, and yet how often do we see most beautiful clusters spoiled by its ravages, when the maintenance of a steady, warm greenhouse temperature through the day, and that of a warm vinery through the night would have reduced the losses to a very small percentage.

Thinning late Grapes.—As these are expected to keep well through the dark damp months of November and December, when decaying leaves are falling and dense fogs prevail, the first step should be the retention of medium-sized bunches, through which the air can pass freely. A few large clusters, of course, may be kept for special purposes, but

medium bunches give equally fine berries and lay on perfect bloom and colour, where the others are frequently deficient. The art of thinning ordinary summer Grapes consists in allowing room for each berry to swell to its full size without distorting its neighbours, but when we come to Lady Downe's, Alicante, Gros Colmans and late Muscats, the scissors should be used with a more liberal hand, otherwise bunches which bind cannot be expected to keep for three or four months after the leaves have fallen from the Vines.

CUCUMBERS.

Fire-heat having been reduced to a minimum, the houses must be closed extra early with strong solar influences and a low damp atmosphere through the night, also on dull days, if possible, must be guarded against, otherwise mildew may put in an appearance. As this parasite spreads with alarming rapidity and soon settles the account with the best of plants, the roots at any cost should be kept in a brisk temperature from fermenting material, whilst the water, of which they require copious supplies, should range from 80° to 90°. As supplementary preventives, top-dressing and good liquid feeding should be generous, manipulation frequent, cropping light, and ventilation near the surface of the bed pretty free when draughts can be avoided. If this treatment does not ward off mildew, all the oldest and most affected leaves may be cut away, especially those touching the glass, when dry sulphur must be applied to the upper and lower sides of those left; also to the vines and surface of the bed. If this is allowed to remain for twenty-four hours, all it touches will be destroyed, but favouring conditions remaining, it must be repeated at short intervals until the pits are quite clear. Red spider sometimes gains a strong hold before firing is reduced, and although old plants may not pay for cleansing, it frequently spreads to others, which it may be most inconvenient to lose. Copious syringing and liberal feeding are the best preventives, but once a suspicious-looking leaf becomes visible, light sponging with soap water—apparently tedious—is the cheapest and quickest mode of stopping it. Green-fly rarely attacks plants under really good culture, but when it does get a foothold, generally from other occupants, very light fumigation must be resorted to. Cucumbers and Melons do not, however, like tobacco smoke in a mild form; hence the invaluable advantage of Bloxham's new fumigator, which the operator can carry in his hands and ply where absolutely necessary.

Frame plants now in full bearing will require looking over at least three times a week, one of the secrets of success consisting in pinching each lateral growth at the first joint beyond the fruit and keeping the bed evenly covered with foliage. If the latter touches the glass, ordinary portable frames may be elevated by the introduction of bricks at each corner, and in the event of the season proving very hot the fruits may be raised until the lights are nearly on a dead level. The best time to manipulate frame plants is included in the hour which precedes final closing for the day—say three to four o'clock—and no power should induce re-opening to let out solar heat and moisture. Soft water at a temperature of 80° to 90° is best for general purposes, but this may be varied by the use of soot water once or twice a week, and when root-feeding is necessary, the surface of the bed may be flooded without wetting the foliage. This treatment applies strictly to bright summer weather, when the overhead bath can be followed by a temperature of 85° to 95°, and not to cold, dark days, when a dash of warm water round the inside of the frame will produce conditions most favourable to setting and swelling. Last, but not least, linings throughout the season must be well renovated, first the front, then the back, and light covering, if only a single dry mat, must husband warmth and moisture through the hours of darkness.

CHERRIES.

As the cream of the crop of early Cherries will now be over, all trees which do not require a shift may be turned out, well cleansed, and plunged in the open air for the remainder of the summer. A light, airy, but sheltered position will suit them

best, and if the pots are well filled with roots, the plants should be liberally mulched with rotten manure, first, to feed the buds and leaves, and second, to economise labour in giving water. Trees, on the other hand, which require a shift, should be kept under glass for two or three weeks at least to encourage the formation of fresh roots after they are potted. The best compost for these trees is rather strong calcareous loam, lime rubble, and a dash of bone-dust, with or without a little very old cow manure, according to the quality or poverty of the main staple. A thoroughly moist ball at the time of potting being imperative, soaking for a short period in tepid water will do no harm, but much good, as the water will facilitate the removal of the crocks and inert soil, and immediate watering will be quite unnecessary. The compost cannot easily be too dry, as it must be very firmly rammed to prevent the escape of water when the balls again require this element. If any of the Bigarreaux are still carrying fruit, they may be removed to a cool, airy place where they will be safe from wet and birds, as newly-potted trees and these will not succeed well together.

Late Cherries.—Where the latest varieties are grown and quality, rarely obtained from trees on open walls, is the object, they should have a light airy section of the house to themselves, care being taken that blackbirds do not effect an entrance. Next to birds, the greatest enemy to this class of Cherry is damp, especially when ripe and outside conditions are unfavourable. The best preventive is a hot-water pipe for driving out stagnant moisture, but lacking this the pots may be completely buried in some moderately dry material to prevent drying out, and unless the weather is very fine, syringing and damping down must be discontinued. A house of this kind cannot have too much air on fine days, and possibly some light shading may be beneficial, but it must not be permanent.

Plums.—These, like Cherries, should be kept, if possible, in sections, and when the earliest now ripe or approaching this stage are cleared of fruit they may share the open quarter under the treatment prescribed for the early batch of Cherries. This removal accomplished, the mid-season and late varieties may be re-arranged, top-dressed and regularly fed with warm diluted liquid soot and guano water alternately. The trees must be kept closely pinched, not only to let in light and air and to force the sap into the flower-buds, but also to keep aphides in check, as it is upon the young and tender points that these pests thrive and multiply. Fumigating with tobacco paper when the foliage is quite dry soon settles green fly, but black aphid is more tenacious, and is best dealt with by dipping or careful dredging up to the time syringing is discontinued. Great care, however, should be observed in the use of tobacco water or powder, also of water that is not quite free from lime or sediment, otherwise the bloom upon the fruit will be damaged, and this, as everyone knows, must be kept perfect. Plums do not submit to very hard forcing, neither do they require it, as the latest varieties can be ripened to perfection in an ordinary well-ventilated orchard house.

WORK AMONGST HARDY FRUITS.

The unsatisfactory reports I have been expecting, not for days or weeks, but ever since the autumn leaves fell or were torn from the unripe trees by December winds, at last are coming in. From Kent, from East Anglia, from the favoured county of Hants, from the west and from the great fruit district in which I am located, I gather that the grand prospects of a month ago are dwindling down into disappointment. Indeed, so terrible is the grub and so dire its attacks upon half-ripe trees, that I question if this second year of the plague will not kill outright tens of thousands of old trees in our orchards and millions of young ones in the nurseries. Only last week I heard of one large firm having 160,000 leafless Apple trees in their nursery, and others, no doubt, are in similar plight. A great number of trees about this time last year looked as if they had been scathed by fire,

and their owners gave them up for dead; but, thoroughly ripened by the great heat of the preceding season, early in July they broke into a weak, sickly growth, which, as a matter of course, never ripened. Blossom-buds, it is true, were plentiful, but, alas! the majority of them were imperfect, and the result is just what experienced fruit growers anticipated. Grub, no doubt, is finishing off the enervated trees, but grub has had very little to do with the destruction of the crop of fruit. Neither, in my opinion, has a tropical May, for Pears and Cherries on walls had flowered and dropped before the warm weather had set in. Our greatest losses last year were amongst Apple and choice Pears; this year they embrace every kind of fruit, with, possibly, Strawberries and Currants as an exception. Possibly; I use the word advisably, for, so far as I am able to judge, the crop will not be so fine and heavy as the blossom led one to anticipate. Peaches have thinned terribly, a number of trees which at one time promised to be very good having cast nearly all their fruit when about the size of Horse Beans. A very large tree of Grosse Mignonne and two of that excellent late Peach Prince of Wales, which never failed until this year, are very thin indeed. Alexander, Noblesse and Royal George are fairly good, but the best crop upon our walls is borne by Dymond. Nuts are a failure, and Figs are still dropping. As to work amongst the trees, its name is legion, for garden destroyers are plentiful enough to keep all hands picking and washing. Then the trees, like spirited horses that have thrown their riders, are rushing away headlong and will require all one's skill and attention throughout the remainder of the season. A repetition of the heat and drought of 1887 is what we now require, for thin out, and pinch and lay in the wood as we will, nothing short of an abnormal autumn can ripen the strong shoots and perfect the flower-buds properly. Just now we are busy laying in the young wood of Peaches and Nectarines, and, notwithstanding that all our trees were root-pruned and some of them lifted bodily, we find a great number of strong shoots which are shortened back to good laterals, the latter being the most likely to ripen. As yet the hose has not been laid on, and the foliage being quite free from aphid and spider, all washing will be deferred until cleansing becomes absolutely necessary.

PEARS.—If not already shortened back to three or four eyes or bases, all shoots should now be reduced to let in light and air and to force up the flower-buds. If very strong, the work should be commenced at the top of each tree and gradually extended downwards, thinning the fruit (save the mark) being reserved for a future day. Where rather long, spur-like shoots with a flower-bud at the point were left intact at the winter pruning, those which have not set may now be shortened back to three eyes. The dormant buds may not break, but they will plump up and most likely form perfect flower-buds by the end of another year. Pyramids and bushes also must be opened out to let in light and warmth, and gross leading shoots may be pinched, especially those near the tops of the trees, but space for extension being ample, these radiating shoots should be allowed to grow into fertility.

PLUMS AND SWEET CHERRIES against walls must have all breast wood and superfluous shoots removed, and being subject to green and black aphid, those reserved must be dipped in tobacco water before they are laid in. If the latter have not been netted they will now require this protection, and Morellos will soon be forward enough, but aphid being such a scourge, dipping and cleansing are imperative preliminary operations. Some growers peg or nail in their Morellos early in July, but I prefer allowing the reserved shoots to grow out from the wall, as they distend the nets and shelter the fruit from wet when ripe in the autumn.

When the whole of the fruit trees have received attention, and the reserved growths have been neatly tied or nailed, an advantage should be taken of fine dry evenings for washing out filth and insects, not only with plain water, but also with soap-suds. When fruit crops are full and good we use this insecticide carefully throughout the

summer; but having so little fruit to mar with the soap and soda, this season offers unfortunate facilities for plying it most freely amongst the spurs and branches. Then as a fresh clean growth of laterals will push quickly, pinching must be followed up, otherwise the fruit spurs deprived of warmth and light will suffer, and possibly again give out when they have expanded their imperfect flowers. Bushes and pyramids must be treated in the same way, and, unpleasant as it is to work amongst crippled, fruitless trees, one and all must receive unceasing attention to every trifling detail throughout the remainder of the summer.

THE ORCHARD.—Large trees again defoliated by grub just now present a most pitiable sight to their helpless owners, and although a great number which look scorched and dead will soon push a July growth, I question if a severe winter will not kill them outright, or render them quite useless. In many instances this second visitation may prove a godsend, as thousands of trees, under any circumstances, should be grubbed up to make room for young ones; but where are the latter to come from, for is it not the fact that young stock in our nurseries is rendered quite unsaleable? Some nurseries, of course, will escape, and not a few nurserymen will save small stocks by washing and picking, but then we may expect to pay a much higher price for an inferior article. Young trees whose constitution is sound and good should receive special attention, as it is to these that we must look for crops in the future. Newly grafted trees have made a good start, the growth with us being exceptionally strong and the foliage fresh and healthy. If not already attended to, the ligatures should now be cut or loosened, and sticks or stakes applied as safeguards through storms of rain and wind which may yet overtake them.

W. C.

Fruit prospects.—I am afraid there has been a tendency this season in some quarters (I speak, unfortunately, from experience) to forget the old adage of "reckoning your chickens," &c., in the matter of the fruit crops; certain it is that so far as this neighbourhood is concerned the outlook is not promising. The wet summer and late growth in 1888 are doubtless answerable for much of this, as I find the crop is invariably thinnest on those trees that made strong late growths, but I fancy in the case of the Apple the failure may be partly attributed to a long spell of dull, sunless weather that we experienced when the trees were in bloom. Peaches and Nectarines are a very fair crop, the latter being rather the better. Plums are also very fair, but partial. Of varieties on walls that I have noticed, the best crops appear on Early Prolific, Green Gage, Blue Impératrice, Imperial de Milan, and Golden Drop. Cherries, both dessert and Morello, are also very fair, and here the favourable side of the report must end so far as the large and higher class fruits are concerned. Outdoor Vines are hardly throwing a bunch; Apricots are very thin; also Pears, and I am sorry to add that Apples must be included in the list. The crop is a total failure in many places; with us it is thin, and, as in the case of Plums, decidedly partial. Old bush trees that have been allowed to increase in size are carrying the best crops, Keswick Codlin, Stirling Castle, King of Pippins, and a large light-coloured Pearmain being specially noticeable. Strawberries are very good, the fruits of La Grosse Sucrée being exceptionally large and early. Gooseberries are also a heavy crop, particularly dessert varieties on trellises. Raspberries are not so good as usual, and Currants are thin; indeed, Black Currants may be placed with the Apple, as in a great majority of cases they are almost a total failure. Green-fly and black-fly have been very troublesome, necessitating a lot of work to keep the trees in a healthy condition.—E. BURRELL, *Claremont*.

Salt for Asparagus beds.—I notice there has been a little discussion on this subject, and writers are divided in opinion as to the desirability of employing the salt. Does it not depend on a very simple matter, viz., the nature of the soil in which the Asparagus is growing? This has been my experience. In

a sandy loam, or in old gardens that have been worked for many years, salt may be used with advantage every season. But in comparatively new ground, or anything approaching a stiff loam, it is never advisable to use it, as it has a tendency to bind and clog any ground that is at all heavy.—E. BURRELL.

TREES AND SHRUBS.

ABIES SMITHIANA.

THIS very handsome Fir is known and grown in this country under the synonyms of *A. Morinda* and *A. Khutrow*, but honour to whom honour is due justifies botanists in claiming for it the

shoots, which give it quite a weeping character, and being almost as free as the common Spruce, it soon forms a fine specimen. The foliage is dense, of a light green colour, and the leaves are quite 2 inches in length on healthy, robust trees, but shorter and less persistent on dry, warm soils subject to drought in hot summers. Under the latter conditions, the trees commence bearing cones when very young, but here on our heavy calcareous loam they attain a height of from 20 feet to 30 feet before they become very fertile, and then, hanging in profusion, they convert *A. Smithiana* into the softest and most graceful specimen in the pinetum. The



Coning branch of *Abies Smithiana* (syns., *A. Morinda* and *A. Khutrow*). From a specimen grown at Eastnor Castle.

specific name of *Smithiana*, in compliment to Mr. Smith, gardener to the Earl of Hopetoun, by whom the first plants—six in number—were raised in this country. A native of the Himalayan Mountains, from Bhotan to Cashmere, where it is found at elevations ranging from 6000 feet to 12,000 feet, it is quite hardy in this country, but being an early grower, some care should be devoted to the selection of a site sheltered from the morning sun, otherwise the soft, tender shoots may get cut off by the frosts of spring. When planted in a deep, moist, loamy soil it forms a dense and most graceful pyramid composed of thousands of pendulous

branchlet herewith figured, and greatly admired by the editor of *THE GARDEN* a few months since, was taken from a tree raised at Eastnor and planted by me some twenty years ago, but it hardly does justice to the specimen, as each of the cones was 6 inches in length, quite smooth, and literally varnished with tears of transparent resin. The timber, which is white and free from the hard knots met with in the common Spruce, Sir J. D. Hooker says is of little value and soon perishes. This, however, matters but little, as a tree which suffers in its young growth when planted below the line of fog and frost is hardly likely to be made an article of commerce. As

an ornamental specimen, nevertheless, all lovers of unique Conifers having deep holding loams upon which the Spruces and Silver Firs thrive should certainly give this species a trial. Here I have planted a goodly number in the grounds as well as in ornamental game coverts, and although I have not been particular in my choice of site, I must say I never saw a single tree injured in its spring growth, the only drawback on rocky ground being persistent drought later in the season. W. C.

JAPANESE AND EVERGREEN TREES AND SHRUBS.

It is only at a large exhibition like that of Manchester that one has an opportunity of seeing these subjects produced extensively and in their best character. Prizes are offered for groups, but some nurserymen take collections, but do not enter them for competition. Messrs. Fisher, Son, and Sibray, well-known nurserymen of Handsworth, Sheffield, had a very fine collection of Japanese Maples, of which they make a great specialty, and interspersed with them were a few choice hardy shrubs. This Sheffield firm grow these Maples freely and colour them finely, and they assert that most of them are hardy in their Handsworth Nurseries. Such being the case, if these valuable ornamental shrubs do so well among the surroundings of smoky, grimy Sheffield, then it must be certain they will flourish in other parts where the atmosphere is purer and more congenial to the plants than in this busy manufacturing centre. *Palmatum* appears to be one of the best stocks for grafting these Maples upon. It is said Maples are becoming much used, not only for the decoration of conservatories, but also for halls, alcoves, &c., in residences.

In this interesting group was *Taxus grandis*, a free-growing shrubby Yew of great promise, a seedling intermediate between *elegantissima* and the Golden Iris. It was conspicuously showing its variegation, and it is very likely to make a useful ornamental hardy evergreen shrub. There was also a specimen of *Taxus adpressa* variegata, a bright-looking golden form of the black *adpressa*, and to both of these first-class certificates of merit were awarded.

In Messrs. Waterer and Sons' group of Japanese plants they had charmingly coloured Maples, *Aucubas* in variety in berry, *Acer Negundo* variegata, the Umbrella Pine (*Sciadopitys verticillata*), *Osmanthus* of sorts, all of them evergreen shrubs deserving of a wider recognition; twenty varieties at least of *Retinosporas*, among them a specimen of *pisifera nana* variegata, a low, rather spreading, round-headed plant of extremely slow growth, for I was informed by Messrs. Waterer and Sons' manager that he grafted this plant himself twenty-five years ago; consequently it must meanwhile have grown very slowly indeed. He states that it is a capital plant for planting on the verges of rock-work. There were also specimens of the Japanese Holly (*Ilex furcata*), which will withstand 20° of frost with impunity. In an interesting talk with Messrs. Waterer's manager he told me that he thought all the *Retinosporas* are varieties of *pisifera*, and will revert to that species. This statement is made by a man who has spent a lifetime in working among and propagating *Retinosporas*, and who, therefore, is likely to know something about them.

I think *R. pisifera aurea* is, in many ways, a very useful hardy variegated plant. I have a good-sized specimen in a pot, and it is an attractive ornament in my forecourt garden in summer and in my cold house during winter. It takes on a rich golden hue; it is of compact, though slow growth, and it bears clipping remarkably well. Experiments have been made in the way of employing this plant as a garden edging and as a substitute for Box, and it is said that the *Retinospora* is quite as hardy and less particular in the choice of soils, that it is of dwarfer growth and bears clipping better, as the leaves are very minute and dense, while Box leaves,

from their size, become much mutilated when the shears are applied; then, while it is of a compact growth and leafy, the foliage is of a lively golden colour, and the cost does not exceed that of common Box.

The collection of hardy evergreen shrubs shown at Manchester by Messrs. Waterer and Sons was represented by plants of large size, and so illustrating their adaptability for decoration. They were arranged in a long line upon the terrace, where they were seen to the best advantage. They comprised Hollies in variety, green-leaved and variegated; *Retinosporas*, *Taxus*, *Abies*, *Thuja*s, *Thujopsis*, &c.—quite a unique collection. R. D.

THE WEEPING BEECH.

(*FAGUS SYLVATICA PENDULA*.)

NOT until I had seen the noble example of the Weeping Beech in Mr. Waterer's Knap Hill Nursery had I the remotest idea of how truly grand and picturesque a tree the above is. Unlike most weeping trees, the one in question is a picture of ease and beauty, the massy pendent foliage and irregular outline generally imparting to it a grace and grandeur that would be difficult to describe. The tree is closely branched to the ground, not symmetrically rounded in contour, but here and there great masses of foliage steal out from the general outline and add to it a charm and easy grace that should at once characterise this Beech as one of the handsomest ornamental trees in cultivation.

Planted on the greensward, and at a respectable distance from any other tree, an example of the Weeping Beech, even if half as fine as the Knap Hill specimen, would have a telling effect and impart a finished appearance that it would be almost impossible to impart without it. Unfortunately, I do not know the dimensions of this fine Weeping Beech, but the spread of branches is extraordinary and the health of the tree perfect, judging at least from the fine healthy tone of the foliage. Perhaps Mr. Waterer would favour us with its dimensions, for I have more than once heard it said to be the finest in the kingdom. Generally, however, the Weeping Beech is of more regular outline than is the tree just referred to, it being, too, one of the most persistent of weepers, the branches hanging vertically one over the other in massy flakes, and giving to the trees a very distinct and unusual appearance.

There is another Weeping Beech in commerce, but it is inferior in almost every respect to the one under notice. Of dwarf habit, somewhat compact growth, and sparsely branched, it bears but little comparison with the Knap Hill variety, which is of as free growth almost as the typical species.

When we take into consideration of how free growth the Beech is, how easily supplied with suitable soil, and how hardy and robust it is, it only surprises us that more of the distinct forms—and there are not a few, to wit the Fern-leaved, crested, purple, and weeping—are not to be found under cultivation. Beside a pond or lake, and where its peculiarly pleasing contour is well shown off, the Weeping Beech looks best; but elevated at a considerable height above the eye of the observer and backed up by silver Birches and other light-foliaged trees it likewise looks well. Undoubtedly there are many forms of the so-called Weeping Beech, but in my opinion the specimen at Knap Hill is well worthy of extensive culture, for it is without doubt the most beautiful of the many forms at present under cultivation.

A. D. WEBSTER.

SHORT NOTES.—TREES AND SHRUBS.

Olearia macrodonta.—When I selected this beautiful Holly-leaved-like tree two or three years ago, I was much struck with its distinct and interesting foliage, and would have been satisfied with it for that alone. But at the present time it has developed numerous clusters of flowers resembling miniature

Marguerites. It is, I think, the most pleasing of all trees or shrubs that have blossomed here in June.—J. MUIR, *Margam*.

Californian Bearberry (*Arctostaphylos californicus*).—The common Bearberry (*A. uva-ursi*) is a very useful plant for covering the ground in the neighbourhood of the larger *Ericaceæ* where it is somewhat shaded, as well as fairly moist. For this purpose *A. californicus* is just as suitable, and affords a pleasing change from the other. It is larger in all its parts and more vigorous than the common Bearberry, and consequently will cover the ground at a quicker rate than our native kind. The pretty little wax-like blossoms are borne in great profusion, and being of a brighter colour than those of the common form are therefore more showy.—T.

Spiræa splendens.—This *Spiræa* is sometimes classed as a variety of *S. japonica* or *callosa*, but it differs widely from what is usually regarded as the typical form of that species, which is a tall-growing plant, remarkable for the bright red tint of the young leaves. *S. splendens*, on the other hand, forms a low, very dense-growing bush, about 1 yard high, whose foliage does not show any of the bright colouring of *S. japonica*. From a flowering point of view, however, it is a most beautiful shrub, as the blossoms, which are borne in dense flattened corymbs, are of a rich reddish pink colour, a good deal like those of the finest form of *S. japonica*. As a flowering shrub, too, its merits are greatly enhanced by the fact that it commences to bloom about midsummer, by which time the bulk of flowering shrubs are over.—H. P.

Syringa amurensis.—This is the best known and most commonly cultivated of the Lilacs with white flowers, in which the tube of the corolla is short, and which belong to the section *Ligustrina*, so called from the resemblance of the flowers to those of the *Ligustrum*, or Privet. It is a spreading shrub of graceful habit, growing here to a height of 6 feet or 8 feet. The panicle of flowers is sometimes erect, and sometimes pendulous by the curving of the slender branches. It is short and compact, or more often long, one-sided, and sparsely flowered. The small creamy white flowers, which are destitute of perfume, appear here from the 15th to the 20th of June. It is a native of Manchuria, where it was discovered in 1857 by the Russian botanist, Radde. A few years later it was introduced into cultivation through the agency of the St. Petersburg garden, to which Maack sent seeds from the valleys of the Amour and the Ussuri. It is, as might have been expected, perfectly hardy here. As an ornamental plant it possesses considerable value.—*Garden and Forest*.

Beaufortia splendens.—This Australian shrub belongs to what are usually called Bottle-brush plants, this name being derived from the peculiar character of the inflorescence, the principal feature of which is a crowd of bright-coloured filaments arranged round the shoot after the manner of a Bottle-brush. The different genera that produce blossoms in this manner are all members of the Myrtle family, and include the *Melaleucas* and *Callistemons*, as well as the *Beaufortias*. Of this last-named genera one of the best is *B. splendens*, a much branched bush with neat foliage and glowing scarlet-coloured blossoms. A coloured plate was given of it in THE GARDEN, May 5, 1883, in which its peculiar, yet beautiful blossoms were well shown. Another species, *B. decussata*, has also bright showy blossoms, but it is easily distinguished from the first-named by the decussate arrangement of the foliage. Of the *Callistemons* which are larger and bolder growing bushes than the *Beaufortias*, the finest is *C. rigidus*, whose twiggy branches are clothed with peculiarly greyish green leaves, while the brush-like arrangement, which extends for about 6 inches along the shoots, is composed of a mass of hair-like filaments of a scarlet-crimson colour tipped with gold. For large conservatories this is one of the most beautiful plants it is possible to have, and one that often flowers at different seasons of the year. *C. salignus*, which has straw-coloured blossoms, is very distinct from the last, but not nearly so showy. The genus *Melaleuca* is an ex-

tensive one, but very few members of it are to be met with unless in some of our principal botanic gardens. A few distinct species are *M. squamea*, with purplish blossoms; *M. striata*, pink; *M. Wilsoni*, reddish; and *M. diosmæfolia*. All these different Bottle-brush plants, in common with most subjects belonging to the Myrtle order, are of easy culture, the principal consideration being in potting to use a compost that will remain sweet and open for a considerable period, as in the case of large specimens they will not require repotting for many years. Good fibrous peat and loam in about equal parts, with a liberal admixture of sand will suit most of them perfectly.—H. P.

SUMMER PROPAGATION OF SHRUBS.

MANY of our choice shrubs can be readily propagated during the summer from green wood cuttings at much less cost than at any other time of the year; the material is more plentiful and more easily procured, and no fire heat is required. A much longer season, too, is available, another important advantage where large quantities of plants are required. The greenhouse can then be used in winter for the plants of more difficult propagation. Either a greenhouse or frames, or both, are required, according to the number of plants to be propagated. A house 40 feet long by 18 feet wide, with two side benches 3 feet wide, and a centre bench 6 feet wide, will, under good management, be able to turn out, with the aid of frames in which to harden off the plants, many thousands of the easily rooted kinds between June and October, after which it can be cleared out and made ready for winter work. Many kinds of material have been used by propagators to strike cuttings in, but I have found nothing better than clear, sharp sand, not too coarse, but free from clay and iron rust. Sand that has been exposed to sun and air for some time is best, but it can be used fresh from the pit if carefully selected. The sand should be spread on the benches from 2 inches to 3 inches deep for any ordinary soft wood cuttings, and at this time of the year it is not necessary to drain a bed of this slight depth if it is carefully looked after.

The sand should be well watered and made as firm as possible with a mallet or brick. Where cuttings are put in firmly they do much the best. They should be selected from young shoots of half-grown wood, if possible, and of medium size, all over-grown suckers being avoided. Cuttings with two to three eyes, certainly not more than four, will be long enough in the case of most plants, although much larger cuttings can be used. Remove the lower leaves and cut off smooth below an eye, being careful to have a well-sharpened knife. If the upper leaves of the cuttings are large, it is well to shorten them somewhat, to lessen the surface exposed to the air and to help prevent wilting. Soft-wooded cuttings of trees or shrubs should on no account be allowed to wilt. Except in rainy weather, I invariably keep a can of water with me, and the cuttings as fast as they are collected are sprinkled and put into a close-covered box until I get to the potting-shed. When cuttings are collected at a distance, I dip each lot, as soon as cut, in water, and wrap them immediately in damp paper, keeping them away from the air as much as possible. On reaching home they are at once spread on the damp floor, sprinkled, cut in lengths, and, as soon as possible, put in the bed, where they should barely touch each other, especially in summer, for when they are crowded they are more liable to attacks of fungus, the growth of which is very rapid, often going through large beds in a single night. All care should, therefore, be taken to diminish the danger from it.

As soon as the cuttings are put in they should be well watered to settle the sand firmly around them. The roof of the house should be shaded with a slight coat of whitewash. For the first week or ten days extra shading should be given inside over the cuttings with strips of light cotton cloth or paper, hung like a curtain, so that it may be easily drawn or rolled up when not in use. The cuttings will usually need shading from nine in

the morning until three o'clock in the afternoon, or even later, according to the weather and the construction of the house. If very hot weather prevails, a light syringing should be given twice or three times a day, and the floors or paths of the greenhouse should be damped down morning, noon, and night. The temperature of the house should be kept as even as possible by closing early or late, according to the weather. When cloudy, all the shade should be removed, if possible, and the syringing discontinued unless the cuttings show signs of wilting, when they may have a slight sprinkling. After the first week or ten days the extra shading should be slowly dispensed with. Most of the cuttings will be well rooted at the end of a month, when they should be at once transferred to boxes or pots of light, rich, sandy earth, planted firmly, and for a few days should be shaded and syringed just as they were on the cutting bench. At the end of a week they will be somewhat established, when they may be treated as ordinary plants, in a greenhouse or frame, during the first season until the new growth is well ripened. The pots or boxes should be well protected from extreme weather, either in frames or deep pits, otherwise many of the plants will not endure the first winter. It is also well to remember that the soil in boxes or pots, stored away for winter in pits, should never be sodden or wet. In the spring the plants should be shaken out of the pots or boxes and transplanted into well-prepared nursery beds, kept well cultivated, and at the end of the season most of them will be fine, healthy plants. I prefer the boxes to pots, as the plants make better roots, are more easily handled, and pack away better in pit or frame. The boxes I use are made by cutting an ordinary soap box into four, using cheap half-inch Spruce for the extra bottoms. The boxes usually last two seasons if housed as soon as they are out of use.

The species of plants that I have found readily propagated in this way are *Berberis Thunbergi*, *B. vulgaris* and its varieties, many of the *Clematises*, *Deutzias*, *Akebias*, *Ampelopsis*, *Baccharis*, *Bignonia*, *Callicarpa*, *Cornus sanguinea*, *C. stolonifera*, and other *Cornels*, *Cotoneasters*, *Eleagnus longipes*, *Euonymus*, *Forsythias*, *Helianthemums*, *Itea*, *Kerrias*, *Ligustrums*, *Loniceras*, *Philadelphus*, *Prunus japonica* and some others, *Rubus*, *Ginkgo*, *Sambucus*, *Symphoricarpos*, *Hydrangeas*, *Syringa*, *Schizophragma*, *Decumaria*, *Ribes Gordonii*, *Styrax*, *Dier-villas*, *Rhodotypos*, *Vinca*, *Pterostyrax*.

Some *Viburnums*, like *V. cassinoides*, *V. Opulus*, *V. plicatum*, *V. dentatum* and *V. Sieboldi*, root readily from soft-wood cuttings; others are best propagated by layering or grafting. Some species of *Roses*, such as *R. multiflora*, *R. repens* and *R. setigera*, root quite easily, while others, like *R. rubiginosa* and *R. rubrifolia*, refuse to root at all.

Exochordas, *Clethras*, *Andromedas*, *Hollies*, *Osmanthus*, *Stuartias*, and other slow-rooting plants do much better under a bell-glass or double-light frame. Where only small quantities of plants are needed, 5-inch or 6-inch pots, well drained, all the other conditions being the same, can be used in a frame with an easterly exposure instead of the propagating bench. Whatever methods are used, the greatest watchfulness and care must be exercised at all times, or the result will be failure, however well the mechanical part of the work is done.

One of the easiest methods of increasing woody plants during the summer is by layering. This for places where large quantities of plants are not wanted is the surest way, and requires the least care, after the operation is once completed, and many plants difficult to propagate by cuttings are sure in time to root from layers. At one time, in fact, few nurseries of any size were without a place set apart as a stool-ground, so-called, and many nurseries at home, as well as abroad, use this method for increasing many plants to-day. In forming a stool-ground, select a good piece of good, light loam, well enriched with rotted manure. Trench it well and set out the plants from 3 feet to 6 feet apart, according to their habit of growth. This gives plenty of room to work all around the plants

after they have been thoroughly established. After removing the soil to the depth of from 4 inches to 6 inches, gently draw down the branches to be layered, fixing them in place by hooked pegs, and, with a sharp knife, after removing the surplus leaves, cut half way through the stem, just below an eye, then drawing the knife towards you, cut the branch lengthwise from 1 inch to 2 inches, according to its size. Cutting the stem of the layer on the under side, as is the usual way, is often followed by the breaking of the layer, if it is at all brittle. This is prevented by making the cut on the upper side and moving the tongue slightly to one side. After being pegged down the layer should be covered with from 4 inches to 6 inches of loam. In many plants it is not necessary to tongue the layer, a slight twist being sufficient. With others it is only necessary to bury the stem, while others again root if the branch is only held in contact with the surface of moist earth. The only attention demanded by layers is plenty of water during the dry season and keeping the ground clean. A special piece of ground set apart for this work is not necessary. Any plant can be layered if a trench is dug around it and filled with good loam, into which the tongued or twisted branch is held. While many layered plants will root in a few weeks, others will take a year, and some two and even three. Some will need to be recut or ringed to make them root. After layers are rooted they should be severed from the branch, pruned and transplanted to the nursery in the same way as other plants. Almost every hard-wooded plant known can be rooted from a layer if the proper time is allowed.—JACKSON DAWSON, in *Garden and Forest*.

STOVE AND GREENHOUSE.

WORK IN PLANT HOUSES.

WINTER-FLOWERING STOVE PLANTS.—The different kinds of quick-growing winter-flowering plants which require more or less artificial heat should now be moved into the pots they are intended to bloom in. Though the kinds generally used for winter blooming are free-growers, it will take all the time between this and autumn to get the plants sufficiently large and to admit of the wood becoming properly matured. It may be taken as a rule that the freer the growth which plants make naturally, the more root-room they require, but it is not well to give larger pots than necessary, for much may be done to keep up the requisite vigour by the use of manure water, which may be given freely from the time the roots have got well hold of the soil.

THYRSACANTHUS RUTILANS.—This plant does not require so much room as some of the strongest growing species; 8-inch or 9-inch pots are large enough for examples that were struck from cuttings during the present spring. Old cut-back stock that bloomed last winter will require 10-inch or 12-inch pots if the plants are strong and vigorous. Loam, to which has been added about a sixth part of rotten manure and some sand, will answer. With all soft-wooded subjects of the nature of this *Thyrsacanthus* it is well to mix some leaf-mould if the loam happens to be of a heavy adhesive character. Drain the pots liberally, and see that the soil when used is quite free from worms. There is nothing gained by stopping this plant too often, as it will not form a bush. But in the case of large old plants, when not sufficiently furnished, the tops may again be cut out.

SERICOGAPHIS GHIESBREGHTII.—A moderate size is attained by this plant. Eight-inch pots are large enough for spring-struck stock, unless when they are unusually strong. An inch larger size may be given to cut-back examples that after breaking into growth were shaken out and put into smaller pots than they had occupied last year. The plants will have been already once stopped, and as soon as they have made a little progress after potting the points of the shoots may be again removed. In most cases this second stopping will be sufficient. Keep the plants well up to the roof of the

house or pit in which they are grown during the summer. It is necessary in the case of this and other things that produce flowers somewhat thin in texture to see to this, as if the leaves and stems are wanting in solidity, nothing that can afterwards be done will make good the defect.

PLUMBAGO ROSEA.—Eight-inch or 9-inch pots will answer for this season's struck plants. Old cut-back specimens will need two or three sizes larger. If the plants are not sufficiently furnished they should again be stopped. To do this effectually the stopping should not be confined to simply pinching out the points of the shoots; this, with exceptionally soft-wooded things like this *Plumbago*, often has no other effect than to cause a single eye to break. To induce the requisite increase of shoots, at least two joints should be removed from each of the branches that are stopped. This will cause two or three eyes from the better solidified wood to push and grow away evenly. This plant also requires all the light that can be given it from the time the cuttings are struck until the plants come into bloom. Care should likewise be taken that no more atmospheric moisture is used than is necessary for the healthy development of this and other things that are grown with it.

ERANTHEMUM PULCHELLUM.—This plant has flowers of a colour that at no season of the year is over-plentiful, and through the winter still less so. Where the plants after being struck in spring have been pushed on and due attention has been paid to stopping, they will now be stout and bushy, filling 6-inch or 7-inch pots with an abundance of roots. They should be moved at once into others two or three sizes larger. If a portion of the stock is required to come into flower later so as to give a succession of bloom, these may again have their points pinched out. Old specimens that were cut back after blooming are the most suitable for flowering first; for these when strong, 11-inch or 12-inch pots will not be too large. Both the young and the older stock may be grown on together until autumn, after which those that are wanted to bloom a little later should be kept cooler for a time.

POINSETTIAS.—Cuttings that were put in to strike last month should now be in a condition to pot off. If well rooted, they may at once be put in the pots in which they are to be grown on and flowered. When grown with as much heat as they like, a liberal shift in the way indicated may be given without any danger of the roots being injured. After potting, keep the tops of the plants as near the glass as they can be got. This is the best way of preventing the objectionable long-jointed growth which *Poinsettias* are naturally inclined to make. When they are potted, give a moderate amount of air daily, regulating the quantity by the state of the weather. When very hot, additional water should be thrown about the floors, under the stages, and on the walls, so as to prevent the air getting too dry. Old plants that were headed down in spring and afterwards partially shaken out and repotted, will shortly require moving into the pots in which they are to remain. The size given should be regulated by the strength of the plants and the size they are required to be grown to. Stout stools will be furnished with four or five shoots each; some of these generally show a disposition to outgrow and starve the others. The strong ones should be tied down so as to bring them to a horizontal position. This will help to direct the strength into the weaker ones, which must be left erect. The points of the bent-down shoots will soon assume their natural erect position, and the whole growth will go on more evenly than if the branches were left to take their own course. All the plants named require a thin shade in bright sunny weather; but this should in all cases be movable, and neither put over them earlier in the mornings nor kept on later in the afternoons than there is any necessity for, as the more direct light winter-flowering subjects such as those noticed receive the better it is for them. Syringe freely every afternoon at the time the air is shut off. Several of the plants mentioned are not so much troubled as some things are with insects; yet a

regular application of water overhead has a marked effect in keeping insect pests down, provided it is properly done, and it is alike of use in assisting the growth. One syringing a day is enough. The soil advised for the *Thyracanthus* will do for the other kinds mentioned. Pot moderately firm, but it is not necessary to ram the soil so solid as required by finer rooted things that do not grow so fast.

SCUTELLARIA MOCCINIANA.—This plant keeps on blooming almost all the year round, as at no season does the growth extend far without forming bloom. But to enable it to do this it is necessary to give warm stove treatment in winter. The red and yellow flowers, produced as they are in large cone-shaped heads, are equally effective when cut as they are when on the plant. After its first introduction this *Scutellaria* was to be met with in most gardens where a good selection of stove kinds was grown. Now for some inexplicable cause it is seldom seen. Young plants struck in spring should be moved into 6-inch or 7-inch pots. Loam, with some rotten manure, sand, and a little leaf-mould, answers for it. It is such a free bloomer that it will flower when quite small; consequently, whilst in a young state it should not be allowed to want for pot room, otherwise it is more disposed to produce flowers than to make growth. Pinch out the points of the shoots to induce the formation of side branches. The stopping should be repeated a second time, after which there is not usually much necessity for further attention in this matter, as two or more eyes will generally start on each branch immediately below the flower. Ordinary stove treatment is all that the plant requires. T. B.

Pelargonium Duchess of Teck.—This is a pure white form, and is in all probability a sport from *Mme. Thibaut*, a well-known variety, whose capacity for sporting appears to be almost unlimited. *Duchess of Teck* has an excellent habit of growth, is very free, and produces bold trusses of well-formed pure white flowers. Messrs. Fisher, Son, and Sibray, nurserymen, Sheffield, had a large quantity of it at the great Whitsun show at Manchester. Should it make a good winter-flowering variety it will be valuable for cutting purposes. But what with *Venus*, *Pearl*, and one or two other pure white varieties, it seems a little difficult to say which is likely to prove the best.—R. D.

Amasonia punicea.—This pretty and distinct stove plant is of easy culture, and seems to flower with but little regard to the season of the year, as while it is in many cases in bloom at the present time, it may also be induced to flower during the dull days of winter. This was well exemplified in the case of a number of specimens in Messrs. Veitch's nursery at Chelsea last winter, which, though in full bloom, were less affected by the dense fogs which prevailed at that time than many other subjects. Its several desirable qualities should cause this *Amasonia* to become a popular plant, but up to the present it is by no means common. It was introduced from Brazil by Messrs. Veitch, and distributed by them in 1884.—H. P.

Tabernæmontana coronaria planted out. —I lately saw a row of plants of this which had been planted along the centre of a large span-roofed house. The house was occupied solely with *Gardenias*, with this solitary exception, the plants in the centre bed being planted out on raised hillocks in soil consisting mainly of peat, the *Tabernæmontanas* receiving the same treatment. Being the taller plants, their snowy heads of flower looked well above the green foliage of the *Gardenias*. Both these plants in this establishment may be said to be free from the pest which, in some places, is a sore trouble—mealy bug. This insect may be kept in check by nothing but clean water if applied vigorously with the syringe at all times. Mealy bug does not like to have its nests disturbed. The treatment required by the *Gardenias* is quite suited to the requirements of the *Tabernæmontana*.—M.

Azalea Deutsche Perle.—This will, as it becomes better known, be very largely cultivated, as it is almost, if not quite, equal in appearance to a *Gardenia*, the flowers being large, semi-double, of

the purest white, and of great substance of petal. Besides all these points, the plant is a first-rate grower, it being of a strong, fine habit, and as it is naturally an early-blooming variety, it requires but very little forcing to get it in bloom in midwinter, and especially is this so with plants that have once been in heat, so as to cause them to make growth before they otherwise would. A fine companion to *Azalea Deutsche Perle* is *Pauline Mardner*, which has most of the good qualities of the first-named, the habit of plant, earliness of blooming, shape and substance of flowers being about the same, but the flowers are of quite a different colour, as they are cherry-red and very bright looking. Those who have not these two *Azaleas* should get them, as they are of great value for bouquets, their thickness of petal rendering them very enduring when mounted and used for such work.—S. D.

GARDEN FLORA.

PLATE 707.

TWO WINTER-FLOWERING SHRUBS.

(WITH A COLOURED PLATE OF *DAPHNE MEZEREUM* AUTUMNALIS AND *CYDONIA JAPONICA* MOERLOOSEI.*)

THROUGHOUT the months of November and December very few flowering shrubs are to be found in our gardens, and consequently any that bloom at that season are especially valuable, more particularly if they are of a bright and cheerful tint, which the two here illustrated certainly are, for late last autumn they formed conspicuous features in Messrs. Veitch's nursery at Coombe Wood.

That occupying the major portion of the plate is a form of the old Japan Quince (*Cydonia* or *Pyrus japonica*), and known as *Moerloosei*. It is remarkable from the fact that it flowers earlier in the season and more continuously than the other varieties, for while they were showing but a scattered bloom or two, this was already bearing quite a profusion of its bright-coloured blossoms. This variety is of Continental origin, and has been announced in different nurserymen's catalogues for many years, but its early flowering qualities do not appear to have previously attracted attention; indeed, there seems to be some confusion concerning it, for I obtained one among a collection of other varieties under the above name, and which when it bloomed was no earlier and so inferior that it was ultimately discarded. That herein figured is, however, a most valuable shrub, and one that should be included in any selection of the very best varieties of the Japan Quince. A few other highly meritorious forms are *nivalis*, pure white; *cardinalis*, deep crimson; *princeps*, rich scarlet-crimson; *rosea*, bright pink; and *Gailardi*, a distinct salmon-rose. The cultural requirements of the above are so well known that nothing need be said on the subject, except that when employed as wall plants (for which they are so well suited), the mistake is often made of cutting them in too severely, and thereby injuring the display of bloom. When grown in this way the wall should simply be used as a means of support and not as a groundwork on which the branches are to be secured. As bushes in the open, too, the better varieties of the Japan Quince merit extended cultivation, for though they do not commence flowering so soon as those on a south wall, still their season of blooming is spread over a considerable period, especially if the variety here figured is included amongst them.

* Drawn for THE GARDEN by H. G. Moon, Dec. 10, 1888, from specimens sent from Coombe Wood. Lithographed and printed by Vincent Brooks, London.



Several of the plants mentioned are not so much troubled as some things are with insects; yet a Gardenia, the flowers being large, semi-double, of it is almost, if not quite, equal in appearance to a 1888, from specimens sent from Coombe Wood. Litho-
graphed and printed by Vincent Brooks, London.

THE AUTUMN-FLOWERED DAPHNE (*D. Mezereum autumnalis*), the other subject shown in the plate, is a form of the common *Mezereum* that flowers much earlier than the typical species. This form has been long known in cultivation, but its origin, I believe, is doubtful. It is alluded to by Loudon in the following terms: "Habit spreading; also with larger leaves than the species, and producing its flowers in autumn. A most desirable shrub, being commonly covered with its gay pinkish blossoms from November to March." In this there is no mention of the individual blooms being larger than those of the type, which is, however, the case. It is one of those shrubs for which a good demand might be anticipated, yet I am assured it is so little asked for, that the autumn-flowered *Daphne* is simply kept as a stock plant in a few nurseries; whereas one would expect it to be grown by the thousand. There are some other well-marked varieties of the *Mezereum*, one of which has pure white blossoms. Besides the colour of the flowers, this has foliage of a paler hue than the ordinary form, and the berries are yellow instead of red. There is also a very scarce variety with double blossoms, which, with the white and the common *Mezereum* and its varieties, is well shown in a coloured plate issued with *THE GARDEN*, June 26, 1886. These *Daphnes* are not seen at their best in a dry sandy soil, as they prefer a cool, moist, but thoroughly drained spot. An unusually deep-coloured variety of the common *Mezereum* is occasionally met with under the names of *rubra*, *atro-rubra*, or *purpurea*. This variety should be sought after in preference to the typical form. T.

FLOWER GARDEN.

THE FRAXINELLA AND ITS INFLAMMABLE GAS.

THE *Fraxinella* (*Dictamnus Fraxinella*, Pers.; *D. albus*, L.) belongs to the flora of Central Europe and of Siberia, and was introduced into our gardens about the end of the sixteenth century. It is classed in the natural family of the Rutaceæ, the plants of which are very resinous and highly odorous, and are natives of dry countries, occurring chiefly in southern latitudes. The other known species of *Dictamnus* are *D. angustifolius* (Scr.), a Siberian plant, and *D. obtusifolius* (Koch), a native of the Tyrol. Several forms and varieties of these species are also to be found in cultivation, but the *Fraxinella*, along with many other fine old hardy plants of our ancestors, has been banished from many gardens by the modern bedding-out system. Let us hope that ere long it will be restored to them with all the honours which it deserves.

The *Fraxinella* is a strongly scented perennial plant with rigid, erect-growing stems from 20 inches to 24 inches in height. The leaves are of a glistening dark green colour, and very much resemble those of the Ash tree. The flowers are pinkish red or white, according to the species or variety, of large size, irregular in shape, and form a loose spike from 6 inches to 8 inches in length. They commence to bloom in June, and are succeeded by large, very glandular, and fragrant capsules or seed vessels. The plants should be grown in deep, friable soil and fully exposed to the sun. Care should be taken not to disturb them too often, otherwise they will not flower freely. The seed sometimes does not germinate for ten or twelve months after being sown.

The very singular phenomenon in connection with the *Fraxinella*, which has been lately ad-

verted to in *THE GARDEN*, was long since observed by me here at Geneva, both in the botanic garden of the town and also in our alpine garden. The glandular hairs which abound on this plant secrete, especially at blooming time and on the upper part of the stems, a balsamic inflammable resin, which becomes volatilised in the air around the plant and takes fire when a light is applied to it. This phenomenon only occurs in warm, dry districts and at the close of a sunny day. We have just completed, in the "Laboratoire de Physiologie Végétale" of our university, a study of these glands and their inflammable properties, the results of which I feel myself bound to communicate to the numerous readers of *THE GARDEN* in general, and to the Rev. Mr. Dod in particular.

It is well known that certain plants, and very notably those of the Rutaceæ (*Aurantiaceæ*) and Labiæ families, secrete various products, such as essential oils, resins, gums, balsams, &c. Secretory organs which are buried in the substance of the parenchyma elaborate these products, while hairs of various forms and textures conduct them to the surface and there excrete them. The secretory organs are termed internal glands, and the excretory hairs are known as external glands. These latter glands are surrounded at the base by a part of the epidermis, which the hair has pushed up in issuing forth to make its appearance on the surface of the stem, and in the *Fraxinella* this raised part of the epidermis covers a gland which is very richly provided with resin and essential oil. When we examined this gland with a microscope on a hot day the gland was empty, its contents having been drawn out by the heat through the cells of the epidermis or through the cells which form the hair that terminates the gland. It must be understood that the surrounding air has to be pretty strongly impregnated with the gas of the volatilised resin in order to take fire when a lighted match is applied to it.

This experiment has also been carried out in France by placing a pot plant of *Fraxinella* in bloom under a bell-glass and leaving it there for some time, when the air in the bell-glass was found to be so highly charged with the resinous gas that it ignited the moment a lighted match was applied to it, and, it may be added, without doing the slightest injury to the plant.

Geneva.

H. CORREYON.

Dielytra eximia.—This has been beautiful since April, and still remains in bloom. We have a large group in a border of sandy loam, but all the ground is hidden by a mass of graceful foliage, above which the flower-spikes continually rise. The rosy-pink hue is not so bright as that of its taller relative, *D. spectabilis*, but what it lacks in brightness it amply makes up in its profuse and continuous blooming. It increases rapidly by underground shoots, which may be dug up and transplanted at any time. In April, observing that these underground shoots were coming very thick in places, I dug some out that were then showing flower. These were sent to another garden twenty miles away, and have, I am informed, made a good group, as they started growing apparently unchecked and have been flowering ever since.—A. H.

Early and late Tulips.—Tulips of both early and late sections have, unlike most other bulbous plants, flowered exceptionally well this year in this neighbourhood. Three of the best early kinds I have seen are *Coleur Cardinal* (red), a fine erect bold flower; *Rose Gris-de-lin* (rose and white), and *Proserpine* (dark rose), very large flower. The two former are, in consequence of their erect habit, fine for massing. *Alba regalis* is also a large flower, cup-shaped, and of a good habit, but the colour is rather a dingy white, and the flowers came much

splashed with rose and brown this year; a good setting of *Tulip Rose Gris-de-lin*, however, enlivened them wonderfully. I was surprised to see a week or two ago in a small cottage garden in this district a grand show of the *Parrot* and other tall-growing late Tulips; the flowers were quite gorgeous, and there were over 400 open when I saw them. Many of them had dropped, and there were others in bud. These Tulips are thoroughly established and have not been moved for years, and the ground between is planted with hardy plants, so that there is no bareness after the Tulips are over. The individual flowers are very fine, and the variety in colour, form and marking could not be easily described. Standing out conspicuously, however, was the beautifully formed crimson *Gesneriana* with its violet eye showing very distinctly on flowers fully expanded, the stems of this variety being at least 2 feet high. Seeing such a show of late Tulips in a cottage garden was quite a unique experience to me, though a few good bold clumps may often be met with in small gardens, more frequently, indeed, than they may be seen in large ones. I think the light, sandy, free-working soil of this part of Suffolk must be specially suitable to the Tulip.—J. C. TALLACK, *Livermere Park*.

Carnations.—I refer to these plants again just to correct a false impression which seems to exist in the mind of one writer, who recently in referring to seedlings said that to encourage the production of side shoots it was needful to pinch out the main stem or shoot. That remark could only have been made in ignorance of the ordinary character of seedling Carnations, or else was based on an undoubtedly needful practice in the case of weak layers or of late-struck cuttings. All these latter do, in the ordinary course, as the summer advances throw up single stems, and sometimes no side shoots or grass are formed; hence, the plants will practically die out. If, however, the flower-stem be pinched out or sacrificed at once, then side shoots will be formed and such plants will bloom profusely the following year. In the case of seedlings, however, it is not the rule for the young plants to throw up a main stem only, for the simple reason that the plants do not bloom the same year as sown. If the seed be sown in the spring, the plants will be strong enough for planting out into the open ground towards the end of May or early in June, and they will form almost clusters of shoots, all of which will throw up flower-stems the following year. Even if seed be sown in frames during the preceding autumn the plants will not throw up flower-stems until the following autumn, and then only irregularly, but still not until good clumps of shoots have been formed. Autumn-sown plants wintered under glass and planted out early in the spring make very fine clumps the second summer and carry large quantities of flowers.—A. D.

White Lobelias.—It is very odd indeed that whilst blue Lobelias of both the speciosa and compacta types come very true from seed, it should be so difficult, if it be not impossible, to obtain white kinds from seed in any degree true. That blue varieties have become white doubtless arises from the enlargement of the white eye so materially that all blue tint is eliminated; still it is evident that this elimination is not permanent, for even among propagated plants of the best white forms there is an occasional tendency to revert to blue. However, that is not a material defect, as it is but temporary, whilst the white hue is the comparatively enduring one. Habits of plants are not affected by the sportiveness of the flowers, for we have *White Queen*, one of the very best well-defined forms, very true to character. It is, however, in the matter of reproduction from seed which prevents apparently insurmountable difficulties. I doubt whether we shall ever obtain a white-flowered *Lobelia* which will be entirely free from the blue taint. Let the white form be grown ever so remote from the blue one, no improvement in the purity of the progeny is effected. From white speciosa seed I get about 25 per cent. of white-flowered seedlings, and of *White Queen* hardly 15 per cent., so that it would never do to trust to seed as a means of per-

petuating a true stock of these varieties. This percentage has been found the same for several years. The seed is itself white, or of a sandy white colour, whilst the seed of the blue *Lobelia* is dark-coloured. It may well be expected that white seed would produce white-flowered plants only, but I find plenty of deep blue forms to come from it.—A. D.

NOTES ON HARDY PLANTS.

Heuchera ribifolia.—In May and June this is most attractive. The flowers are very small, but numerous, and so disposed as to produce an elegant effect. The slender stems are each nearly 2 feet high and spring from a dense carpet of glistening dark green foliage of a form indicated by the name. What a lovely companion to the scarlet *H. sanguinea*; both are in season together and last a long time. Those who know the favourite *Gypsophila paniculata* may better understand the effect of the flowers of this seldom-seen Alum-root, but as a border subject it is more neat and showy, the foliage setting off the flowers so well. No slugs ever eat this bitter plant.

Daphne Blagayana.—I believe that the new growth of this pretty white *Daphne* is apt to become more or less injured in spring. The various shoots issuing from the point where the early bloom was borne are often seen to droop and die. If an examination be made there will be found a grub in the midst of the numerous dead bracts and portions of the flowers. It seems that the grub eats its way at the base of the new and tender growths, which then languish and die in a few hours. The remedy is very simple. By rubbing away the decayed parts of the spring bloom as soon as the new growths push, the risk will be obviated.

Dianthus Atkinsoni.—Since my last note about this brilliant Pink in THE GARDEN of June 1, I have seen a fine specimen in the beautiful gardens of Mr. Spenser Bickham, Alderley Edge, and it was even a better one than my own. I was told that the plant had there shown nothing of a biennial character. The soil in those gardens seems well adapted for all the Caryophyllaceæ, and its light character exactly corresponds with the condition of lightness to which I have always found this plant partial.

Silene Pumilio.—The finest specimen I ever saw of this most choice alpine was growing in the above-named gardens on an elevated, but flattish piece of rockwork. It is a plant which no one can but admire, and should certainly be in every alpine collection of any pretensions. I believe, however, it is grown in many gardens with difficulty, and I know several experts who have hitherto failed to succeed well with it, among whom I class myself. I took note, however, for my own use of what I thought constituted the chief conditions of success, viz., a breezy situation, light, but rich and deep soil of a sandy character, the plants set on the flat and between large stones.

Herniaria glabra aurea.—This can be strongly recommended either as a rock plant or for carpet bedding. The habit is in all respects like that of the type. The yellow foliage, however, is so pronounced, that, for a good telling yellow patch, there is nothing that I know to equal it. Moreover, it is of rapid growth, so that a stock may be quickly worked up. How beautiful this would look, either regularly or irregularly planted by the side of broad patches of the white Thyme and the one called *coccineus*, all of a corresponding habit. Where stones were deeply imbedded the plants would partially grow over them and so at once afford pieces of distinct colour.

Saxifraga pyramidalis.—I wonder why the purer form is not more looked after—purer as being the type and purer in the whiteness of flowers—for the typical form, *S. Cotyledon*, does not have the red spots on the flowers and otherwise the spikes are better, though not so tall; they are nearly 2 feet and more closely arranged. I know the whiter variety is not quite so hardy, but when it is intended to grow the plants in pots they might have cold

frame accommodation, and that would be quite sufficient protection.

Primula japonica.—Speaking of this, what other species of Primrose makes such a fine display at the present season? Common it may have become, but none the less it is one of the showiest and most useful of its genus; the deep, rosy-magenta colour is much admired. This *Primula* should be grown in broad patches for the best results.

Corydalis solida.—Doubtless in some gardens where this early Fumitory has become a pest the older plants will have been the cause through seedling freely, but I have more than once heard surprise expressed as to how strong bulbs could have been carried some distance from the old clumps when no digging nor hoeing had been done. I have experienced the same thing, and I wonder if what I was amused in watching the other day can be the general cause. The round tubers thrust each other out. The field mouse is very fond of them, and what I saw was that when one tried to eat them the marble-like tubers rolled away, followed by the little animal, until at last the partly-eaten tubers were carried several yards from their original place. It is well known that the smallest bits of these tubers will grow, and I imagine that such as are only partially eaten, like those I saw, would be almost equal to entire tubers, and if by any chance they were trodden upon, or otherwise got the slightest covering of soil, they would be likely to grow. Where this plant has become over-numerous (though nobody can deny that it is a pretty winter flower), the best plan is to dig the plants up as soon as the tops begin to fade, otherwise the smaller and new crop of tubers will become detached.

Saxifraga (Aizoon) Churchillii.—Of its section, this is one of the best varieties. It has several good points, which become conspicuous in their season, though for the most part of the year it does not differ much from other and inferior forms. The good features are at present seen to be good-sized pure white and well imbricated flowers on short freely flowered spikes. Later the rosetted leaves become most charmingly tinted, much more so than those of any other of the Aizoon class that I know.

Ferulas.—I grow in a row four of the ornamental *Ferulas*. They are *F. communis*, *tingitana*, *conspicua*, and *gigantea*. They are distinct, but scarcely so until of mature age. On the opposite side of the walk there are growing and flowering groups of *Papaver bracteatum*, perhaps one of the most intensely coloured crimson flowers cultivated, and hard by are strong plants in flower of various tall white *Thalictrums*. I have made a note for my own use when planting in the autumn to set the Poppy between the *Ferulas*, so that the big crimson flowers may rise just above their frond-like leaves, and behind the *Ferulas* I purpose setting a strong line of the *Thalictrums*. It does not require much imagination to become convinced that the line of white of the last-named backing up a mass of finely cut and deep green foliage like that of the *Ferulas*, enriched by the striking crimson of the Poppy, will indeed be effective. I have often wondered why the *Ferulas* were not more used in lines with some such fine colours for drives. There is one point that should be mentioned. I never yet saw the *Ferulas* do themselves justice until they had become thoroughly established, which takes at least two summers. The usefulness of these plants is of an all-the-year-round duration, for hardly have the massive leaves with their splendid autumnal tints died down ere the new ones begin to push, and in favoured situations are pleasing objects in winter, taking no harm from severe frosts.

Rubus deliciosus.—Who would be without this charming shrub for rockwork? for which its distinct and somewhat tree-like habit renders it peculiarly adapted. It is thornless and otherwise dissimilar to most other species of its genus. The flowers are produced singly, numerous, pure white and each 2 inches or more across. In sunny positions the plant may not grow taller than 18 inches or 2 feet. The charm of this shrub is in the simplicity and large number of its flowers, and the delicious perfume resembling that of the Clove or Carnation.

Genista radiata.—Well may this very dwarf shrub have so many admirers. It is becoming better known and more cultivated every year. The growth is symmetrical, bushy and somewhat arching. The flowers are of a lively canary colour, and disposed in small clusters at the axils of the finely divided leaves. The whole shrub is so bespangled as to have a more lively effect than if the blossoms were in more dense masses. It ought to be seen and certainly widely grown. It is in every way a most excellent thing for a rockery, and especially for the drier and sunnier portions, for which situations we have none too many suitable free-flowering shrubs.

Woodville, Kirkstall.

J. WOOD.

LILIES IN BLOOM.

THE Lily season may now be said to have fully commenced. The flowers of *L. pyrenaicum* are over, and the void is filled up by several other distinct species and varieties, while a more or less continuous succession will be kept up outdoors until the last blooms of the speciosum section have faded, to be further lengthened under glass by the autumn and winter-flowering *L. neilgherrense*. Closely following on *L. pyrenaicum*, we have the different varieties of *L. davuricum* or *umbellatum*, a sturdy-growing Lily well suited for the open border, and also one that succeeds remarkably well in pots. The members of this group are characterised by large showy blossoms, more or less of a red or orange-red colour. They are cup-shaped, erect, and borne in good-sized clusters. True, the plants do not retain their beauty long, but they are so showy when in full bloom and of so robust a constitution that the *davuricum* group is one of the most satisfactory of all to cultivate. There are several varieties, but the orange-coloured *grandiflorum*, the deep tinted *incomparabile*, and the bright fulgidum are about the best. *L. elegans* and its varieties are a fortnight or so later in flowering, and consequently serve as a succession to those of the *davuricum* class. Though the varieties differ in colour, height, and slightly so in time of flowering, they are all very pretty dwarf Lilies. Prince of Orange, orange-yellow; fulgens, glowing crimson; cruentum, deep blackish crimson; and venustum, apricot, which is rather later than the others, form a good and distinct selection. With these erect, early-flowering Lilies must be mentioned *L. pulchellum*, which has small flowers of a bright sealing-wax tint. The Martagon or Turk's-cap section include among their number some very pretty Lilies now in bloom, among which must be mentioned the common Martagon, with the white and deep-coloured varieties of the same. The pure white flowers of a good variety of *L. Martagon album* afford a direct contrast to the almost black blossoms of *L. M. dalmaticum*. The Japanese representative of this class, *L. Hansoni*, supplies a distinct colour from the others, the blossoms being thick, wax-like, and of a bright yellow colour. It is somewhat later in flowering than the others above mentioned. The rich red *L. pomponium verum* has prettily reflexed blossoms like those of the Turk's-cap class, and in a clump is wonderfully showy. The individual blooms are a good deal like those of *L. chalcedonicum*, which does not flower till later on. One of the prettiest, as well as the earliest, of the Turk's-cap Lilies is the Siberian *L. tenuifolium*, which has very bright-coloured blossoms. The North American *L. parvum*, *L. columbianum*, and *L. Washingtonianum* are also in bloom; while the pretty and distinct *L. Krameri* is just on the point of expanding. *L. Browni* and *odorum*, two species that are frequently confounded, are in about the same stage; while the last to be mentioned now in full bloom is the canary-coloured *L. Szovitzianum*. This is a very distinct Lily, and should be made a note of where early-flowering kinds are desired, but on no account must it be tried in pots, or failure will result. This Lily should be carefully planted and then be allowed to remain undisturbed, for it will never thrive if shifted about.

H. P.

Nicotiana dicurnus.—Under this appellation I grew last year what is doubtless but *Nicotiana affinis*. A couple of plants in a small pot stood in

a cool house all the winter and protected from frost, but still without any artificial heat. Shifted into an 8-inch pot, these plants are now blooming most profusely, filling the greenhouse in which they stand with delicious perfume at night. I mention this matter to show that this dwarf Tobacco is very hardy, so far as preservation in a cool greenhouse or frame during the winter is concerned, and therefore it is a good amateur's plant. Whether in a house or out in the open garden, a few plants of this variety are exceedingly pleasing, especially in the evening.—A. D.

THE WATER FORGET-ME-NOT (MYOSOTIS PALUSTRIS) AS A GARDEN PLANT.

OF all the beautiful family of Forget-me-nots I think this is one of the most useful, but its merits are hardly recognised by many because of its commonness. Though naturally a water-loving plant, it is amenable to and is improved by garden culture, and may be made to serve such a variety of purposes as to render it quite indispensable. *Myosotis dissitiflora*, which is the charm of the garden in spring, is soon affected by the warm days of May. It is not so, however, with the kind from our ditches, which growing freely in any garden soil comes into bloom in May and continues for many weeks. By having several colonies planted at different times it may be had in bloom the whole season through, for it is accommodating enough to permit of being pulled to pieces and transplanted in June, this last plantation giving a good autumn bloom. It is adapted to a variety of uses, but associates particularly well with some of the light-coloured Roses.

One of the most simple and pleasing arrangements I ever saw was formed by a carpet of the Water Forget-me-not under a large group of *Souvenir de la Malmaison* Rose, the bushes being thinly placed. This arrangement is now standing for the second season and promises to be still more beautiful, as the vigour of the Forget-me-not will be partly checked by the diminished richness of the soil. Some would argue against this dual cropping upon cultural considerations, but they are those who have not given the system a trial, and who by digging between their Roses destroy many of the young fibres and content themselves with the sight of the bare ground. But provided the ground has been well prepared, the Rose roots run deep, and do not contend with those of the Forget-me-not or any like plant that may be converted to similar good use. Such an arrangement can stand till one tires of it or the ground needs refreshing, when it is a simple matter to take away the carpet plant and top-dress the bed or border.

In moist, half-shaded spots fringing shrubs, even upon the heaviest loam, this Forget-me-not is all that could be desired. It has another value, and that is as a cut flower. Great bunches can be frequently cut, this causing the plants to send up numerous shoots which are less rampant; in fact, hard cutting improves the plants and materially prolongs the season of blooming. Those who prefer in a cut state single combinations of few flowers will find this Forget-me-not most useful. From the group previously alluded to of the Forget-me-not and Rose, I once saw a large bowl filled with the two in association, and the arrangement, though very simple, was beautiful beyond description. Some of the nurserymen have found out the value of this plant, as they are now offering a variety of it called *semperflorens*, which is said to be a still more constant bloomer, if, indeed, that were possible. A. H.

The Dutch bulb waste. We lately saw in a London garden the fresh green leaves being wrung off a number of Tulips which cost £50 last autumn, and wondered how long this foolish waste would last. It is certainly good for the trade of the Dutch, but evil for everything else. The cost is fearful, and it is an annuity. Then we have a few weeks' "blaze" of bulbs, and all is past; the roots in the parks and many other London gardens are thrown away, and people are so ignorant or impatient that

they will not allow the bulbs to ripen their leaves to secure them for another year. One of the reasons, we presume, for this never-ending waste of Dutch bulbs is the idea that the Dutch grow them better than ourselves. This is not true. If people take equal care of their bulbs, they will grow them just as well as the Dutch. We have seen *Narcissi* and Tulips in market gardens in the west end of London this year even better grown than Dutch bulbs are. If people have not the patience to allow the Tulip or the Hyacinth to mature their leaves, the best plan would be not to grow them at all. It is simply brutal for a gardener to go round Tulip beds and pull the leaves off as soon as some passing storm spoils the flowers for a time. No Tulip bulbs purchased for a good garden need ever be lost, and by care and culture they could be increased, and might be given away if one did not want them at home. The permanent good of a garden demands a quite different system from this, which fits in well with the wasteful bedding system. All expenditure should go for permanent things. There is no reason why we should give up the culture of bulbs because we object to the present wasteful way. We have often seen beds of Hyacinths and Tulips thoroughly well kept, and, instead of destroying the leaves, good annual or half-hardy flowers are put carefully among them as soon as the bloom is over. The leaves of the Tulips when maturing would do no harm whatever to these, and if people had, as they ought to have, patience for the leaves to ripen, they might, as the half-hardy and annual plants were growing up, pull away the ripened leaves of the bulbs. It is quite simple.—*Field*.

Verbascum olympicum.—I cannot understand on what principle the committee of the Royal Horticultural Society give their certificates. I see that a first-class certificate was awarded last week to a plant of *Verbascum olympicum*, surely not as a new plant, for I had it long ago, and a photograph of my plant may be seen in THE GARDEN. If it had received a certificate of "cultural commendation," I could understand, but not why one should be given otherwise. I think the reason it is a plant so little known and grown is owing to the length of time between sowing and blooming—often three years—but it is splendid when well done.

Heuchera sanguinea.—I am getting a nice stock of this, and it is a plant that I have been unable to place wrongly. It seems to grow anywhere. The only time I lost it was when a plant was divided late in the autumn. Early in the spring I divide a plant carefully with a knife into seven or eight; these bloom in July later than established plants, and generally each divided piece is ready again the next spring to be divided into six or eight more, so that anyone can soon have a stock of this useful perennial if he divides fearlessly in the spring. I am of opinion that this plant is finer when frequently divided.—G. H. C., *Brookfield*.

Pink Rose Perpetual.—Until the fine warm summer of 1887, I had not found this pretty mule Pink to seed; that summer, however, it produced a little, and that, it is evident, was the product of fertilisation by the pollen from some single forms of *Dianthus plumarius* growing close by. The seedling plants, the product of this cross, are now in bloom, a very miscellaneous lot, in which the pollen parent shows very effectively, as not a few have single flowers, and only one or two have blooms resembling those of the pretty rose-coloured seed-parent. All, however, whether single, semi-double, or double, are richly perfumed, and some of the dwarf and richer-hued single forms are both profuse bloomers and very pretty border plants. We have ample room for the production of early red sweet-scented Pinks that would furnish a liberal supply of flowers for cutting.—A. D.

Dictamnus Fraxinella.—This is one of the most striking plants in the herbaceous border during the month of June, as not only is the foliage fine and pleasing, but the massive spikes of curiously formed, highly perfumed flowers make a grand show and command admiration. There

are several varieties of this good old favourite, one being purple, with deeper coloured pencilling or veins, another lilac, a third almost white. The first-mentioned is the strongest of the three, but all are free-growing if planted in suitable soil. That which agrees with them best is a deep, light, sandy loam, and they should have a sheltered, warm situation, or they are apt to get injured by frosts in the spring. These *Dictamnuses* may be propagated either by seed, division of the crowns, or from pieces of the large fleshy roots, the proper time for the two last-named operations to be carried out being in spring, just as the plants begin to grow, and the seed should be sown as soon as ripe. This may be done under a handlight, where it should be kept close till it germinates.—S. D.

NOTES ON FLORISTS' FLOWERS.

THE PINK.—As May is the month for the Tulip to bloom, so in the ordinary course we expect the Pinks to be in the hey-day of their beauty in June. To have the flowers in their highest state of development, they require a little attention the previous month or even in June itself. In light soils the Pinks will bloom at about their usual time this year. In some districts rain has fallen abundantly and the plants have grown freely; consequently the promise for a good bloom is excellent. The Pink blooms best in what may be termed a wet season; the flowers are larger, well laced, and of a richer colour. In fact, I was able to grow the Pink much better and with less trouble in Scotland than I can in England. In any case the soil ought to be deep and rich. I also used to propagate a stock of plants much more easily. Roots were produced freely from pipings without any glass protection, the moist cool atmosphere being conducive to their formation. My plan was to take the first chance after rain to slip off the pipings and dibble them in in a shady part of the garden. I tried the same plan in England, but I could not obtain fifty plants in a hundred from the pipings put in out of doors. They seem to do best with glass over them, either a handlight or a glass frame. We had an excellent result from a hotbed one year from which the bottom-heat had nearly gone. Pinks will root well in a compost of equal parts sand, leaf-mould, and loam; the pipings will form roots in about three weeks, and after that they may be gradually inured to the open air. The pipings should be planted out in lines 3 inches apart in about three weeks after they are rooted, and afterwards permanently planted in the flowering beds about the end of September. The pipings should be put in as soon as they are ready, say the last week in June or first week in July. Any flowers that are likely to have burst pods should be tied with a strip of matting. If seeds are wanted, the flowers should be fertilised with a small camel-hair brush. There does not seem to have been any improvement in the Pink during the last thirty years. The flowers were of as good form and the lacing quite as perfect then as now. Some of the modern varieties are too full of petals, which causes the pods to burst; whereas the old varieties with about twenty petals to each flower seldom did this. A very large flower of a Pink, *Carnation*, or *Picotée* is not necessarily the most beautiful.

THE RANUNCULUS.—This is also a June flower and a most beautiful one, but it is altogether much more uncertain than the Pink. I generally plant the tubers late, and as a result of this, they start to grow much more freely and evenly. The wet weather seemed to suit them admirably at first; every plant started to grow freely, with the result up to a certain point of green, healthy foliage and a plentiful development of flower-buds. Hot, dry weather set in late in May and the first week in June, with the result that the foliage became yellowish, and the flowers will not be of full size. What the plants ought to have had was a light mulch of decayed manure and water between the lines, but not wetting the leaves, as soon as the dry weather set in. When the *Ranunculus* was much more a garden favourite than it is now, growers had to contend against this tendency of the plants to be checked in their growth in May and June.

The late Dr. Horner, of Hull, was an enthusiastic cultivator, and laid stress on this point. He said the most serious error in the management of the *Ranunculus* was to apply water to the roots in hot, droughty weather. I fancy the evil effects experienced by Dr. Horner were caused by watering without applying any mulch to the ground. When a thin dressing of decayed manure has been laid on the surface of the soil between the rows, watering in hot, droughty weather is certainly beneficial if the plants really need it. It ought to be applied through the fine rose of a water-pot, and evening is the best time to do it. In seasons when much artificial watering is needed, mulching with dry, decayed stable manure should be constantly practised.

THE TULIP.—From the 20th to the end of May is the usual period for the show Tulips to be seen in their greatest beauty. They came into flower at a very rapid rate this year, and just as rapidly passed away. On the 30th of May we had not a single bloom left in our garden. The Rev. F. D. Horner, writing to me from his home in the north of Yorkshire, said that even he would not have a bloom left by the 30th of May. He says, "Tulips came out on the 1st of May, and we had nothing else here but a marvellous lovely run of brilliant roasting weather, broken by a half-day's thunder-storm," and yet the National Tulip Society fixed the date of their exhibition on June 7. Mr. Samuel Barlow, of Stakehill House, in Lancashire, was able to exhibit a collection of very fine rectified blooms on the 30th in the Temple Gardens. Messrs. Stuart & Mein sent a collection from Kelso, N.B., containing even larger blooms than those exhibited by Mr. Barlow, but some of them were not well marked. Another grower, Mr. Thurston, sent from Cardiff, in Wales. He had numerous breeders, as they are termed, but neither of the collections came near to Mr. Barlow's, who had representatives of all the classes and a large number of breeders of the finest quality. Our plants were attacked by some sort of blight this year when they were in full flower. A good grower came to see them, and fancied that the injury to the leaves and flowers was caused by acids of some kind in the atmosphere. The appearance of the plants was as if some acid had been sprinkled from a watering-pot upon the leaves. It has caused them to decay much more rapidly than they otherwise would; indeed, it will soon be necessary to dig them up. It is not well to leave the bulbs in the ground when the sap has gone out of the leaves and stems. A good grower told me that he lifted his Tulips as soon as he could twist the flower-stems round his finger without their breaking. We plant seedling Carnations and Picotees on the ground from which the bulbs have been taken up.

THE POLYANTHUS.—I say nothing about the ordinary garden varieties of the Polyanthus, that may be raised in hundreds from any seedsman's packets of seeds. They are very beautiful garden flowers and are very easily managed. I allude to what is termed the laced Polyanthus, of which such choice varieties as Buck's George IV., Cheshire Favourite, Lancer, Exile, &c., are prominent examples. In districts where it rains almost daily the laced Polyanthus does well, and a good stock of plants has been kept up of the best sorts for at least fifty years from those districts; whereas they would have been lost in the south of England in less than a decade. The only chance to grow them is to plant in a shady place in deep loam and see that they do not suffer from lack of water at the roots. They cannot be grown in pots all the year round like Auriculas.

JAS. DOUGLAS.

The Flag, or German Iris.—Probably the grandest display of these flowers that was to be seen in the west of England, or for that matter anywhere else, occurred this season in the nursery of Messrs. Veitch, of Exeter. This is accounted for from the fact that the plants are growing in a deep and fairly heavy loamy soil in a position in the full sun, and have not been disturbed for several years past. It is to this last condition, I think, we must attribute so grand a display of

flowers. Many of the plants cover individually several feet of ground, so that instead of there being a few flower-stems, as is often the case, there were hundreds, and as the collection includes all the best and well-known kinds it was a sight that I shall not soon forget.—J. C. C.

FLOWER GARDEN NOTES.

ANNUAL FLOWERS.—The present season has been the worst I have ever known for slugs; indeed, so numerous and voracious have they been, that unless in early morning we had perseveringly picked them off those plants they had a partiality for there would have been no plants left, as the usual applications of soot, lime, sawdust, &c., seemed to have no effect. Hand-picking proved to be the only effective remedy. The annuals they manifested the greatest liking for were Zinnias and Asters, and now that there is an end of the slugs for the present season, blanks are being filled up with plants that were pricked out from the seed-bed with the intention of making a late planting for autumn flowering after those first planted were over. Those now planted will, of course, flower late, but this is a small matter compared to that of having a thin, gappy plot, as must have been the case but for this reserve stock of plants. Annuals as a rule get very little attention beyond the labour of sowing, and perhaps slightly thinning out and the planting out of such as have been raised under glass. I, myself, am not altogether guiltless in this matter, yet so far as labour permits, the kinds most in favour do get some attention paid them in respect of timely thinning out, watering, tying, and pinching out the points of such as require it. *Phlox Drummondii* belongs to the last named class, the leading shoots of which it is necessary to pinch out to induce a branching habit of growth. *Dianthus Heddegi*, Zinnias, Sweet Scabious, annual Chrysanthemums, and Cupheas we serve in the same way. Stocks, Asters, *Salpiglossis*, and others of a naturally pyramidal branching habit are not stopped, besides, to do so the finest flowers would be lost. Having a greater regard to furnishing the beds (covering the ground) than the production of fine flowers, I have occasionally pinched out the points of both Stocks and Asters. I, however, do not commend the practice, and only allude to it to say why the leading shoots of these annuals may be stopped.

DELPHINIUMS.—We have numerous clumps of these, and they are now in great beauty. I measured one of the flower-stems, and from the ground-line to tip of flower it is within an inch of 10 feet. There are many stems as tall as this, the length of the flowering portion alone being in some instances 4 feet. The ease with which such plants can be raised either by seeds or offsets, their rapidity of growth and adaptability to any description of soil that has been well manured should make them far more popular than they are. Their great height, and consequent liability to injury by wind, are perhaps against their ever being popular flowers with those that have none other than bleak open positions in which to plant them, though for the benefit of those thus situated, it may be added that the measurement quoted is abnormal, the ground being rich and the position sheltered. In bleak spots the plants would probably not attain more than an average height of 5 feet, and, provided they were kept well secured to stout stakes, there need be no fear as to their doing well, the flowers being quite proof against injury by wind or rain. The tying up of such immense clumps of tall stems is a matter of some difficulty. The best way is to place a stout stake as near to the middle of the plant as the roots will allow, then run small twine round the stake and draw towards it, but not too closely, two or three stems. Repeat the operation on other stems till all are secured each plant will then present a neat compact appearance and be secure from injury from storms.

POPPIES.—Nothing can be more beautiful than are the clumps of Iceland Poppies (*Papaver nudicaule*) at the present time. We have three colours of them, deep yellow, white, and orange. Our

plants were raised from seeds three years since, and offsets in quantity have been taken from them each year. The flowers are produced in great abundance, and stand well above the finely-cut, whitish-green foliage. Either for grouping in herbaceous borders, for planting in single file in the same, or in the reserve border for the production of cut flowers—in which form they last a long time—they are worthy of special attention. The giant scarlet variety, *Papaver orientale bracteatum*, is as grand as the foregoing by reason of its vigour of growth and large flowers, the latter being deep crimson with a jet-black blotch at the bottom of each petal. They do not last long, but the plants continue to throw up a constant succession of flower for several weeks together. The foliage is massive and deeply serrated, so that when not in flower the plants have an imposing appearance when grouped in the centres of herbaceous borders. Of annual Poppies also good are the Shirley Poppies. This strain is the selection of Rev. W. Wilks, of Shirley Vicarage, Croydon. The flowers are as varied both in colour and markings as it is possible to imagine, and are produced continuously for a very long time. The plants can be raised successfully by sowing seed in the open ground early in May, but having regard to the depredations of slugs, a more certain way is to sow the seed thinly in handlights, and plant out as soon as the seedlings can be handled. We have them now in fine flower, and they were raised from seed sown in handlights the last week in April.

GENERAL WORK.—To keep Dahlias, Hollyhocks, tall herbaceous plants, and sub-tropicals well secured to stakes. To free all kinds of bedding plants of decayed and seeding flowers, and also to pick the flowers off plants that may not be growing so freely as is desired. *Violas*, *Calceolarias*, and *Verbenas*, if not frequently gone over for the removal of seed stems, soon get too exhausted to flower satisfactorily.

W. W.

SHORT NOTES.—FLOWER.

Veronica prostrata.—The dark blue of this *Veronica* is a striking object just now in the rock garden when seen in masses of about 3 feet by 2 feet, as it is here growing. Its close growing nature recommends it for almost any position or soil in the rockery.

Heracleums.—What noble plants these are, and how suitable for planting as isolated specimens in parks and on lawns. *H. emineus*, *giganteum*, *lanatum*, *sibiricum*, and others are all useful in this way. They require no staking, and their graceful, yet bold habit makes them conspicuous anywhere.

Pentstemon glaber is flowering freely; the flowers in close racemes are when opening of a pale blue, changing to red-purple as they fully expand. It will be found very useful for the rock garden, where in sheltered spots it will flower all through the summer. Native of the Rocky Mountains, and a near ally of *P. cyananthus*.

Notes from France.—Will you kindly allow me to ask you to correct a couple of mistakes, due, no doubt, to illegible writing, in the notice on some "Wild Flowers in S.-W. France," on p. 576. In my description of *Lithospermum prostratum*, "livid patches of gentian blue" should be "vivid patches," &c. And, speaking of *Menziesia polifolia*, I meant to say that it only occurred on the granite, and disappeared where the limestone commenced.—F. T.

Ramondia pyrenaica alba.—In THE GARDEN, June 15 (p. 547), "F. W. B.'s" remark on the white form of *Ramondia pyrenaica* is, according to my experience, not quite correct. Readers of THE GARDEN have only to look at the woodcut in Vol. XXVI. (p. 129), taken from a plant of Messrs. Froebel, of Zurich, to see that *Ramondia pyrenaica alba* is quite as robust as the typical plant. Probably "F. W. B.'s" plants are still too young.—O. F., Leichenhof.

Dianthus.—What is the experience of readers of THE GARDEN with regard to Dianthus? I have been for years trying to get up a collection, and although I have sown seed of a great many varieties I have only succeeded in adding a miserable form of *D. plumarius* to my collection. These Dianthus surely are correctly named somewhere, and I would be glad to hear where I can see them or get them. The small alpine species can be had fairly true to name, but the

others are very tantalising, and not unlike the Aquilegias.—D.

Lilium tenuifolium (p. 547).—A reason why this is so seldom seen is the bad habit it has of disappearing in an unaccountable way, but chiefly by the bulbs rotting after bloom. Is this the experience of other correspondents? I should like to hear their experience also about *Ixias*. Mine is this, that they will not open unless in bright sun, and there must be more in Holland than we have if Van Tubergen shows them so well.—A. RAWSON, *Windermere*.

THE EVILS OF GRAFTING.

OUR readers who are interested in the subject will probably remember what we have lately said about grafting, and it is needless, perhaps, to go over the ground again. Whatever people may think about grafting in its relation to fruit trees, we have no doubt that the grafting of ornamental trees is an evil without excuse, and without a redeeming point. People generally plant in "ones," and the system of planting the shrubbery is such that deaths are not noticed, or, if noticed, are frequently put down to other causes—canker, cold, soil, climate, and so on. Now we believe, from our own experience, that a great number of the beautiful flowering trees and shrubs introduced into England are lost or diseased through this practice of grafting. Nurserymen are accustomed to have a lot of stocks for general fruit-grafting purposes, and they adapt these to ornamental trees with little regard to consequences, beyond getting rid of their "stuff." As they mainly see them in the nursery, they may be acquitted of any evil design in doing this. We made a considerable plantation of beautiful shrubs, and as we plant in groups, each thing by itself, quite distinct, we had a better opportunity of studying the effects of grafting than is often afforded in private places. The plantation was made two and three years ago; the plants were bought in some of the best nurseries in England, and in almost every case what we see here was the result. We found it difficult or impossible to get things on their own roots. Shrubs that, like the dwarf Almond, one would naturally like to secure in its dwarf state, are grafted on such strong-growing things that the union proves a perfectly hopeless one, and the suckers are more rampant than they are in the case of ordinary fruit trees. It is not only that we lose the shrubs by death, disease, or canker, but, if they do grow on these strong-growing stocks, we are prevented from seeing their natural habit. We have no doubt that the nurserymen of England will be very glad to remedy this rather scandalous state of things if their attention is fixed on the point. It will greatly help to this end if people insist on having flowering trees and shrubs in all cases on their own roots. Such things as *Rhododendrons* should not be bought at all if grafted. It should be the business of all nurserymen who grow this class of plants to get the best varieties on their own roots from layers. For covert and woodland work, seedlings are best. No grafted plant should ever be used, either in garden or woodland.—*Field*.

. We have to thank the editor of the *Field* for use of electro.—ED.

— I was glad to see that you were drawing attention to all the serious evils which result from the practice of grafting trees and shrubs. Evils undoubtedly they are, and serious ones, as I think I could point out in certain instances with which I am only too well acquainted. There are many reasons why a grafted plant is inferior in value to one which is a seedling, or is on its own roots; but among the chief are the liability to throw up suckers from the stock, the chance of accident to the plant from imperfect

union at the point of the graft, and the want of vigour as shown in an unnatural or stunted growth. I do not for one moment mean to say that in every instance one or other of these misfortunes is bound to result; there are cases in which advantage obtains from the practice of grafting fruit trees not only once, but even a second time, and there are cases in which propagation and distribution could not be effected otherwise. Nevertheless, under ordinary circumstances, no good is gained from planting grafted specimens, but rather the reverse. Among the commonest and most prominent examples of the evil are such things as *Rhododendrons*, *Azaleas*, *Magnolias*, *Thorns*, *Pavias*, &c. We have a large number of grafted *Rhododendrons*, planted over thirty years ago, from the base of which every year a thick growth of suckers springs up; these require to be cleared off in the early summer, and again in the



Dead plant of *Prunus triloba*, surrounded by suckers of common Plum on which it was grafted.

autumn, if the intended variety is to retain its claim to existence; but the labour entailed is considerable, and many are overlooked or passed by for want of time. Occasionally one comes across a great bush of the common *prunum*, with a small scraggy piece in the centre to show that once it was meant to be a hybrid variety of special beauty; but the worst of the whole business seems to be that the older the plant the larger is the base from which the suckers spring, and consequently the larger is the number of suckers. With Ghent *Azaleas* the trouble is nearly as bad; the common yellow form on which they are grafted, being a strong grower, soon makes short work in ejecting the less vigorous intruder. It is very unfortunate when, after a certain number of years, the labour and money spent in an endeavour to obtain some specially beautiful effect results in a commonplace arrangement of lilac and yellow, which

perhaps is just what was not intended. I am constantly warning anyone whom I hear talk of planting *Magnolias* to be careful to obtain seedling or layered plants to start with, as thereby a good deal of disappointment may be avoided later on.

Among the varieties of *Cratægus* sought after for fine colour of flower or for foliage, the difficulty of preventing the stock from breaking out and smothering the graft is almost as great as among *Evergreens*. In one case a number of young *Cockspur* were got from a nursery and grouped about in various places with a view to the effect produced by the foliage in the autumn. After three or four years it was found on examining them that in nearly every case all that remained was a dead stick in the midst of a stubby bush of the common *Thera*. One knows well enough that when a plant or shrub is transplanted, especially if it remain out of the ground for any length of time, such as during a railway journey, it is more likely to start from the stem or from the base than from the top or points of the branches; and it is the same in tender subjects when they have suffered at all from the frost. I have seen varieties of *Tree Pæonies*—some of the recent more beautiful ones, which had been imported direct from Japan—produce, on being started into growth, a plentiful number of shoots from the root; the buds on the stem made a feeble attempt to grow, but succumbed for want of the nourishment of which they were robbed. The *Rose-flowered Acacia*, itself a brittle subject, was a patent example of what the wind will do to a graft, but even worse than the wind is the snow. It is possible to protect more choice specimens from having to bear the direct brunt of a gale, but a steady fall of snow, from which few countries in Great Britain are altogether exempt, will soon find out the weak points of each and all that may be about, and then farewell to the glory of a former monarch which has not the strength or the sinews to pull himself up again.

When the snow has prostrated large *Rhododendrons*, those that are on their own roots will often raise themselves in a thaw without help; whereas those that are grafted most likely have broken off short at the base. If the union between the stock and the scion is so imperfect as to give way under these provocations, it follows that the flow of sap and consequent development of the plant must be seriously interfered with. In some cases this may prove beneficial in restraining a coarseness of growth and inducing fertility, but it is the reason why we do not possess in our gardens finer examples of graceful and well-developed natural specimens. In order to gain new and improved varieties, it is necessary to raise a large number of seedlings. If nurserymen were to give their attention more generally to raising seedlings, it might with reason be expected that they would raise a larger number of new and improved varieties. If planters, looking forward to the future, as planters as a rule must do, would insist on being supplied by the nurserymen with seedlings only, then our successors would have finer examples to thank us for, and we should be increasing our store of what is beautiful and of value among our treasures in garden and wood. I believe that my syllogism is

correct, but I have forgotten most of the logic which once I learnt, I suppose because it was of the nature of an attempted graft, and not a layer properly rooted in my mind. The troubles of which I speak I could point out to any of your readers, not "in the flesh," but "in the wood" here. I hope they may take my warning, and in the future, if they have not done so already, avoid a "graft" as they would a "rogue."—C. R. SCRASE-DICKINS, *Coolhurst, Horsham, in Field.*

Root-grafting v. budding.—A good many horticultural prejudices, brought over from the old country, have died out during the past thirty years, and others are following. It was some time before root-grafting the Apple was looked upon as quite a proper proceeding; while for Pears and all the stone fruits budding was universal. It is not a great while since those who root-grafted their Apples would cut them back to a strong bud near the ground the second season, merely to give the trees the appearance of having been budded. Though done for that purpose at first, the practice recommends itself on other grounds, as giving a stronger, straighter, and more vigorous stem for branching the third season. There is a ground of objection urged against Apple root-grafting, that it is inferior to top-grafting on hardy stocks for slightly tender varieties, like the Baldwin in Middle New England. But this objection is as strong against low budding as against root-grafting. After root-grafting had become established as a legitimate method for the Apple, it was still regarded as utterly inapplicable to the Pear; while as to the Plum and Cherry, no one thought it possible as a practical operation. But recent experiences have shown me that as fine Pear trees can be grown from root-grafts as in any other way; while with Plums and Cherries, when both roots and scions are dormant, or even when not, if both stock and scion are in a like condition, union is rapid and complete, and growth luxuriant, under proper conditions. At least, I am finding this true with the Russian and North German varieties; and the same report comes from Professor Budd of the Iowa Agricultural College. Small (yearling) stocks are best suited to this method of propagation.—T. H. HOSKINS, in *Orchard and Garden.*

KITCHEN GARDEN.

WATERING VEGETABLES.

IN all cases where the land is of a heavy nature, a very judicious use of the watering-pot, and more especially of the hose, is necessary during the early part of the season. Up to the middle of June if any plants or seedlings failed to grow satisfactorily, this was not due to want of moisture, but rather to the absence of sunshine and warmth, and the more these, therefore, were watered the worse was the evil aggravated. Repeated heavy soakings of rain, varied by hail-storms, have left soils, especially those of a clayey nature, in a cold and very moist state, and unless we soon have more summer-like weather, scarcely any crops on heavy land will require to be heavily watered. We have put out a great variety of plants, and, with but few exceptions, no water was given at the planting time, yet all have recovered quickly and are growing fairly well.

When planting on light soils it may be advisable to give a watering at the same time, this serving to fix the soil about the roots and to provide the plants with the needed extra moisture, but heavy moist soils can, and ought to be, sufficiently well firmed about the roots with the aid of either the dibber or handle of trowel, and no water be given. Extra moisture also encourages the presence of slugs, and these pests

are best hindered by a free use of lime and soot both over and about the plants at the outset and as often as the rains wash it away.

There can be no general rule laid down as to when water should be given to newly-planted or advancing crops, so much depending upon the nature of soils. One thing, however, is quite certain: driblets are worse than useless; and, on the other hand, if land is frequently saturated with icy cold water, or such as may be drawn from deep wells or supplied from town reservoirs, the ground quickly becomes impoverished and long remains in a cold, uncongenial state to the roots of all plants growing on it. Amateurs who may have an unlimited and easily applied supply of water in the shape of "town water" and a length of hose, are the most liable to abuse this privilege, but if they fully realised they may easily do more harm than good with it, they would not be so much disposed to employ their leisure time in flooding their gardens. The preference ought always to be given to pond water, but this is only available in a comparatively few instances, and some other means of softening and raising the temperature of water for the garden ought, where necessary, to be resorted to. Open garden tanks, into which surface water from the walks and from the roofs of dwelling and glasshouses might run, might be found in every garden, but this is not the time of year to construct these, or, at any rate, if built now they would be of no service this season. Galvanised iron tanks to hold fifty gallons and upwards of water are not very dear, and one or more of these would be found useful in most gardens. They could be set under an open-air pump or in a convenient sunny position, where they might be filled from water pipes connected with town mains, and during hot weather the water run into these would be sufficiently warmed and softened in one or at the most two days. Such tanks are also serviceable for mixing some kind of special manure with water before applying it to advancing crops, this being done a few hours before it is used, thereby securing a surer dissolution of the more solvent constituents.

The question yet remains to be solved, when should water be given, but this need not be such a difficult matter as the inexperienced may imagine after reading the foregoing remarks. If all would often examine the state of the ground below the surface or where the roots are found fewer mistakes would be made. When this is found in a moist state and will bind badly when squeezed in the hand, no water is needed, but if it is moderately dry and crumbles somewhat, the time has arrived for applying water in moderation. Should, however, it be found dust-dry, then in all probability the plants rooting in it have already suffered for want of water, and in any case, a much greater difficulty will be experienced in re-moistening the soil. Rows of Peas, Runner Beans, Globe Artichokes, Cauliflowers and Celery are the crops that usually suffer most from drought, but if these are caught just when the soil is approaching dryness at the roots, it is surprising what an amount of good can be done with a small tank of water. Or to be plain, one gallon applied before the soil is really dry will go further than four times that amount a week later on. As before advised, avoid giving mere driblets or only just sufficient to damp the surface, but the other extreme is both wasteful and oftentimes injurious. Therefore examine frequently and before watering, and again the next day after it has been given, when it will easily be seen if sufficient water was used. Were I

the owner of or had charge of a small garden, it would be my practice in dry, hot weather to properly water one or more rows of Peas, Beans, or other moisture-loving vegetables every evening, and this would be done effectively and without much hard labour. Where so many professional gardeners as well as amateurs err is in attempting too much at one time and without thoroughly testing the state of the ground in all cases. Supposing, for instance, a few dozen Cauliflower plants are being grown with the idea of having extra fine heads for the August shows, these would now be covering much ground and require large quantities of water and liquid manure. Such should have not one gallon or less, but fully three gallons at one time, and if the season is at all dry this should be repeated at weekly intervals. Much the same rule holds good with well-established rows of Peas and Beans, and if all cannot be liberally treated during July and August, be content to do half well and let the rest take their chance.

Nor must it be thought that a few moderately heavy showers of rain that may fall during the next two months are sufficient to meet the requirements of vegetables generally. They may be enough for various root crops, but very rarely for the more gross vegetables previously named. If the soil containing the roots of Peas, as an example, is examined after a comparatively heavy rainfall in July or August, in all probability it will be found that no water, at any rate in an appreciable quantity, has gone far below the surface. On dry, hot soils especially, little heed should be paid to the rainfall, as it must be an exceptionally wet season if the vegetables require no assistance from the watering-pot. The best time to apply liquid manure is in showery or dull weather. If given in the evenings of hot and dry days, the ground ought first to be moistened with clear water, and it will then be in a fit condition to absorb and be benefited by a moderately strong dose, but using strong liquid manure on dry ground is decidedly wasteful, and may easily prove injurious. It is usually necessary to lightly loosen the surface of the ground with a fork prior to watering; in fact, unless this is done, a good soaking cannot be given, and it is also advisable to again stir the ground with a Dutch hoe during the next day in order to prevent cracking and rapid loss of moisture by evaporation.

W. IGGULDEN.

Early Peas.—Harrison's Eclipse, a bluish, round, hardy, first early Pea, has given great satisfaction to growers in this district this year. It is about the second year that it has been largely grown here, and last season it did very well. As a blue, it has not been sown first, the place of honour being still reserved for Sangster's No. 1, but the pods in that variety, even of the best selection, are very small. Where, however, Sangster's and Eclipse have been sown at the same time, one is about as early as the other, whilst Eclipse gives the finest pods and crops. That is considerable gain, as there has long been great lack of size in Sangster's, and, indeed, in all the first earlies. Generally Peas, have turned out very well, but the breadths in many cases were thin, and were soon cleared off. In these instances the filling up with winter greens has gone on rapidly. The hard, round, blue Harrison's Glory is, although so deficient in flavour, yet, because of its dwarf habit, larger pods, and deeper colour, still one of the largest grown of all the second earlies. It is in the case of round Peas that there is so much room for improvement in market Peas, as wrinkled Marrows are both too costly as a rule and too tender to be used for very early sowings on a large scale. It is very odd that one firm should have given to the market trade in Eclipse and Glory two of the most popular and hardy of field Peas. Gladiator is

a variety which, producing fine pods and being hardy and productive, should in time make a good field variety. Pea raisers have devoted so much attention to the raising of garden Peas that sorts specially adapted for field work seem to have been somewhat overlooked.—A. D.

Cutting Lettuces.—Such is the term applied to Lettuces in pans or boxes, or even in frames or under handlights by the vegetable conference committee, which have included in the schedule of vegetables for the conference a class for Lettuces as sown and raised in pans or boxes and to be so exhibited. This is an attempt to popularise a Continental method of producing what is a very sweet and delicious salad element. It is confined to no sort of Lettuce, but generally the very tender crisp Cabbage forms seem to be the most favoured for the purpose. As the conference is to be held in September there will be then an abundance of outdoor Lettuces, but none the less with the incoming of a cooler temperature the demand for ordinary Cos or Cabbage Lettuces lessens, and very often even the best of breadths become a drug. Now cutting Lettuces are essentially valuable for the production of winter salads. To be very crisp and tender, and to have all that delicious freshness which renders a good salad at any time so acceptable, Lettuces should be very quickly and cleanly grown. These conditions are easily secured under glass and throughout the winter at all times where there is plenty of heat available. I should like to elicit from good vegetable cultivators like Messrs. Iggliden and Ward some expressions of opinion as to the value of cutting Lettuces so called for salads generally, and especially for winter use. They may be able to indicate also the best kinds for the purpose, and it would also be very useful to state the usual time needful to ensure growth fit for the purpose both in cool frames and in heat. Ordinarily a month perhaps would be ample, assuming that the seed was good.—A. D.

Winter plants.—The recent heavy rains have made market gardeners specially busy in putting out all kinds of winter greens, Broccoli, Kales, Sprouts and Cabbages. The heat which preceded the rain had helped to force the plants into early growth, and they were in good condition for planting out at the time when rain made the soil so moist and available. As Peas are somewhat thin, the plants will not be too crowded with haulm; indeed, the danger to the plants rarely results from the Pea tops, but from the rough usage given by the pickers. With regard to Brussels Sprouts, the favourite method of planting these is to have rows of Runner Beans at a good width apart and to plant out the Sprouts between these, so that after the Bean haulm is cleared off in the winter the plants, then grown tall, have ample space. Autumn Giant Cauliflowers either go out amidst rows of early Peas, or the ground is cleared, ploughed, and cropped with Cauliflowers immediately. White and sprouting Broccoli and Scotch Kale, the latter two kinds especially, commonly go out between rows of early Potatoes, usually in every other furrow. Cabbages and Coleworts also follow where early Peas or Potatoes have been cleared off. If two crops cannot be grown on the ground at the same time the second one follows the other at once, so that none of the land remains idle. There seems to be no doubt but that, as last year, we shall see vast breadths of all the Brassica family next winter, because of the favourable planting season. If there were poor seed beds in some places, there seems to be an ample supply of plants in others.—A. D.

Late Peas.—"W. I.'s" note with respect to the general success of late Peas between Celery trenches seems to indicate that the good results may be traced to the additional depth of soil, and that, too, of the best, which is found in such cases. When, as is too often the case, Peas are sown in trenches to enable watering to be freely done, it is overlooked that the density of well-cultivated sweet soil in which the roots can run is appreciably reduced; indeed, if 6 inches be the depth of the trench, the soil thrown out from two adjoining trenches will give a depth of nearly 6 inches be-

tween the trenches, and the Peas are not only encouraged by greater depth of loose soil, but are almost compelled, as it were, to send roots down deeply. Under such conditions it is no wonder they do well. It may be important in the case of late Peas that they should have facilities for watering if needed, but it is of far greater importance that they should have a considerable depth of sweet, rich soil beneath them. Where garden soil is deeply trenched and heavily manured every three years perhaps, such soil must ever be rich and free; but, all the same, it is not so sweet 12 inches below the surface as is the foot of soil above. Of course, in sowing late Peas between Celery trenches, success can be looked for for better crops only where there is ample width. It may be worth consideration, however, in gardens where the soil is naturally dry and large quantities of late Peas are needful, whether trenches should not be thrown out between the rows, not for Celery, but for irrigating the Pea crop, as, without doubt, water supplied by irrigation is more effective than ordinary waterings.—A. D.

KITCHEN GARDEN NOTES.

TOMATOES DISEASED.

AMONG the legacies of the wet and most unfavourable season of 1888 are numerous resting spores of fungoid diseases, and in all probability there are more of the latter to contend with this summer than have been observable for many years. Scarcely any vegetable can be said to be free of one or more of these most infectious diseases, and, as far as my experience goes, no effective remedy can be offered for any one of them. At the present time there are more diseased Tomato plants under glass than ever before, and several bad failures have already come under my notice. We have not escaped, nor can I boast of having discovered a remedy, but fairly good crops were taken from the old plants kept through the winter, and are being taken from January-raised pot plants. There is no doubt we have the disease amongst our Tomatoes in this district. It made its appearance within three miles of us in the spring of 1888, and reached our plants in the autumn. Strong solutions in variety, oiled and sulphured hot-water pipes, dryness at the roots, and a change of houses for successional crops have all been tried, but it is much easier to kill or seriously cripple the plants than it is to destroy the disease. In spite of this, I have yet good hopes that we shall continue to obtain fairly heavy crops of Tomatoes, and the time may come when the disease will disappear as mysteriously as it came. One of the best preventive measures is the maintenance of a drier atmosphere, both front and top air being given more freely than heretofore, and fire-heat turned on whenever the weather is dull and cold. Unfortunately, private growers can rarely devote a house specially to Tomatoes—they have to be grown principally in connection with choicer fruits or in mixed houses, in fact—and being therefore of secondary importance, cannot be unduly favoured at the expense of the other crops in the house. A free circulation of dry air will greatly check the spread of the disease, but if the latter is slower in effect the crops are also slower in maturing, and, on the whole, the remedy is not so effective as hoped for. The best suggestion I can offer, and which will, I believe, be found to answer well wherever tried, is to cease the close system of stopping or disbudding generally adopted. When nothing but the old leaves or those on the main stems are left on the plants these are soon overrun and eaten up by the disease, and in consequence there is nothing left to keep the roots active and otherwise assist the fruit, a light crop being the inevitable result. Our plan is to keep the plants in full bearing, well fed at the roots, and to lay in young shoots thinly all along the main stems, the foliage of these gradually replacing the older diseased leaves. If this is persevered in not only are the first formed clusters of fruit assisted to swell to nearly their full size, but the young growths also fruit in succession, and profitable crops are obtained in spite of the apparently irresistible disease. This system of constantly laying in young shoots answers

best on trellis-trained plants, but it is also applicable to those staked. It is very certain starving the plants is no remedy, but grossness ought to be prevented as much as possible at the outset.

OPEN-AIR TOMATOES.

These have started well, and as yet are free from disease, but should the weather be dull and wet during the early part of July it may soon put in an appearance. Apparently the *Cladysporium* does not spread much over plants in the open air, the *Peronospora infestans*, better known as the Potato disease, or some other member of this troublesome family being most to be feared. If the foliage can be kept dry and a circulation of dry air maintained, the latter forms seem harmless, and the aim therefore should be to protect the plants as much as possible, especially during weather favourable to the spread of Potato disease. One of the best crops of Tomatoes I saw last year was grown against a high close-paled fence facing south. The plants were of good size when put out, were kept to a single stem and stopped beyond the fourth cluster of fruit. From the first they were covered with lights from a Vine border, these being arranged closely together and reaching from the ground to about 5 feet up the fence. Somewhat similar contrivances might well be adopted in many gardens where there are any spare lights, or glazed coverings could be bought at a cheap rate specially for protecting Tomatoes, these also being very serviceable for forwarding or protecting early vegetables and saladings grown at the foot of sunny walls and fences. Last season a considerable number of Tomato plants grown against extra dry as well as glass coping-covered walls matured good average crops, but, as a rule, little can be done towards protecting a few isolated plants or any grown quite in the open. All that can be done with these is to keep them properly secured to the stakes or wall and closely denuded of all side shoots. If the season is favourable, their growth will be rapid, heavy clusters of fruit will set, and these will ripen from the end of July to November.

ONIONS, MILDEW, AND MAGGOT.

Mildew frequently proves most destructive to the Onion crops, and I have already seen large patches of autumn-raised plants affected by it. Our Tripoli seldom escape this disease, and if they are grown alongside the spring-raised varieties it soon spreads through the whole bed. For this reason we keep the two crops well apart, and only in very cold or moist summers are the more valuable spring raised crops much diseased. A close watch should be kept for the first symptoms of mildew, and the affected plants ought to be burnt as soon as detected. Newly slaked lime and soot mixed and freely dusted over and among plants, the surface of the ground also being frequently loosened with the Dutch hoe, have a deterrent effect on the disease and quicken the growth of the Onions, but we are very much at the mercy of the elements, everything depending principally on the weather experienced during the next month or two. We are not much troubled by the Onion maggot, and I believe this immunity is to be attributable to the firm state of the ground. In order to make my remarks intelligible to the inexperienced, I must point out that when small Onions suddenly become sickly and collapse in a few days this decay is usually the result of the workings of a maggot, these maggots being hatched from eggs deposited on the leaves or at the base of the stems. After about a fortnight the marauders shift their quarters from the Onion bulbs to the ground, where they change to the pupa state, from which a fly eventually emerges. The fly soon proceeds to deposit eggs on the Onions, and once more the work of destruction recommences. It follows that if those Onions taken possession of by maggots in May or early in June are at once destroyed, there will be fewer flies to deposit eggs late in June or early in July. If this precaution is neglected, the chances are the later broods will be more numerous and much more destructive than the earlier ones. There are other preventive measures in addition to this, the primary

one, however. A free use of soot prior to sowing the seed and during the growth of the plant has been found of good service in checking the pest, and a firm soil is even more effective. It is also a mistake to sow the seed very thickly, as the less thinning out necessary, the less the surface soil surrounding the base of the plants is disturbed. The grubs may find their way down into the soil, but if it is hard and close the flies cannot so readily emerge, and seeing that clayey soils run together most closely, I think I may safely give this as the reason why so few Onions are injured by maggots in the garden under my charge. Those who have studied the habits of the Onion fly assert that those flies which emerge from the ground in June or July deposit their eggs either on the ground close to the bulbs or else on the bulb, where they hatch out more surely than when deposited on the exposed leaves, and are also within an easy distance of the base of the bulbs. Were we troubled by the maggots I should adopt the plan of moulding over the Onion bulbs at the present time, the soil being drawn up to them on either side sufficiently to quite cover the lower portion of the neck, and this would exclude many of the flies. Onions certainly bulb more quickly and surely when well exposed, but I have seen very good samples drawn from moulded-up rows, and in any case it is better to have bull-necked Onions than none at all.

HOING AND MULCHING THE GROUND.

After a long spell of cold, wet weather, heavy ground will crack badly directly we experience a dry, hot time. Cracking is certainly preferable to having the soil in a cold, saturated state, but, all the same, it should be prevented as much as possible. A free admixture of leaf-soil, fine peat, burnt refuse, and finely-broken burnt clay to the surface, prior to cropping, is one of the best preventives of cracking, and is otherwise beneficial, but it is too late in many instances to adopt this remedy now. The next best thing is to well loosen the surface with forks if very much run together, or otherwise with Dutch hoes, this operation being repeated frequently unless a mulching of some kind is given. Keeping a loosened surface prevents the rapid loss of moisture and consequent cracking, and, in addition to conserving much of the moisture that arises from the subsoil, it also admits the air and warmth to the roots. On naturally warm, quick-drying soils a mulching of either short manure, leaf-soil, spent tan and Hops, fine peat, short Grass from the mowing machine, or even fresh dry soil, is most beneficial to all crops alike, and any of these substances, manure excepted, are also suitable for preventing the cracking of heavy land. Any fine material distributed among the rows of Carrots, Onions, Beet, and other crops with thick, deep-running roots, after the surface has been loosened, will prevent the ground becoming hard and much cracked, and admits of well-formed roots being drawn whenever they are wanted. For the taller or coarser topped vegetables, such as Peas, Beans, Artichokes, and Cauliflowers, much heavier mulching material may be freely used, a good thickness of fresh strawy manure answering well. A timely mulching obviates the necessity for frequent heavy waterings, and the plants mulched thrive better than they would do if watered only. Should the summer prove hot and dry, the rows of Peas, Beans, Cauliflowers, and Globe Artichokes will in most instances require to be given a good soaking of water or liquid manure occasionally in addition to the mulching of manure. W. I.

Insects and thunderstorms.—In the early part of the season it seemed as if we were likely to have everything, in the plant way, crippled by insects, so numerous and prevalent were all sorts of aphides that affect fruit trees and bushes, while as to caterpillars on Apples and Pears, they were legion. The storms, however, though they have done harm in some cases, have done much good in ridding shoots and foliage of these abominable depredators. There appears to be a very general impression that lightning kills the insects mentioned, but of this I have great doubt, and am of opinion that it is only the drenching rains we get at such

times that wash them away and drown them before they can recover and get fresh hold of the leaves. Be this as it may, trees that were foul before are clean now, and not only will the washing be highly beneficial at once, but the soaking the ground has had will last some weeks, and help very materially in swelling the fruit and enabling the trees to make fresh growth and buds towards next year's crop.—S. D.

ORCHIDS.

W. H. GOWER.

THE BEARDED BOLBOPHYLLUM.

(*B. BARBIGERUM*.)

THE plant of this species shown by Sir Trevor Lawrence at the recent exhibition in the Temple Gardens was the great centre of attraction for the visitors, who, notwithstanding the immense show of large and gaily coloured kinds, clung round this little African beauty. This species appears to have been introduced from Western Africa upwards of fifty years ago, and it is now nearly thirty years ago since the plant first flowered with me for the first time. Whenever I have visited the Burford Lodge Gardens,



Bolbophyllum lemniscatum.

this singular-looking and curiously-constructed flower is nearly always to be seen.

The plant is exceedingly beautiful, and the interest it excited at the exhibition, noted above, is sufficient proof of my former statement, that not only are Orchid growers far more deeply devoted to their plants than were the growers of a decade or two ago, but also that the general public are also more anxious to know something about them. *Bolbophyllum barbigerum* is a plant dwarf in stature, with a creeping stem which at short intervals produces small, somewhat rounded pseudo-bulbs. The peduncle rises from the base of the pseudo-bulb, and bears sometimes a dozen flowers, especially the majus variety, which not only flowers more freely, but the individual blooms are much larger than those of the typical plant.

The flowers of this species do not possess any colours which are attractive; the sepals are small, tapering to a point, reflexed, pale green at the base, the remaining portion wholly dull deep brown. The petals are so small that they cannot be readily seen, but the lip is the curious part of the flower. This organ is long and nar-

row, furnished with a dense yellow pubescence over its surface. At the end it is furnished with a deep purplish brush-like beard, and from the point extend a quantity of long slender threads of purple, which are for the most part furnished with a knob at the extremity, like the antennæ of a butterfly. These hair-like threads are kept continually in motion by the current of air, however gentle, whilst a stronger breeze sets the whole lip in motion, as it is jointed to the base of the column and moves freely.

B. BARBIGERUM is not difficult to cultivate, but it is more difficult to obtain, as the inordinate love of large flowers caused the destruction of most of these little gems, a few years ago upwards of 400 kinds that were under my care in 1864 having been thrown away in one day, and since then I have seen them destroyed, so that I hail with delight the deep interest felt by Orchid growers of the present time in the small-flowered species. *B. barbigerum* requires the temperature of the East India house all the year round. During the summer it should be shaded from the strongest sunshine, but in winter it may have all the sunshine and light possible to give it. I prefer growing it in a small basket or earthenware pan, so that it may be hung near the roof-glass; but in winter it should be removed, as this position often becomes the coldest, especially in severe weather, and a low temperature is decidedly inimical to the well-being of this plant. Whatever the receptacle, it must be well drained, and the soil should be good peat fibre and Sphagnum Moss, raised in a cone-like mound above the rim, and rendered more porous by the introduction of a few nodules of charcoal during the process of potting. During the summer months it enjoys a liberal supply of water to its roots and an atmosphere well charged with moisture. In winter less will suffice, but at no season should the plant be allowed to get quite dry.

B. PANIMENTATUM is another West African species, which is pretty, but without the striking characters of the above-named kind. This flowered with me for the first, and I think the only time in 1862. Two years later, it was doomed like many other small-flowered species. It, with a dozen other new species, several of which did not flower in this country, was collected by Mann in Western Africa. The pseudo-bulbs are small and some 3 inches long. The flower-scape is from 3 inches to 4 inches in length, and bears a drooping raceme of closely-set, small deep purple flowers.

B. RHIZOPHORE.—This species should have been kept in our collections, if for no other reason than to commemorate its finder, the enthusiastic collector Barter, who was one of the victims of the ill-fated Niger Expedition, commanded by Baikie. It was found by Barter growing on the stems of Mangrove trees on the banks of the Nun River. It is a small-growing species, producing long racemes of small, dull, purplish brown flowers, stained at the base of the sepals with yellow.

B. LEMNISCATUM is a most curious little Burmese beauty. It has singular shining pseudo-bulbs, which produce an erect scape bearing a pendent raceme of bloom on the apex. The flowers are numerous, small, deep purple, and hairy, the sepals having a long appendage, which is variously coloured and gives the flower a most curious appearance.

Other curious small-flowered species which I have had in cultivation are *B. cupreum*, *B. neilherreuse*, *B. Careyannum*; and amongst the larger-flowered kinds, *P. psittacoglossum*, *B. Lobbi*, and *B. siamense*. These latter kinds are sometimes called *Sarcopodiums*, a genus established by Lindley to include plants which he considered intermediate between *Dendrobium* and *Bolbophyllum*. They are handsome flowered plants, which deserve far more attention than has been accorded them of late years.

Renanthera bilinguis.—I recently noted this very rare plant flowering at Birdhurst, Croydon. The plant was handsome, some 2 feet high, and

bearing about fourteen pairs of its distichous leaves. The pendent spikes were upwards of 3 feet in length, having borne above two dozen flowers, which, however, were lighter in colour than those seen previously by me in Consul Schiller's collection at Altona. In the examples now before me the sepals and petals are nearly equal, the latter slightly the smaller, spreading, yellow, irregularly blotched with cinnamon. Lip small, side lobes small, erect, reddish brown, middle lobe yellow in front, streaked at the base with reddish violet. At the base the lip is furnished with a stout spur, which hangs down under the lip, and gives the flower the appearance of bearing two lips. It enjoys strong heat, and is said to be a native of Macao.—W. H. G.

Cypripedium barbatum (Syn House variety) is a distinct and valuable Lady's Slipper, far finer than the type, and with a flower almost as large as that of *C. Lawrenceanum*. The plant is of strong constitution, blooms with great freedom, and has excellent foliage. A large batch of it was in full flower the other day with Mr. Wythes, Syon House Gardens, Isleworth. We were pleased to see here a good collection of Orchids, all in the best condition.

Anguloa Ruckeri sanguinea.—This is a very handsome variety, having been first introduced to cultivation by the Messrs. Rollisson, of Tooting, now many years ago. The flowers are as large as those of the typical plant, but instead of being spotted with crimson on a yellow ground, the whole of the interior is of a deep red. It has been rare in cultivation; but I recently noted it flowering profusely in Mr. Williams' nursery at Holloway, where, like all the kinds of this genus, it is grown in a cool house.—G.

Lycaste aromatica.—This is one of the old species which came into my hands in the first days of my Orchid life, and although I never much admired it for its beauty, it was always a favourite for the rich aromatic perfume of its flowers. It was cast on one side for some years, but if late it is retained in various places on account of its grateful odour. One of the finest examples I ever saw was recently blooming in the garden of the Baroness Heath, Coombe Wood, Croydon, the specimen in question bearing upwards of 100 expanded flowers, which, independent of their perfume, are of a rich yellow. It is easily grown in the cool house and enjoys a thorough rest by being kept dry. The only objectionable feature in it is the fact of its casting its leaves during the winter just before the blooms appear.—W.

Lælia grandis.—This Brazilian species has been one of the rarest of its kind. First introduced to cultivation some forty years ago, it flowered with me for the first time about twenty-five years ago, and since that time I have occasionally seen it, but varying little either in size or colour. I recently noted a nice form flowering with Mr. Tautz at Shepherd's Bush. Each of the flowers measured about 5 inches across, the sepals and petals nankeen-yellow; lip white on the exterior, yellow within, profusely streaked with rosy purple. Of this plant I also saw a large importation recently in Mr. Sander's nursery at St. Albans established and doing well, so that from these we may expect a certain amount of variation. *Lælia grandis* is a native of the hot, moist districts in the neighbourhood of Bahia, and should be grown with the warmest of Cattleyas.—W. H. G.

Orchids from Suffolk meadows.—I send you a gathering of the fragrant Orchis (*Gymnadenia conopsea*), which is plentiful in one of our meadows. It is a sweet-scented and beautiful Orchid, and in colour embraces many delicate shades of lilac and pink, whilst the pure self colour of its flowers, which are without spot, is not the least of its charms. Although thirty or forty flowers may be borne upon its tapering spike, they are so thinly set that the one does not touch its neighbour, and the long filiform spur adds to its grace and beauty. The Frog Orchis (*Habenaria viridis*) grows abundantly in the same field, and looks more curious than interesting because of its yellow-green hue. Its musky scent,

however, is delightful, and a few spikes in a cut state suffice to scent the whole room. The Marsh Orchis (*O. latifolia*) here is, as you will see, not nearly so good as the fine spike sent you from Glasnevin, but it is very fine, nevertheless, in our marshy meadows, and its beauty is rarely seen, for it flowers late when the Grass is tall. Orchis pyramidalis in fine rosy form is found all over the park and pleasure-grounds. An ivory-white *O. maculata*, though now past its best, is very pretty. The one sent was the only pure white one among thousands.—A. H., Suffolk.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 25.

THE meeting of the above society at the Drill Hall, Victoria Street, on Tuesday last, was a sample of what has often occurred before—two or three large collections of hardy flowers, and these from the trade. The spark of life visible earlier in the year, when amateurs and gardeners exhibited interesting plants, seems to have vanished. A June meeting should be one of the largest of the year instead of the smallest. No meeting will attract visitors when there is a constant repetition of the same kind of plants, and these from the same growers. In the afternoon papers bearing upon the culture of the Strawberry were read by Mr. A. F. Barron and Mr. Bunyard, of Maidstone, and there was a fair show of the fruit to illustrate their remarks.

First-class certificates went to the following:—

LILIUM MARTAGON ALBUM.—It is unnecessary to describe the white form of the common Martagon Lily, as it is a common hardy flower. Why such things should be certificated is an enigma. A coloured plate of it, associated with *L. dalmaticum*, appeared in THE GARDEN, Jan. 13, 1883. From Messrs. Barr and Son, Covent Garden.

LILIUM WALLICHI SUPERBUM.—This is a Lily of great promise, and we are indebted to Messrs. H. Low, of Clapton, for its introduction. It is a native of India, from whence bulbs were received early in the present year, the specimen shown having reached a height of 5½ feet, due doubtless to the extra forcing required to have it in bloom as quickly as possible. Grown under cooler treatment, it will, we hope, make a dwarfier, stronger, and more vigorous growth. The leaves are small, abundant, and deep green, the tall, straight stem terminated by two large, slightly nodding flowers, each of the same size and of a pronounced ivory white, which is relieved on the outer surface by a distinct central longitudinal band of deep green down each of the segments; and within the flower there is a rich suffusion of yellow that is confined to the lower half of the firm segments. Each of these measures fully 9 inches in length, and in the broadest part about 2½ inches, the whole expression of the flower resembling that of the pearly white longiflorum.

MASDEVALLIA ELLISIANA.—A hybrid between *M. ignea* and *Harryana*, and exhibited by Messrs. J. Veitch and Sons, of Chelsea. The flower shows the characters of both parents fairly well; it is bright red in colour, with a distinct scarlet shade, the veins being of a much deeper tint.

AWARDS OF MERIT went to the following Delphiniums, all from Messrs. Kelway and Son, Langport, Somerset: *Banquo*, a variety with a splendid spike of deep blue flowers, shaded with the curious mauve-purple tint so prevalent in the perennial Larkspur; *Britannia*, an excellent kind, the spike strong, straight, and compact, and the flowers of the deepest blue possible, a rich setting to the white centre; *Sir Trevor Lawrence*: this is quite different from the two above-named; the spike is just as strong and compact, but the flowers are of a peculiarly beautiful transparent blue colour, a few of the petals, however, almost of a pink shade; *The Shah*, a beautiful type of a florist's Delphinium, the flowers large, intense blue, and shaded with the same characteristic mauve-purple colour.

CATTELEYA GASKELLIANA (Cooke's var.).—Few, if any, Orchids give greater variety than *C. Gas-*

kelliana; it varies even more than *C. Mossiae*, and here we have quite a new departure, and that most welcome. The plant shown had two expanded flowers of a delightful self lilac-magenta shade, as soft and beautiful as one could desire. Both the narrow sepals and broader frilled petals are wholly of this unusual tint, also the finely margined lip, except for a suffusion of rich yellow that runs into the throat. From Mr. Malcolm Cooke, Kingston Hill.

HARDY FLOWERS made the show, and a large bank, filling almost one side of the hall, was put up by Messrs. Barr and Son, of Covent Garden. There were the principal flowers of the season, from the glorious English Iris, now in its fullest beauty, to such tender bulbous gems as the *Calochortus*. The English Irises were exceptionally good for the season, as this is not a good year for the bulbous flags, and particularly bad for the Spanish section. Of the former class the following varieties were worth mention: *Wapen Van Rotterdam*, mauve and white; *Mont Blanc*, a beautiful white flower; *Amusant*, deep rich purple, upper part of lip white, signal rich yellow; *Lilacina*, pale lilac; *La Superbe*, blue and white lip, reddish standards, a handsome variety; *Armida*, rich lake colour, splashed occasionally with a velvety tint; and *Grande Celeste*, blue. There were beautiful blooms shown of *Iris Monnierii*, a fragrant rich yellow-coloured species from Crete, the colour as deep as in the beautiful *I. juncea*, now one of the principal flowers in the garden. Other good things in this stand were *Hemerocallis fulva*, the scarlet *Ixia crateroides*, *Eriogonum Youngii*, *Ornithogalum pyramidalis*, one of the finest bulbous plants of its season; *Lilies* in great variety, including fine spikes of the richly-coloured *Hansoni*, *Gladiolus The Bride*, *Alstroemeria aurantiaca*, *Cypripedium spectabile*, and *Campanula Burghaltii*, the flowers tubular, deep blue (silver medal). A rich bank of flowers came from Messrs. Kelway and Son, Langport, comprising double-flowered *Pæonies*, *Delphiniums*, *Gaillardias*, and the superb pure white double-flowered *Pyrethrum Aphrodite*. Of the *Pæonies*, the best were *Mons. Marsaux*, bright carmine; *Medusa*, crimson; *Leonie Calot*, white, with a salmon tinge; *Cleopatra*, shining pink; *Acanum*, deep crimson; *Miss Brice*, rich pink; *Comte de Gower*, rich crimson; and *Lady Gwendoline Cecil*, white. It is unnecessary to praise the *Delphiniums* of the Messrs. Kelway, and the two acres of them in their Langport Nursery must be a sight of unusual splendour. The race they have promoted is distinguished by a remarkable strength and compactness of spike, the flowers of various colours, and thickly and symmetrically placed. Of the *Gaillardias* worth mention were the *Duke of Portland*, yellow; *Phenomenal*, florets fluted, crimson, tipped with yellow; *Prince of Naples*, crimson, tipped with yellow; *Vivian Grey*, yellow; and *Jessica*, rich yellow, with dark crimson centre (silver medal). A small, but choice group of *Lilies* came from Mr. T. S. Ware, of Tottenham. The series of species and varieties comprised such as *L. columbianum*, *pardalinum* var. *pumilum*, a variety earlier in bloom than *pardalinum*, and with orange-red flowers spotted brown; *elegans* in variety; *tenuifolium*, *Parryi*, *Hansoni* in splendid condition; *Martagon album*, *pulchellum*, a little gem, the flowers small and spotted with chocolate on a rich crimson ground; *Washingtonianum*, *Bolanderi*, a Southern Californian kind, quite new, and with numerous small pendent flowers; and *monodelphum* var. *Szovitzianum*, the flowers buff-yellow and strongly scented. Mr. Ware also showed varieties of *Delphinium* and *Iris hexagona*, the flower blue, signal rich yellow.

A group of *Lilies* and Japanese Maples, charmingly arranged, came from Mr. W. Gordon, of Twickenham, who knows well how to grow such flowers as the varieties of *auratum* and the dwarf *elegans*; *platyphyllum*, *pictum*, and *rubro-vittatum* were the principal forms of the great Japanese Lily shown (silver medal). A rich series of Sweet William flowers came from Mr. George Phippen, Reading, the flowers representing a carefully selected strain and a surprising variety of colour from

the purest self white, the best of all, to the deepest double crimson, a variety no one should be without. The double crimson Sweet William is a beautiful flower when well grown. Those white edged with pink, or crimson with a white centre, are extremely pretty, but there is scarcely any limit to the colours. A large gathering of Shirley Poppies from the Rev. W. Wilks, Shirley Vicarage, Croydon, gave us another glimpse of a remarkably beautiful and pure strain of flowers. The same kind of Poppies, and also seedling Carnations of great promise, came from Mr. R. Dean, Bedford, together with a bunch of flowers of the yellow *Venidium calendulaceum*. Messrs. J. Veitch and Sons exhibited *Andromeda speciosa* var. *pulverulenta* and *A. s. cassinefolia*, both charming shrubs, smothered with small bell-like flowers, in the case of the first mentioned of a creamy tint, but in *cassinefolia* they are clear white, as pure as snow. From the same firm came the graceful *Styrax japonica*, a beautiful garden tree, now a mass of its snowdrop-like pure white flowers; *Ceanothus Marie Simon*, the flowers pink; and *Lep-tospermum baccatum*, an Australian myrtaceous shrub, clothed with small deep green leaves, from amongst which peep out the white flowers; it is a beautiful shrub in its way.

ROSES comprised chiefly six boxes of new varieties from Messrs. Wm. Paul and Son, Waltham Cross. There were the lovely Sappho, a charming Tea Rose of fawn colour mingled with delicate pink, and with the outer petals flushed with the latter hue; Grand Mogul, a noble, dark-coloured Hybrid Perpetual; Medea, a Tea variety, in the style of Caroline Kuster; and a boxful of Silver Queen (H. P.), a variety that is deeper in colour than La France, and with all its other good qualities. Messrs. Paul had several quite new varieties, but it is hard to judge of them on first acquaintance. Magenta Queen, a Hybrid Perpetual of a brilliant rose colour, seems likely to make a good exhibition flower; it has an even, full shape; Fair Rosamond, a salmon-rose-coloured climbing variety; Hero of Waltham, a cherry-coloured Hybrid Perpetual, lighter than Alfred Colomb, and of similar shape; Shakespeare (H. P.), in the way of Paul Neyron, the flowers deep rose; and Spenser, a variety like Baroness Rothschild, the colour almost identical, but the shape of the bloom flatter are additions that deserve to be well tested, as they have merits of no mean kind. Messrs. Paul also had blooms of Marchioness of Lorne, an excellent garden Rose of the Hybrid Perpetual class, the colour shining carmine; miniature Moss Waltham Pet, a counterpart of Little Gem, save for its colour, which is white; Burns, a flower in the way of Victor Verdier, but lighter; Pink Rover, a climbing Bourbon, very sweet, and of a beautiful rose tint, free, and a good autumnal; and Salamander, a Hybrid Perpetual of a crimson colour. Mr. J. Churchman, gardener to Miss Roberts, Ipswich, showed flowers of a Hybrid Perpetual Rose named Miss Roberts. It had no apparent merit whatever. Flowers of Sweet Brier crosses came from Mr. G. B. Baskett, gardener to Lord Penzance, Godalming; the flowers were of various colours, but none better, so far as we could see, than those of the common Dog Rose of our English lanes. Also from the same exhibitor came a Rose described as a cross between the Moss variety Luxembourg and Hybrid Perpetual Princess Christian; the flower was large and bright rose, but no better than others in cultivation.

Other exhibits comprised double Carnation Begonias of exquisite shape, and faintly splashed with yellow as a Carnation; Canterbury Bells, remarkable for size and colour; and double Balsams from Messrs. H. Cannell and Sons, Swanley; double tuberous Begonia Mrs. Annie Smith, a very free salmon-rose-flowered type from Mr. Owen, Maidenhead; and Masdevallia Heathi from Messrs. Heath and Son, Cheltenham; it is like a bad Cheloni. Mr. J. Jones, gardener to Mr. N. Sherwood, Dunedin, Streatham, exhibited a plant in fine flower of *Dendrobium Stratiotes*, recently noted in THE GARDEN; and an excellent richly coloured form of *Cattleya Mendeli* named Halli was shown by Mr. Hall, Upper Tulse Hill. A form of *C. Gaskelliana* named Sunray came from Dr. Duke, The Glen,

Lewisham. Mr. Ross brought from the Pendell Court Gardens strong spikes of a good variety of *Orchis maculata* and the curious *Asclepiad*, *Ceropegia elegans*, a stove climber introduced from India about 1828. Messrs. Veitch exhibited *Zygocollax* (*Zygopetalum*) *leopardinum*, a cross between *Colax jugosus* and *Z. maxillare*, the flower more resembling the *Colax* than the *Zygopetalum*; and *Rhododendron The Czarina*, a cross between the Sumatran *Teysmanni* and *R. Princess Royal*. It is a distinct and beautiful flower, just touched with a delicate rose tint.

FRUIT, with the exception of Melon Thames Ditton Hero, from Mr. W. Palmer, gardener to Mr. W. F. Hume Dick, Thames Ditton, comprised solely Strawberries. Mr. S. Ford, Horsham, showed fruits of the British Queen, Alpha, a variety of fine colour and flattish shape, Alice Maude, and the Hautbois and alpine kinds. Mr. Watkins, Pomona Farm, Withington, Hereford, had an American variety named Sharpless, a large irregularly-shaped fruit of fair flavour; and Mr. J. Smith, gardener to the Earl of Rosebery, Mentmore, showed James Veitch, Vicomtesse Héricart de Thury, La Grosse Sucrée, and Crown Prince, a large, smooth, fine scarlet-coloured fruit, but of its flavour we know nothing. Nine varieties came from Mr. Allan, Gunton Park Gardens, and it goes without saying that the fruits were perfect samples of their kind. Auguste Boisselot, a large crimson fruit; James Veitch, Mr. Radcliffe, Sir Joseph Paxton, La Grosse Sucrée, and Laxton's Noble were splendid for colour and size. Seedling kinds came from Mr. H. E. Rundle, Stoke, Devonport, but of the quality of the fruits we cannot speak; they were large, but this is no recommendation. A collection came from the Royal Horticultural Gardens at Chiswick, and comprised well-known kinds and Crescent Seedling, a fruit of medium size, smooth, roundish, but of a decided acid watery flavour; Lucas and The Countess, a large fruit of rich colour, were also exhibited. Mr. R. Gilbert, Burghley, showed the variety A. F. Baron. The fruit is large, flat, fluke-shaped, and rich crimson; if its flavour is as good as its appearance, it is a fine Strawberry. The same exhibitor sent Sir Joseph Paxton and Laxton's Noble. Mr. Bresee, Petworth, showed a few kinds, and Mr. Laxton fruits of his "Noble" variety, the first gathering of which was made the second week in June. Mr. G. Bunyard, The Nurseries, Maidstone, sent excellent fruits of Green's President, Keen's Seedling, Helen Gloede (a very large-fruited variety), British Queen, and other well-known types.

A sample of wood wool, the new material for packing soft fruits, was shown by Mr. George, of Putney. It is elastic and clean.

Vegetable Conference Committee.—In view of the great Vegetable Conference to be held at Chiswick on September 24, 25, and 26 a meeting of the committee appointed to make the necessary arrangements was held in the council room. Present: Mr. H. J. Veitch in the chair, with the Rev. W. Wilks, secretary, Mr. N. Sherwood, and Messrs. A. Dean, J. Smith, W. Bates, H. Herbst, and J. Wright, letters of inability to attend being received from Mr. Shirley Hibberd and other members. The draft schedule prepared at a previous meeting was considered and will be printed and circulated with as little delay as possible. The subject of papers to be read at the conference was also considered, and out of a considerable number proposed the following were selected: "Asparagus in Heavy Soils and its Production in October," by Mr. Shirley Hibberd; "The Food of Vegetables," by Mr. J. Wright; "Improvement in Potatoes During the Past Twenty-five Years," by Mr. A. Dean; "Improvement in Peas During the Last Twenty-five Years," by Mr. T. Laxton; "Winter Salads," by Mr. G. Norman; "Vegetables All the Year Round," indicating the period of use of the different kinds, by Mr. J. Smith. The subjects of the papers rather than their exact titles are here mentioned, and some of the nominated readers have yet to intimate their acceptance of the propositions.

Crystal Palace Rose show.—We are requested by the secretaries of the National Rose

Society to state that in consequence of His Majesty the Shah of Persia (who will be accompanied by their Royal Highnesses the Prince and Princess of Wales) having intimated his wish to visit the metropolitan show of the society on Saturday, July 6, at the Crystal Palace, the exhibition will be held in a tent adjoining the north end of the Palace, from which it will be entered. As His Majesty cannot arrive at the Palace before half-past six, it is hoped that exhibitors will consent to allow their boxes to remain for the inspection of the Royal party. Some inconvenience having been experienced as to private view tickets, they will on this occasion have a piece torn off them at the turnstiles, and the remainder to be given up at the entrance to the tent.

NOTES OF THE WEEK.

Tufted Pansy Violetta.—Dr. Stuart sends us a bunch of flowers of this white, sweetly scented tufted Pansy. It is a pretty variety.

Pimelea decussata in the open air.—This comes to us in charming condition, full of buds and delicate rosy flowers, from the gardens at Saumarez Hall, Guernsey.

Seedling Aquilegias from Chirnside.—We have received a good selection of these from Dr. Stuart, Hillside, Chirnside, N.B. The flowers show rich and beautiful colouring.

Thrift edgings.—We were pleased to see an edging of the common seaside Thrift in full flower in the Syon House Gardens, Isleworth. Mr. Wythes has done well to make a change from turf.

The white English Iris.—This charming flower comes to us from Saumarez Hall, Guernsey. So beautiful in form and colour, this plant should often be seen. It is, perhaps, the finest white flower of its season.

Ozothamnus rosmarinifolius.—Beautiful sprays of this have been sent to us from Saumarez Hall, Guernsey. Such a shrub as this should be in every southern garden. Its twiggy shoots are thickly covered with bloom.

A good white Iris is Mountain of Snow, a variety of the English section, and flowering later than Mont Blanc, another good white kind. It is scarcely pure, however, as there is a very faint bluish shade in the flowers.

Ixia crateroides is a brilliant scarlet flower and very bright just now on a sunny south border in Messrs. Barr and Son's ground, Tooting. The border is well raised and trenched deeply. A flower of such a fine colour as this is useful for cutting.

An effective piece of gardening.—At Syon House, Isleworth, is a row of dark blue Delphiniums with fruit trees as a background. The deep green colour of the leaves brings out the rich blue of the Larkspur flowers most strikingly.

The old Champion of England Pea is still one of the best. It is grown largely by Mr. Wythes, of Syon House Gardens, and the several rows of it show tremendous vigour and free cropping. The growth is tall, the pods large, plentiful, and well filled with juicy, finely flavoured Peas.

English Irises are on the wane, and the Spanish varieties are quite over. Neither section has flowered so well as usual, owing to the unripened condition of the bulbs, but the present weather will well prepare the bulbs for next season. One great point is to lift the bulbs annually; the growth is then stronger and the flowers finer.

Own-root Roses.—These are now flowering well in the garden at Hollywood, Boscombe, the residence of Colonel G. A. Curzon. The cuttings were inserted last October on a south border and wintered well without the least protection. As the soil was light and well drained scarcely one damped off, and they are now making vigorous growth, especially the Hybrid Perpetuals. The Teas also are doing well, and will make good plants for moving in the autumn. One bloom—that of *Violette Bouyer*—is very noticeable, it measuring 17 inches in circumference. F. HAND.

A noble hardy foliage plant at the present season is *Polygonum sachalinense*. It is planted on a rocky bank, where Ferns and shade-loving things delight to grow, at Syon House, and forms a magnificent foreground to trees of various kinds. This *Polygonum* is worth noticing by visitors to the Royal Gardens, Kew. There is a huge clump of it hard by

the *Gunnera scabra* at the foot of the mound near the Cumberland Gate. Such noble and essentially picturesque hardy plants are worth naturalising for their splendid leafage.

Pink Her Majesty.—I have sent you this day a couple of blooms of Pink Her Majesty for your opinion. —F. HOOPER, Bath.

*A large and beautiful ivory-white Pink with fine fragrance.—ED.

The white *Rosa rugosa* is blooming freely now in many places. It is a pure white flower, very free, and, as regards leafage, similar to the type. A large plant of it was in full beauty the other day on the terrace at Gunnersbury House, Acton.

White-flowered Willow Herb (*Epilobium angustifolium*) is less common than the wild, but beautiful type, and not so effective in the garden, neither so tall in growth. The flowers are pure white. Both this and the typical form might be grown together as we see them in the herbaceous ground at Kew.

Lælia purpurata.—One of the best specimens we have seen this season of this *Lælia* was in flower recently at Gunnersbury House. The spikes bore altogether twenty-two flowers, and these of the richest colour, the lip deep purple, and the sepals and petals tinged with pink.

Riverside Windflower (*Anemone rivularis*) is a beautiful flower when seen by a brook or stream, but it will do well in a moist position in the border. It was very pretty a few days ago in Messrs. Barr and Son's ground at Tooting. The flowers are of the clearest white, about the size of a halfpenny, and a contrast to the abundant leafage.

Lilium giganteum.—It goes without saying that this is one of the noblest and stateliest of Lilies. An engraving of it appeared in THE GARDEN, Sept. 22, 1888, and we refer our readers to it if they wish to obtain a good idea of the plant. A fine specimen in a shady moist nook in Messrs. Barr and Son's nursery at Tooting is just throwing up a spike carrying eighteen flowers. The rich green leaves are as ornamental in their way as the pendent flowers.

Canterbury Bells are amongst the gayest flowers of the week. They are used with the best possible effect as pot plants in the conservatory at Syon House, Isleworth, and it would be well if amateurs made more use of them for enriching their green-houses. The seed was sown twelve months ago, and from first to last the plants give very little trouble. The single-flowered types alone should be grown. If there is a monstrosity in the flower way, it is a double Canterbury Bell. It is a sample of how a beautiful flower may be utterly spoilt by doubling.

Tetratheca verticillata is an exceedingly pretty New Holland plant, now in full bloom at Syon House, Isleworth. A plant of this, with its feathery growth brightened by an abundance of delightfully soft blue flowers, is as pretty in its way as *Boronia heterophylla* when covered with its small purplish bells. Mr. Wythes also grows this plant, and *B. megastigma*, *B. elata* and *Bauera rubioides*, the last mentioned being last week in full flower. There is much pleasure derived from a small collection of the best kinds of hard-wooded plants when in vigorous health, as at Syon House. More often than not their condition is the reverse.

The Strawberry season is in full swing, and large quantities are received every morning in Covent Garden. Although no one can complain of a dearth of fruit, there is no question that the flavour generally is exceedingly poor and watery. The weather has been warm, but dewy nights were wanted to give the finishing touches to the fruit in the way of flavour. Some samples we tasted the other day were as insipid and flavourless as a half-ripe Peach, and with scarcely a drop of the rich juice we find in a first-class season. At the meeting of the Royal Horticultural Society on Tuesday several small collections were shown, mostly of large puffy fruits, which have not half the flavour of the medium-sized and small kinds. One of the great aims in fruit culture is to please the eye, but the palate suffers. A big Strawberry is rarely good eating.

The Strawberry crop in Wilts is one of the best I have ever seen. The sunny weather we have lately experienced has ripened the fruit to perfection. We have a bed here of preserving Strawberries that has been planted thirty years. It was about to be destroyed, but it has now been allowed to remain another season, as we have this year

gathered from it a heavy crop such as has rarely been seen before, even when the plants were young. —W. A. COOK, Compton Bassett, Calne.

Mr. F. W. Burbidge.—The senate of the University of Dublin have conferred the degree of Master of Arts on our friend, Mr. F. W. Burbidge, Curator of the College Botanic Gardens at Dublin. This is a rare distinction, and well deserved. We believed at the time of his appointment that Mr. Burbidge was the best man to follow John Bain, and are pleased to know that after long trial the Trinity College authorities think so too.

Iris Monnieri is one of the finest of the Flags blooming in Messrs. Barr and Son's Tooting Nursery, and it only requires a few plants of it to make a show of colour. The flowers are as yellow as those of *I. juncea*, bold in all their parts, and carried on a spike that shoots up in the style of *ochroleuca*. We should like to see such an Iris as Monnieri by the side of a stream or pond, where amongst Reeds, Rushes, and other waterside plants its flowers would be remarkably brilliant. It is a Cretan species.

Burning Fraxinella.—The difficulty of succeeding with this experiment is chiefly due to not trying it in the right way. Formerly I have held a lighted match amongst the flowers, wrongly supposing that inflammable gas was emitted by these. To-night (June 24), with a still air and a cloudy sky, I laid a lighted match against the stalks of a large plant just where the flowers begin. One after another as I applied the light, each of them flared up, the flame running to the top of the flower-stalk in about a second. —C. WOLLEY DOD, Edge Hall.

Tufted Pansies from Scotland.—I have sent you some more hybrid tufted Pansies crossed with cornuta, as you will see by their prominent horn. One (Snowflake) is quite new. The others, except *Violetta*, are what I have grown for years; some were certificated. I also send a new white form of *Polemonium Richardsoni*. I shall send a better specimen later on. —C. STUART.

** Pansies charming and delicate in colour, particularly the ones not certificated. We hope Dr. Stuart will go on with his work in this direction, and raise many beautiful things like little *Violetta*, which we grow and like well. —ED.

Strawberry Noble.—I have had four years experience of this Strawberry, and regard it as one of the most desirable sorts in cultivation for growers of all classes. In the spring we forced 200 plants of it in 6-inch pots with satisfactory results, and at the present time we have some hundreds of plants of it fruiting in the open quarters. From these we picked ripe fruits five days before Black Prince matured, and they are so handsome as to charm all who see them. It is perfectly distinct from all other varieties, and I am quite satisfied with it. I enclose you a fruiting plant drawn from the ordinary rows. The plant sent is only nine months old, having been planted as a runner the middle of last September. —J. MUIR, Margam Park, Port Talbot.

** Finely grown specimens and handsome fruit, but for us the question of questions in all these matters is the flavour, and in that we think them deficient, but to be fairly judged they ought to be tasted on the plant. Mr. Laxton will, we hope, turn his attention to raising Strawberries with fine flavour. —ED.

Gunnersbury House, Acton.—This, until lately the residence of Mr. H. J. Atkinson, M.P., has been recently sold by him to the Messrs. Rothschild, and everything pertaining to the garden disposed of by auction. Although a small place compared with the noble park adjoining, Gunnersbury House has a name for good gardening that is not confined to the district surrounding it. Mr. Hudson has, by his successful culture of plants, especially of the fine-foliaged class, made it rank with those five times the size. Last week it looked as bright and as pretty as we ever remember it. Masses of Noisette Roses were sending their shoots of flowers unhindered over trellis and post, and a charming bit of planting was a Honeysuckle in full flower covering a Moss-clad pillar at the top of the steps in the flower garden. It is this kind of thing

that charms everyone when it is associated with gardening of the highest class, such as we have always found at Gunnersbury House. In every department this small place has given rich returns, the result of careful oversight and a knowledge of the best things to grow, with an eye also for garden effects, not of garish colours, but of judicious bits of planting and association we should like to see more of.

The Mexican Mock Orange (*Philadelphus mexicanus*).—Two years ago I sent you a spray of *Philadelphus mexicanus*, which you forwarded to Kew for verification. At the same time you expressed a wish to have a specimen another season. Last year it did not flower well, but this year it is in great perfection, and will, I hope, answer your purpose. I find it sufficiently hardy to bear the winter cold against a wall in Devonshire, but I should doubt its hardiness in colder counties. —T. H. ARCHER-HIND, South Devon.

White tufted Pansies.—We have received a bunch of a variety of tufted Pansy from Mr. J. Simpson, Wortley Hall Gardens, Sheffield. It is a bright and vigorous kind which we think will please. It is worth a dozen of the striped sorts, even those with the best points. The flower is clear white, except a rich orange central eye of good size, and excellent shape. It should make a good garden flower for cutting. Mr. Simpson also sends flowers of Mrs. Kinnear of a soft yellow shade, and illustrated by a coloured plate in THE GARDEN of April 30, 1887; Countess of Hopetoun, and Dr. John Clarke, which are of a similar shade to Mrs. Kinnear.

A pretty Everlasting Pea.—I send you some flowers of an Everlasting Pea cut from a large plant growing in a cottage garden at Combs, near Stowmarket. I was informed that it had been there nearly thirty years, but nothing was known of its origin. It will probably have lost some of its distinct and novel shade of red by the time it reaches you, as it was carried a long way in bright sunshine. I shall be glad to know the name of the variety. —A. H.

** Your Pea is *Lathyrus rotundifolius* Drummondii. —ED.

Tea Rose Souvenir de S. A. Prince.—A gathering of flowers of this new Tea Rose comes from Mr. G. Prince, of Oxford, who was fortunate in fixing so beautiful a sport from such a Rose as *Souvenir d'un Ami*. The flower has the delicacy and beauty of that of *Niphetos*, to which it may be compared, as it is just as white, but a likeness to the parent may be traced in the shape and substance of the bloom as well as in the leaves of the plant itself. Such an addition as this new Rose will be welcomed by those who require flowers for cutting early in the season. We have seen it exhibited in the finest condition more than once.

Mr. A. Barker.—Seeing in THE GARDEN the announcement of the death of Mr. Arthur Barker, I cannot help making a short comment, having known him some years ago. More especially have I been interested in all that he has written in THE GARDEN. The soundness of his writings is indisputable; they are a model which some of us older men might well follow. Well may Mr. Coleman call him an excellent man and gardener. —T. SMITH, Pinnerworth Hall Gardens, St. Ives.

Onions unhealthy (J. C.).—Kindly send some of the bulbs.

Names of plants.—J. H. Judge.—*Iris spuria* var. *desertorum*.—A. N.—Forms of *Lathyrus latifolius*.—T. Ryd.—1, *Cypripedium barbatum*; 2, *C. superbiolum*.—F. Hand.—1, *Ficus repens*; 2, St. John's Wort (*Hypericum calycinum*).—F. Dooding.—1, *Cattleya Mossiae*; 2, *Oncidium crispum*; 3, form of *Epidendrum Randi*; 4, *E. cochlearatum*.—Spencer H. Bickham.—1, *Vicia Orobus*; 2, form of *Aster alpinus*; 3, *Galega orientalis*; 4, *Veronica austriaca pinnatifida*.—A. H. Yewson.—Forms of *Orchis maculata*. W. M.—Red flower, *Escallonia macrantha*; white, *Doutzia crenata*.—H. D.—A variety of *Gongora maculata*.—Subscriptor.—Forms of Spanish Iris.—A. B. Cox.—*Cattleya Mendellii*, poor form.—Tallack.—*Veronica Tenarium* var. *latifolia*.—Moses, Bardsley.—*Fatsia japonica*.—M. A. P.—*Harsh nere*.—*Odontospermum spinosum*.—J. W.—1, *Weigela rosea* var.; 2, *Mentha gentilis* variegata.

WOODS & FORESTS.

SOIL FOR TREES.

THIS is a point of much importance, and a great deal has yet to be learned in this respect, for it is only by a proper selection of soil, site, and exposure that we may expect tree planting to be successful. I have no hesitation in saying that many failures in planting throughout the country can be traced to errors of judgment in the selection of soils and exposures, and this applies in particular to such kinds as are not altogether hardy and liable to be damaged by late spring frosts. For example, it is but too common a practice when planting some of the tender Conifers to select a warm sheltered spot for the site, imagining that such will be in keeping with the requirements of the plant, but in the great majority of cases I have found such practice to be wrong. I have repeatedly removed trees that were making very little progress in such places to a higher and more exposed situation with the best results as regards the health and growth of the tree. *Picea Webbiana* and *P. Pindrow*, for instance, when planted on soft rich soil at a low elevation very seldom ripen their young wood properly in autumn, and as they are apt to start into growth in such places early in spring, they are liable to be cut down and damaged to a serious extent by spring frosts. The proper site for these and other trees of the same type that are not altogether hardy is a north aspect, as then they are less liable to start into early growth, and, consequently, are not injured by frost.

Another point of importance in the successful culture of such trees is that of soil. Deep loamy soil, as well as soft bog, should be avoided, as the wood of the trees produced on such a soil is generally of a soft nature and deficient in firmness. Some trees appear to be capricious in their wants. *P. Nordmanniana*, which is a very hardy tree, from the Crimean Mountains, appears not to be altogether at home in this country when planted at an elevation above sea-level of 926 feet. The soil is of a loose, open, gravelly texture, resting upon water-worn pebbles and shingle. On the same soil and site the common Silver Fir (*P. pectinata*) does not thrive, and never will attain a large size. I attribute failure here in a great measure to the poverty of the soil. On the same ground, *P. nobilis* attains a fair average size, seems in perfect health, and is very ornamental. In the same planting the woolly-fruited Silver Fir (*P. lasiocarpa*) is making rapid progress, appears in perfect health, and is highly ornamental. From the above it appears that *P. nobilis* and *P. lasiocarpa* will grow in a drier and poorer soil than *P. Nordmanniana* and *P. pectinata*. With regard to *P. Nordmanniana*, the largest and finest specimens which I have ever seen are growing on thoroughly decomposed Moss, mixed with a small quantity of soil or clay at the places where the trees were planted. When planting this tree on poor thin soil, I have found it very beneficial to mix a small quantity of bog earth with the staple at the spot where the trees were planted.

J. B. WEBSTER.

Durability of the wood of the Lebanon Cedar.—With the numerous fine specimens of the Lebanon Cedar that are to be seen all over the grounds at Holwood, it is not at all remarkable that opportunities presented themselves of testing the value of the timber as grown in this country. Twenty-three years ago a large tree was blown over on the lawn at Holwood House, and the timber, when converted, used in making a large tank for

sheep-washing. In the improvements connected with a certain part of the estate, the tank was removed and placed in a new site for fish-breeding purposes. Here, however, it is well to state that the tank was not placed beneath the ground level, only for sufficient depth to cover the bottom with puddle so as to minimise leakage. I examined the wood some days ago and found the sides of the tank perfectly sound, only the bottom, which was set in clay, having partially decayed, the pleasing aroma, which is so easily detected in freshly cut wood, being distinctly noticeable in that of the tank when a chip was cut off. Some of the boards were 26 inches wide, thus showing that the tree from which they were cut must have been one of rather big dimensions. Few trees, I may state, of British growth and of a resinous nature could better have stood the rather trying test of wet and dry alternately in a more commendable way than the Lebanon Cedar of which I write. How long it will still remain good I cannot say, but, judging from present appearance, linked with the nearly a quarter of a century's test of the past, leads one to suppose that 100 years will make but little difference in the texture.—A. D. WEBSTER.

THE CAROLINA HEMLOCK.

THE fact that a coniferous tree of respectable size and of considerable multiplication could escape notice for nearly a century in a region so carefully explored as the hilly portions of North and South Carolina is an example of the difficulty of learning thoroughly the trees of a country, and of the danger of being deceived about them—a danger which even the most careful and experienced observer of forests cannot always avoid. It was not suspected until 1850, when Professor L. R. Gibbes noticed the difference in the Carolina trees, that there were two very distinct species of Hemlock growing in Eastern America. William Bartram, who, three-quarters of a century before, explored the very region where the second species abounds, the two Michaux, father and son, as sharp-eyed tree-lookers, or, to use the more picturesque expression of the West, "tree-sharps," as our woods have ever seen, who crossed and recrossed the region a dozen times; and much later, Dr. M. A. Curtis, whose knowledge of the southern mountain flora has never been equalled—all failed to notice, or, if they noticed, to record the distinct, compact habit, the darker green foliage and the larger cones, with broad spreading scales of the Carolina Hemlock.

The Carolina Hemlock is a small tree, rarely attaining a height of more than 60 feet. It prefers the rocky banks of streams, at elevations of from 2500 or 3000 feet, although it is sometimes found on rocky slopes fully 1000 feet higher. It is never gregarious, however, and it is rare to find more than half-a-dozen trees growing together. The two Hemlocks may be seen sometimes growing side by side with their branches intermingled, when their distinctive characteristics are made very apparent. No intermediate or connecting form has yet been noticed. The territory through which this tree is distributed is not a large one, and consists of that portion of the Blue Ridge which lies in Transylvania, Jackson, and Macon Counties, North Carolina, and in the adjacent parts of South Carolina, at least as far as Caesar's Head, an outlying spur in Greenville County, South Carolina.—*Garden and Forest*.

Felling trees by electricity.—Hitherto machines for felling trees have been driven by steam power, but this is often inconvenient, especially in thick woods, because the heavy machinery, including a boiler, must be placed near the tree to be cut. These machines, therefore, can only be used on the borders of forests or in open spaces readily reached by good roads. The *London Times*, however, reports that electric power has been adopted in the Galician forests. Usually in such machines the trunk is sawn, but in this case it is drilled, with a series of holes close together. When the wood is of a soft nature the drill has a sweep-

ing motion, and cuts into the trunk by means of cutting edges on its sides. The drill is actuated by an electric motor mounted on a carriage, which is comparatively light, and which can be brought up close to the tree and fastened to it. The motor is capable of turning around its vertical axis, and the drill is geared to it in such a manner that it can turn through an arc of a circle and make a sweeping cut into the trunk. The first cut made, the drill is advanced a few inches and another section of the wood is removed in the same way until the trunk is half severed. It is then clamped, to keep the cut from closing, and the operation continued until it would be unsafe to go on. The remainder is finished by a hand-saw or an axe. The current is conveyed to the motor by insulated wires brought through the forest from a generator placed at some convenient site, which may be at a distance from the scene of operations. The generator may be driven by steam or water power, and does not need to be transported from place to place.

History of the Corsican Pine.—The Corsican Pine is a native of many parts of the south of Europe, Spain, the Morea, Mount Etna, the coasts of France, and also the Caucasus, and parts of Asia Minor, but grows to the largest size in Corsica, where it is often found from 120 feet to 140 feet high, attaining its full size at the age of seventy or eighty years, and being used as good timber at the age of thirty. The first planted in England is said to have been brought in 1759, and is probably the very tree mentioned already as growing at Kew, which is now therefore about 130 years old. Loudon figures this tree as it was in 1838, when it was about 85 feet high. It was then branched to within a few feet of the ground. Selby, whose "Forest Trees" was published four years later, speaks of the same tree as being 90 feet high. It is now, perhaps, 120 feet high, and the trunk is bare to within a few feet of the top, and as straight as a ship's mast. The next tree of which the progress is recorded was planted in the Jardin des Plantes at Paris in 1774. Loudon speaks of this tree as being 80 feet high in 1838. It would be interesting to know whether it is still standing. About the time that the latter tree was planted the quality of the timber, which had long been used in the French navy, became the subject of investigation. It was left uncertain whether the timber of Scotch Fir from the Baltic or Corsican Pine from Corsica was the better, but it was recommended by the French Government that the tree should be cultivated in France. However, the cones were so difficult to obtain that those of *P. maritima* (Pinaster), a closely allied species, were fraudulently sold as those of *P. Laricio*. In 1822, owing to the continued difficulty of obtaining genuine seeds, many thousand Corsican Pines were grafted on Scotch Fir in France, and planted in the Royal forests.

Abies Albertiana.—This species, which is allied to the Hemlock Spruce (*A. canadensis*), is one of the most graceful of the tribe, particularly if growing on soils suitable to it, such as a peaty loam. Some of the original plants sent home were planted in Scotland, and now are admirable specimens; a peaty soil seems to be the most suitable for their growth. Notwithstanding, however, that this *Abies* is allied to *A. canadensis*, the latter has not the constitution of the *A. Albertiana* when seen growing side by side in situations where the *A. Albertiana* succeeds well. *A. Albertiana*, when growing in different soils and degrees of elevation, I find varies very much in habit of growth.

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